OBO PRO.2 INC.

ACOUSTIC COMPONENTS DIV.
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www.obopro2.com

Acoustic Components Manufacturer & Export

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Design and specifications subject to change without notice.

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OBO PRO.2 INC. ACOUSTIC COMPONENTS DIV.

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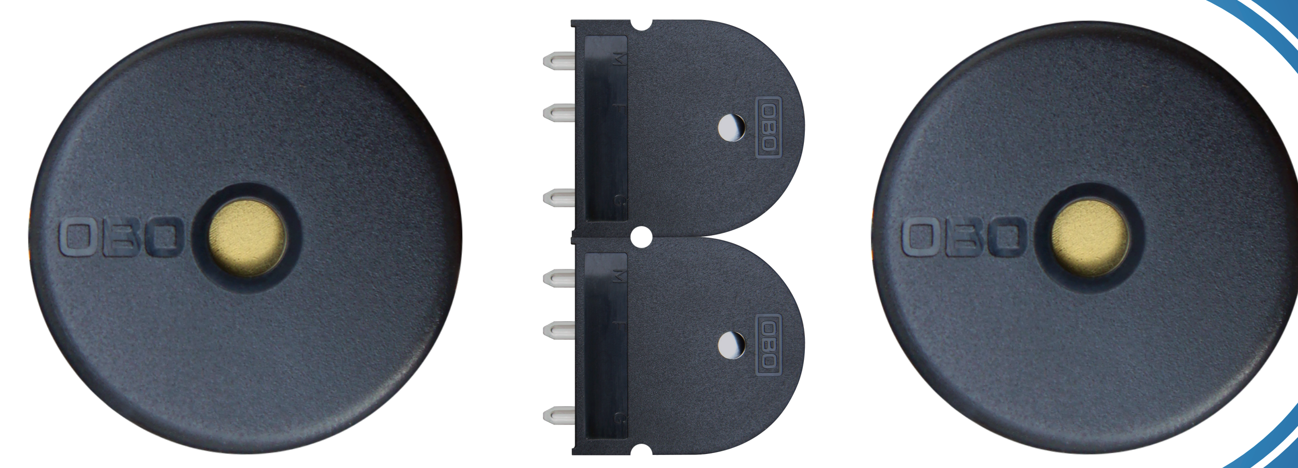
OBO

OBO PRO.2 INC.



NO.:CN08/31162 ISO 9001 certified
NO.:CN08/31440 ISO 14001 certified
NO.:CN08/31760 TS 16949 certified

Professional acoustic components manufacturer with ISO 9001/14001/TS16949 certified

Company Overview

ABOUT OBO PRO.2 INC.

啓弘股份有限公司　公 司 簡 介

我們是專業電聲零件及成品研發製造廠商。在台灣和大陸，我們擁有堅強的研發團隊以及一流的設備來生產製造優良的產品。 我們以最高品質的產品及最高效率的服務，隨時滿足您市場上的任何需求。 在啓弘，我們強調的是客戶至上以及100%品質保證。

我們堅決相信在這些嚴格的標準之下，可在全球高科技產品市場上的領先地位絕不輕易動搖。基於這些條件之下，啓弘台灣總公司還有引以為傲的高效率經營團隊。公司所有同仁均能在自己的崗位上竭盡所能，各司其職為公司創造最大營運績效。

Profile

We are a professional manufacturer and designer of acoustic components and acoustic products. We have a strong R&D department and product lines based in our Taiwan and China factories. Our high-quality products and efficient service will be a sure hit with your business market. In OBO PRO.2 INC., we put emphasis on customer service and product quality. We strongly believe by maintaining these standards, our position as a leading manufacture of high-tech goods in the global market is unshakeable. Apart from these qualities, we boast an efficient and effective office management. All our current employees have great potentials and skills to take part in the development and expansion of the company.

經營理念

1. 研發:技術提升、提升設備、利潤共享
2. 品質:參與合作、品質改善、顧客滿意
3. 服務:合理價格、準時交貨、即時服務

Business Belief

1. R & D:Upgrading Technology、Creating the Requirement、Sharing the Profit
2. Quality:Mutual Cooperation、Quality Upgrade、Customer Satisfaction
3. Service:Reasonable Price、Delivery On Time、Service In Time

企業概況

創辦日期：1986年10月22日

資本額： NTD/ 235,375,000.00

員工人數：490人

總公司：台灣．桃園

主要產地：中國廣東省東莞市

Company Overview

Foundation : Oct. 22,1986

Capital : USD/ 7 Million

Employee : 490 persons

Headquarter : Taoyuan City, Taiwan

Manufactured : Dongguan, China.

品質政策

為人 【情、理、法】

處事 【法、理、情】

我們承諾做到持續：

- 為人有情有義，追求真實善良
- 處事講求方法， 認真改善到完美
- 產品創新永續
- 秉持政策透過全員參與，持續改善品質

Quality Policy

We guarantee to commit continuous as listing:

- All employees full sincere and righteousness to seek truthfulness and honesty.
- The behaving of performance improves to customer demands overpass till perfectly.
- Keep researching and creating up-to-date products.
- Conserving policy and participate in ultimate resource to improve quality lasting.

願景

致力音影領域、提升精神境界

Vision

Dedicated to the field of sight and sound to enhance spiritual well-being.

COMPANY PROFILE

Professional electronic products manufacturer with ISO 9001 certified

Factory Overview

ABOUT OBO PRO.2 INC.

啓弘股份有限公司　工 廠 介 紹

工廠介紹

廠房面積 ： 20,000 平方公尺

廠房位址 ： 中國廣東省東莞市謝崗鎮第五工業區

設廠時間 ： 西元 1996 年

Profile

Total area of : 20000 square meters

Located in : 5th industry zone, Xie-gang town, Dongguan City, Guangdong, China 511744 .

Built in 1996

廠房員工數

線上人員 ： 324人

品管人員 ： 27人

開發人員 ： 24人

廠務人員 ： 85人

Staff Details

Production Staff: 324

QC Staff: 27

R & D Staff: 24

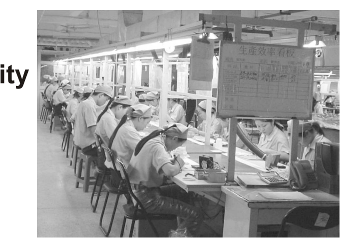
Factory Operation Staff: 85

月產量

500萬/月

Monthly Production Capability

5,000,000 pieces/ month



廠址利基

位處於主要工業區，交通便利，離東莞火車站之車程15鐘，90 分鐘可抵香港。自香港機場搭直通巴士約3小時(可在樟木頭轉 抵本廠)。

Site Advantages/ Description

We are located in a major industries center, 20 minutes from rail links. By rail, it is only 90 minutes to Hong Kong. By direct bus from HK airport to our factory takes about 3 hours.

生產設備及流程

生產設備主要來自台灣、日本、韓國、丹麥、瑞士，共有20條生產組裝線(50%為自動，50%為半自動)。

Machinery/ Production Process

Our production equipment is sourced both locally (Taiwan) and from abroad (Japan, Korea, Denmark, Switzerland). The production process is 50% manual, 50% semi-automated, and it has 20 production / assembly lines.

品質認證

ISO 9001:2000

ISO 14000

TS 16949

Standards & Approvals

ISO 9001:2000

ISO 14000

TS 16949

FACTORY TOUR

Professional electronic products manufacturer with ISO 9001 certified

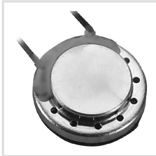
OBO
OBO PRO.2 INC.

ACOUSTIC COMPONENTS DIV.

Index 目錄索引







OBO
OBO PRO.2 INC.
ACOUSTIC COMPONENTS DIV.

Index 目錄索引




Piezoelectric Ceramic element / Piezoelectric Buzzer

蜂鳴片、壓電式蜂鳴器

APPLICATIONS

- Medical equipments
- Office equipments
- Automatic controlling devices
- Home appliances equipments
- Security alarms

PART NUMBERING SYSTEM
蜂鳴片產品編號原則

PART NUMBERING SYSTEM

OBO-TE 27 3 44 -18

- -18: **Material identification**
- 44: **Appropriate oscillating frequency, unit : 100Hz**
  - ex. 700Hz numbering by 07
  - 4,400Hz numbering by 44
- 3: **For electrode driving**
  - 2 : without feedback electrode (External drive type)
  - 3 : with feedback electrode (Self drive type)
- 27: **Diameter of of plate**
- TE: **Special requirement**
  - TE : for regular piezo ceramic element only
  - TW : for piezo ceramic soldering with lead wires
  - SE : element for speaker application
  - SW : Speaker element soldering with lead wires
  - RE : element for Telephone Receiver application
  - RW : Receiver element solering with lead wires

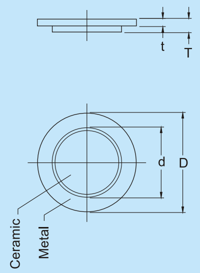
蜂鳴片產品編號原則

OBO-TE 27 3 44 -18

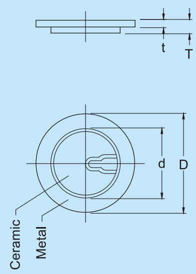
- -18: 振動板材料類別
- 44: 表示共振頻率：單位100Hz
  - 例：700Hz以07表示
  - 1,200Hz以12表示
  - 4,400Hz以44表示
- 3: 表示外部驅動式：2（二接點）
  - 表示自激式：3（三接點）
- 27: 表示金屬片外徑，單位m/m（四捨五入）
- TE: 特殊類別
  - TE ：表示蜂鳴器用蜂鳴片
  - TW : 表示蜂鳴片焊線
  - SE ：表示喇叭用途之蜂鳴片（含高音喇叭）
  - SW : SE焊線
  - RE ：表示受話器用蜂鳴片
  - RW : RE焊線

PIEZOELECTRIC CERAMIC ELEMENT

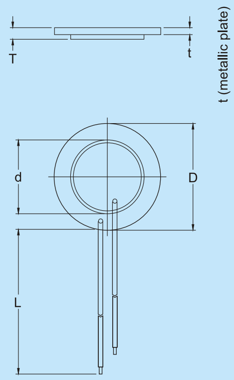
SPECIFICATION / PRODUCT INDEX
蜂 鳴 片 應 用 線 路 、 產 品 索 引

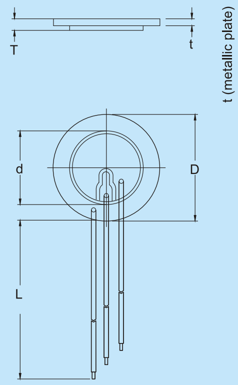


External Drive Type



Self Drive Type
(Feedback Electrode)





1. Input Voltage : operating AC voltage only.
2. It's available to supply the piezo element with lead wires. Please specify the P/N by "TW" instead of "TE" and the wire length you required.
   ex. OBO-TW15230-16 w/lead wires 85±5m/m long. (# Dia. 11-12mm elements are not available with lead wire.)

PIEZOELECTRIC CERAMIC ELEMENT

MODEL NO.	RESONANT FREQUENCY (KHZ)	RESONANT FREQUENCY (max. Ω)	CAPACITANCE (PF)	DIMENSIONS(mm)				PLATE
				D	d	T	t	
OBO-TE15241-16	4.1 +0.6/-0	500	21,000±30%	15.00	11.30	0.17	0.10	Brass
OBO-TE15260-16	6.0±0.6	500	14,000±30%	15.00	11.30	0.22	0.10	Brass
OBO-TE18236-16	3.6±0.5	1,000	14,000±30%	18.00	11.30	0.23	0.10	Brass
OBO-TE20239-16	3.9±0.5	400	25,000±30%	20.00	15.00	0.22	0.10	Brass
OBO-TE20265-16	6.5±0.5	350	12,000±30%	20.00	14.80	0.40	0.20	Brass
OBO-TE21222-16	2.2±0.5	500	38,000±30%	21.00	14.80	0.18	0.10	Brass
OBO-TE21334-16	3.4±0.5	500	18,000±30%	21.00	14.80	0.22	0.10	Brass
OBO-TE27226-16	2.6±0.3	300	45,000±30%	27.00	19.80	0.28	0.15	Brass
OBO-TE27234-16	3.4±0.5	400	24,000±30%	27.00	19.80	0.40	0.20	Brass
OBO-TE27241-16	4.1±0.5	300	20,000±30%	27.00	19.80	0.45	0.22	Brass
OBO-TE27326-16	2.6±0.4	400	33,000±30%	27.00	19.80	0.32	0.20	Brass
OBO-TE27335-16	3.5±0.4	400	19,000±30%	27.00	19.80	0.42	0.20	Brass
OBO-TE27340-16	4.0±0.5	500	17,000±30%	27.00	19.80	0.48	0.25	Brass
OBO-TE31213-26	1.3±0.3	500	47,000±30%	31.00	19.80	0.22	0.10	Ni-alloy
OBO-TE31216-16	1.6±0.3	1,000	40,000±30%	31.00	19.80	0.22	0.10	Brass
OBO-TE32211-16	1.1±0.3	500	47,000±30%	32.00	19.80	0.22	0.10	Ni-alloy
OBO-TE35211-16	1.1±0.5	1,200	72,000±30%	35.00	24.80	0.23	0.10	Brass
OBO-TE35229-16	2.9±0.4	300	30,000±30%	35.00	24.80	0.58	0.30	Brass
OBO-TE35329-46	2.9±0.4	350	26,000±30%	35.00	24.80	0.58	0.30	Brass
OBO-TE35334-36	3.4±0.5	250	35,000±30%	35.00	24.80	0.58	0.40	SUS
OBO-TE35339-46	2.9±0.5	200	25,000±30%	35.00	25.00	0.50	0.25	Tin
OBO-TE50228-16	2.8±0.5	400	35,000±30%	50.00	25.00	0.42	0.20	Brass

PART NUMBERING SYSTEM
蜂 鳴 器 產 品 編 號 原 則

PART NUMBERING SYSTEM

OBO-24　3　38　P　A

- A: **suffix for special leads length, numbering by A, B, C....**
- P: **For lead type**
  - P : lead pin type
  - W : lead wire type
  - ST : SMD type
- 38: **Appropriate oscillating frequency, unit : 100Hz**
  - ex. 3,800Hz numbering by 38
- 3: **For electrode driving**
  - 2 : for External Drive type (2 lead pins or wires)
  - 3 : for Self Drive type (3 lead pins or wires)
  - C or D or P : for Drive Circuit Built-In type
- 24: **Diameter of plastic housing**

蜂 鳴 器 產 品 編 號 原 則

OBO-24　3　38　P　A

- A: 表示同機種不同PIN長
  - 例：OBO-24338PA所用的PIN為P016
  - 而OBO-24338PB所用的PIN為P018
- P: 表使用類別
  - P表PIN TYPE
  - W表WIRE TYPE
  - ST表SMD TYPE
- 38: 表工作頻率，單位為KHz，取小數點一位
  - 例：38即為3.8KHz
- 3: 表成品類別
  - 2表外部驅動式
  - 3表自激式
  - C、D、P表內含驅動線路式
  - B表CONTINUOUS SINGLE+PULSE TONE
  - C表CONTINUOUS SINGLE TONE
  - D表DUAL TONE
  - P表PULSE TONE
- 24: 表塑膠殼支圓周外徑（不取異形處，如PIN處）
  - 若為四成形，則取其最大邊長，單位m/m，小數點直接進位
  - 例：外徑若為22.4，則取為23

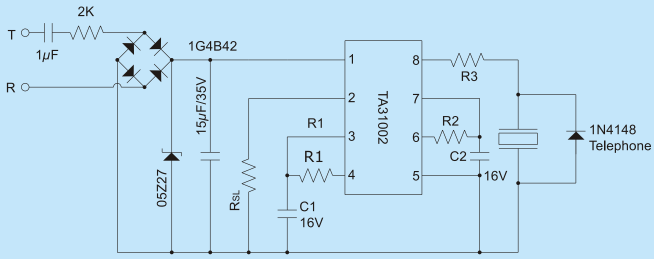
PRODUCT INDEX
壓電式蜂鳴器產品索引

PIEZOELECTRIC BUZZER

PIEZOELECTRIC BUZZER

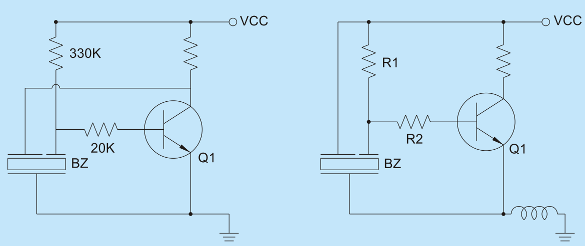
RECOMMENDED DRIVE CIRCUIT FOR TELEPHONE RINGER SELF-OSCILLATION TYPE. EXTERNAL DRIVE TYPE
壓電式蜂鳴器應用線路

(1) Telephone Ringer Type（電話鈴產品）



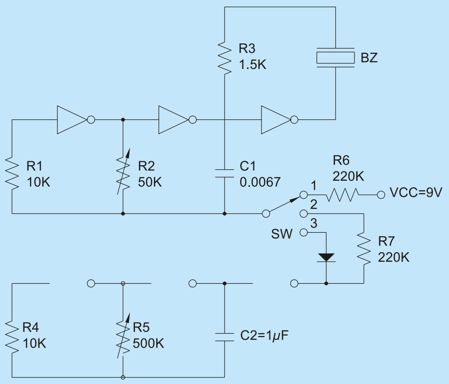
R1=165K RSL=6.8K
R2=100K R2 =100K
R3=560 C2 =0.0068μF

(2) Self-Oscillation Circuit (Tr-Type)（自激式產品）

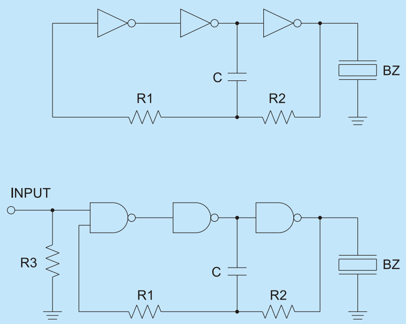


(3) External-Drive Circuits Type（外部驅動產品）

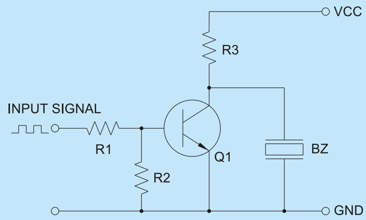
IC Oscillation Circuit



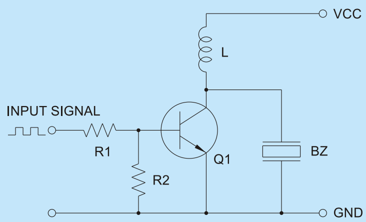
IC Oscillation Circuit



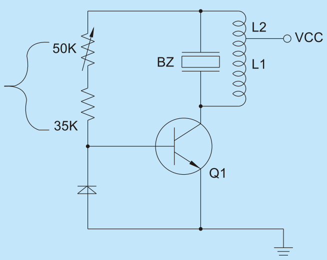
Load Resistance Type



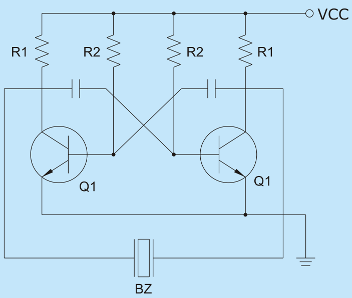
Load Resistance Type



Blocking Oscillation Type



Multi-Vibrator Type



PIEZOELECTRIC RECEIVER FOR TELEPHONE
壓 電 受 話 器

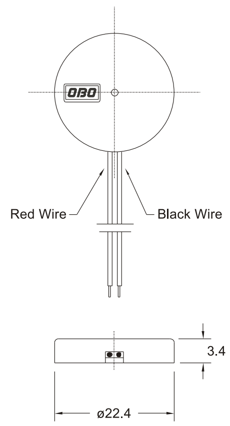
FEATURES 特 點

• Emit a clear penetrating sound	清晰而透澈的聲音
• Low power consumption	低耗電流
• Can be driven directly by ICs	可直接由IC驅動
• Extremely thin and light	薄而輕
• Low frequency and multi-frequency capability	低頻率且寬頻率功能
• Speaker & microphone capability	具喇叭及麥克風之性能
• No EMI / RFI	無電磁及射頻的功能

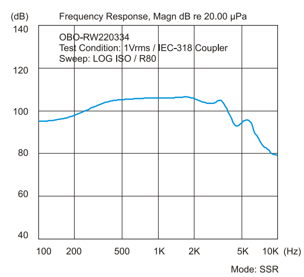
OBO-RW220334

FREQUENCY RANGE	頻率範圍	300Hz to 3,400Hz
SOUND PRESSURE LEVEL	輸出音壓	108±3dB (1Vrms, 1KHz by IEC-318 Coupler)
IMPEDANCE	輸出阻抗	2.0KΩ ±30% (at 1KHz)
ALLOWABLE INPUT VOLTAGE	承受電壓	5Vrms max.
CAPACITANCE	靜電容量	90,000pF ± 30% (at 120Hz)
CASE MATERIAL	塑膠規格	ABS (UL 94HB)
LEAD WIRE	導線規格	UL1571 AWG32 85mm ± 5.0mm
OPERATING TEMP. RANGE	操作溫度	-20˚C to +60˚C
STORAGE TEMP. RANGE	儲存溫度	-30˚C to +70˚C
WEIGHT	重　　量	1.3gms

Dimensions (Unit: mm ± 0.5)



Sound Pressure Level vs. Frequency



OBO PRO.2 INC.

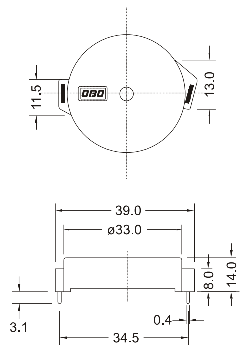
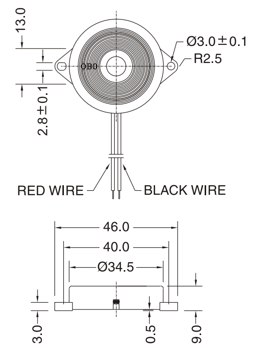
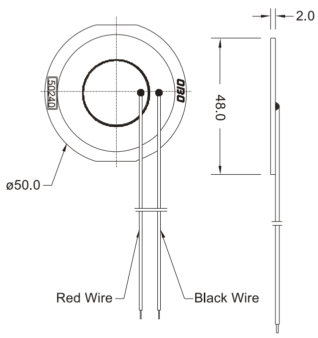
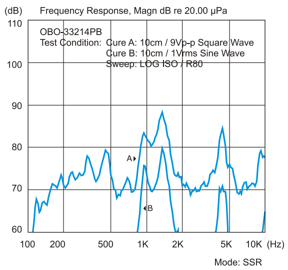
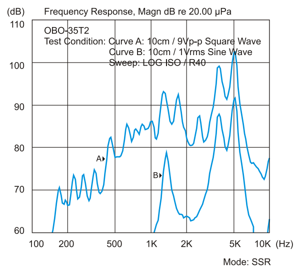
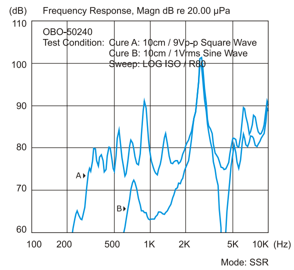
PIEZOELECTRIC BUZZER

TELEPHONE RINGER
電 話 鈴

壓電式蜂鳴器 Piezoelectric Buzzer

FEATURES 特 點

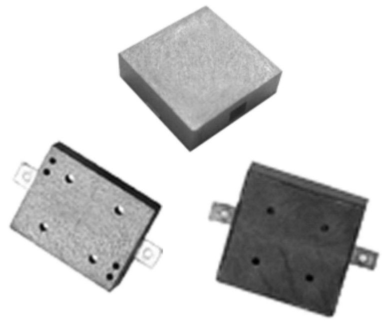
FEATURES	特點
• Emit a clear penetrating sound	清晰而透澈的聲音
• Low power consumption	低耗電流
• Can be driven directly by ICs	可直接由IC驅動
• Extremely thin and light	薄且輕
• Low frequency and multi-frequency capability	低頻率且多頻率功能
• No EMI / RFI	無電磁及射頻的干擾

	OBO-33214PB	OBO-35T2	OBO-50240
SOUND PRESSURE LEVEL 輸出音壓	85dB min. at 1.4KHz / 9Vp-p Square Wave / 10cm 75dB min. at 1.4KHz / 1Vrms Sine Wave / 10cm	80dB min. at 1.2KHz / 9Vp-p Square Ware / 10cm 70dB min. at 1.2KHz / 1Vrms Sine Wave / 10cm	80dB min. at 700Hz / 9Vp-p Square Wave / 10cm 70dB min. at 700Hz / 3Vrms Sine Wave / 10cm
CAPACITANCE 靜電容量	40,000pF ± 30% at 120Hz	47,000pF ± 30% at 120Hz	60,000pF ± 30% at 120Hz
ALLOWABLE INPUT VOLTAGE 承受電壓	30Vp-p max.	40Vp-p max.	30Vp-p max.
CURRENT CONSUMPTION 消耗電流	3mA max. at 1.4KHz / 9Vp-p Square Wave	3mA max. at 1.2KHz / 9Vp-p Square Wave	4mA max. at 700Hz / 9Vp-p Square Wave
CASE MATERIAL 塑膠規格	PC (UL94V-2)	ABS (UL 94HB)	ABS (UL 94HB)
LEAD WIRE 導線規格		UL1095 AWG28 110mm±5.0mm	UL1095 AWG28 135mm ± 5.0mm
LEAD PIN MATERIAL 導針規格	Phosphor Bronze		
OPERATING TEMP. RANGE 操作溫度	-20˚C to +70˚C	-20˚C to +60˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE 儲存溫度	-40˚C to +85˚C	-30˚C to +70˚C	-30˚C to +70˚C
WEIGHT 重　量	5.3gms	5.3gms	3.5gms
Dimensions (Unit: mm ± 0.5)			
Sound Pressure Level vs. Frequency			

OBO
OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

SMD EXTERNAL DRIVE TYPE
S M D 外 部 驅 動 式

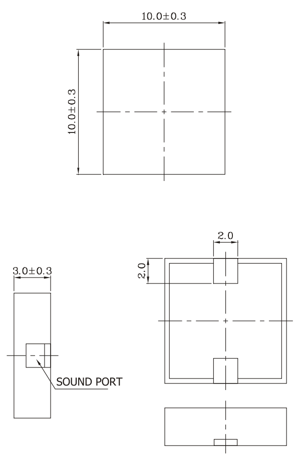


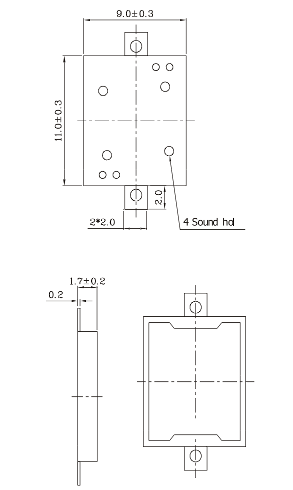
APPLICATIONS 應 用 產 品

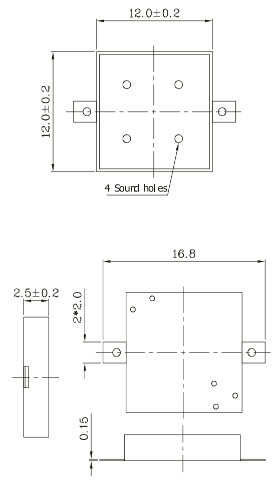
• Controller Device	控制器
• Home appliances	家電用品
(microwaves, ovens, refrigerators, etc.)	（微波爐、電暖爐、冰箱等）
• Communication equipments	通訊設備
• Computer peripherals and office equipments	電腦周邊零組件，辦公室設備
• Instruments, etc.	儀器設備

		OBO-10252SA	OBO-11241SB	OBO-12241SA
SOUND PRESSURE LEVEL	輸出音壓	70dB min. at 5.2KHz /5Vp-p Square Ware / 10cm	75dB min. at 4.1KHz / 5Vp-p Square Ware / 10cm	78dB min. at 4.1KHz / 9Vp-p Square Ware / 10cm
CAPACITANCE	靜電容量	12,000pF ± 30% at 120Hz	12,000pF ± 30% at 120Hz	16,000pF ± 30% at 120Hz
ALLOWABLE INPUT VOLTAGE	承受電壓	25Vp-p max.	20Vp-p max.	25Vp-p max.
CURRENT CONSUMPTION	消耗電流	3mA max. at 5.2KHz / 5Vp-p Square Wave	3mA max. at 4.1KHz / 5Vp-p Square Wave	3mA max. at 4.1KHz / 9Vp-p Square Wave
CASE MATERIAL	塑膠規格	LCP (BLACK)	LCP (BLACK)	LCP (BLACK)
LEAD PIN MATERIAL	導針規格	TIN PLATED BRASS (Sn)	TIN PLATED BRASS (Sn)	TIN PLATED BRASS (Sn)
OPERATING TEMP. RANGE	操作溫度	-20℃ to +70℃	-20℃ to +70℃	-25℃ to +80℃
STORAGE TEMP. RANGE	儲存溫度	-30℃ to +80℃	-30℃ to +80℃	-40℃ to +85℃
WEIGHT	重　　量	0.3gms	0.3gms	1.0gms

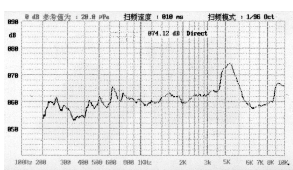
Dimensions (Unit: mm ± 0.5)

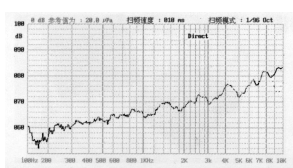


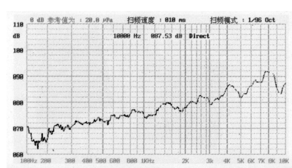




Sound Pressure Level vs. Frequency



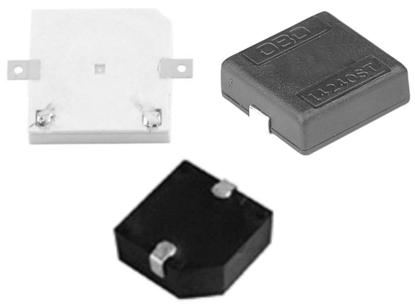




OBO
OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

SMD EXTERNAL DRIVE TYPE
S M D 外 部 驅 動 式



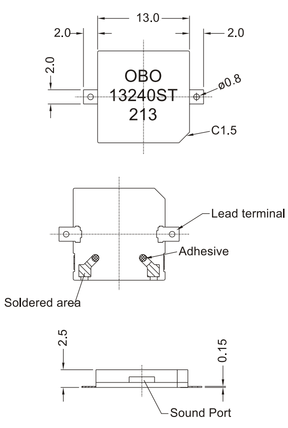
APPLICATIONS 應用產品

• Controller Device	控制器
• Home appliances	家電用品
(microwaves, ovens, refrigerators, etc.)	（微波爐、電暖爐、冰箱等）
• Communication equipments	通訊設備
• Computer peripherals and office equipments	電腦周邊零組件，辦公室設備
• Instruments, etc.	儀器設備

		OBO-13240ST	OBO-14240ST	OBO-15236SA
SOUND PRESSURE LEVEL	輸出音壓	80dB min. at 4.0KHz / 9Vp-p Square Ware / 10cm	80dB min. at 4.0KHz / 9Vp-p Square Ware / 10cm 70dB min. at 4.0KHz / 1Vrms Sine Wave / 10cm	85dB min. at 3.65KHz / 7Vp-p Square Ware / 10cm
CAPACITANCE	靜電容量	12,000pF ± 30% at 1.0KHz	12,000pF ± 30% at 120Hz	15,000pF ± 30% at 120Hz
ALLOWABLE INPUT VOLTAGE	承受電壓	15Vp-p max.	15Vp-p max.	20Vp-p max.
CURRENT CONSUMPTION	消耗電流	3mA max. at 4.0KHz / 9Vp-p Square Wave	3mA max. at 4.0KHz / 9Vp-p Square Wave	3mA max. at 3.65KHz / 7Vp-p Square Wave
CASE MATERIAL	塑膠規格	LCP	HTN (UL 94V-0)	PPS (black)
LEAD PIN MATERIAL	導針規格	Phosphor Bronze	Phosphor Bronze	TIN PLATED BRASS (Sn)
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +70˚C	-25℃ to +85℃
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-40℃ to +85℃
WEIGHT	重　量	0.6gm	1.1gms	2.0gms

Dimensions (Unit: mm ± 0.5)

OBO-13240ST:



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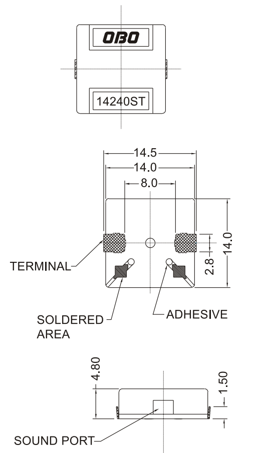
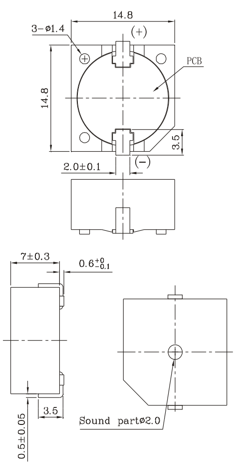
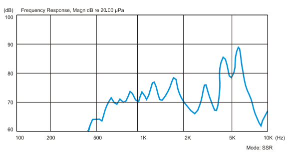


OBO-15236SA:



Sound Pressure Level vs. Frequency

OBO-13240ST:



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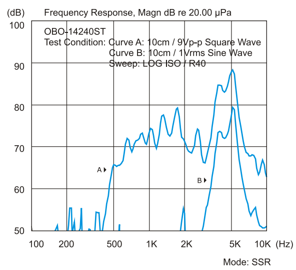
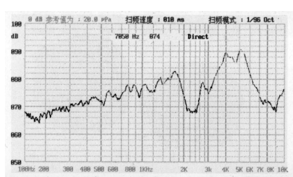
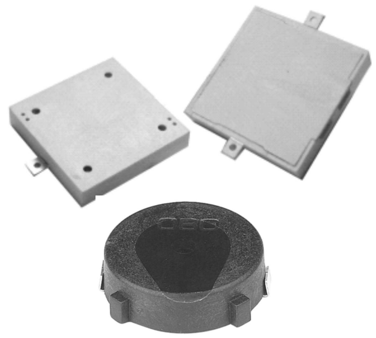


OBO-15236SA:



PIEZOELECTRIC BUZZER

SMD EXTERNAL DRIVE TYPE
S M D 外 部 驅 動 式

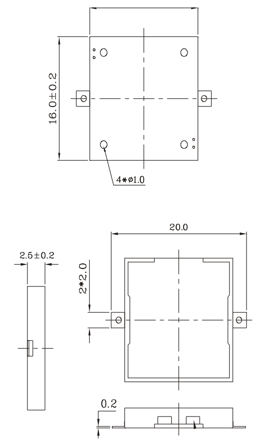


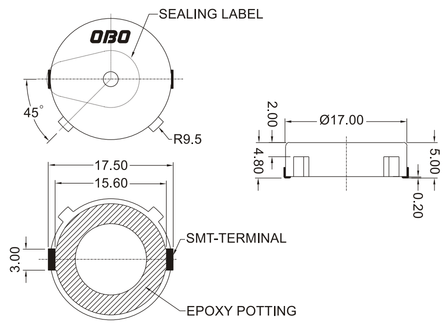
APPLICATIONS 應用產品

APPLICATIONS	應用產品
• Controller Device	控制器
• Home appliances (microwaves, ovens, refrigerators, etc.)	家電用品（微波爐、電暖爐、冰箱等）
• Communication equipments	通訊設備
• Computer peripherals and office equipments	電腦周邊零組件，辦公室設備
• Instruments, etc.	儀器設備

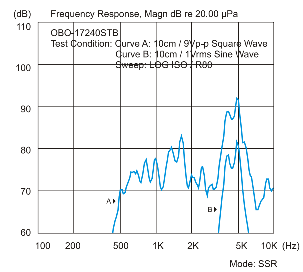
	OBO-16240ST	OBO-17240STB
SOUND PRESSURE LEVEL 輸出音壓	75dB min. at 4KHz / 5Vp-p Square Ware / 10cm	82dB min. at 4.0KHz / 9Vp-p Square Ware / 10cm 72dB min. at 4.0KHz / 1Vrms Sine Wave / 10cm
CAPACITANCE 靜電容量	16,000pF ± 30% at 1KHz	9,000pF ± 30% at 120Hz
ALLOWABLE INPUT VOLTAGE 承受電壓	25Vp-p max.	15Vp-p max.
CURRENT CONSUMPTION 消耗電流	2mA max. at 4KHz / 5Vp-p Square Wave	3mA max. at 4.0KHz / 9Vp-p Square Wave
CASE MATERIAL 塑膠規格	LCP (WHITE)	HTN (UL 94V-0)
LEAD PIN MATERIAL 導針規格	TIN PLATED BRASS (Sn)	Phosphor Bronze
OPERATING TEMP. RANGE 操作溫度	-30℃ to +70℃	-20˚C to +70˚C
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +85℃	-40˚C to +85˚C
WEIGHT 重　量	1.0gms	1.3gms

Dimensions (Unit: mm ± 0.5)





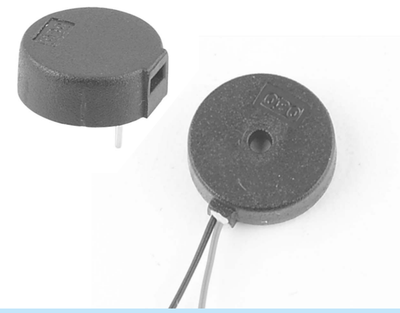
Sound Pressure Level vs. Frequency



OBO
OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

EXTERNAL DRIVE TYPE
外部驅動式

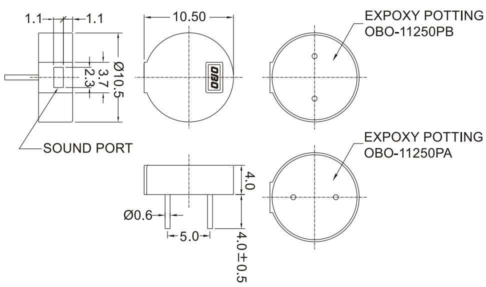


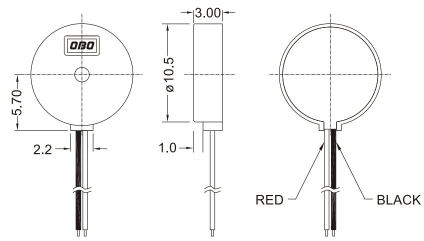
APPLICATIONS　應用產品

• Music toys	音樂玩具
• Home appliances	家電用品
(microwaves, ovens, refrigerators, etc.)	（微波爐、電暖爐、冰箱等）
• Communication equipments	通訊設備
• Computer peripherals and office equipments	電腦周邊零組件，辦公室設備
• Instruments, etc.	儀器設備

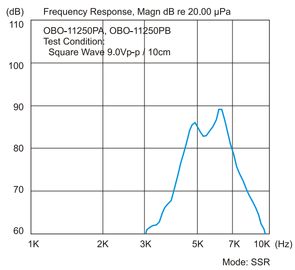
		OBO-11250PA / 11250PB	OBO-11250WA
SOUND PRESSURE LEVEL	輸出音壓	80dB min. at 5.0KHz / 9Vp-p Square Ware / 10cm	80dB min. at 5.0KHz / 9Vp-p Square Ware / 10cm
CAPACITANCE	靜電容量	9,500pF ± 30% at 120Hz	9,500pF ± 30% at 120Hz
ALLOWABLE INPUT VOLTAGE	承受電壓	15Vp-p max.	15Vp-p max.
CURRENT CONSUMPTION	消耗電流	3mA max. at 5.0KHz / 9Vp-p Square Wave	3mA max. at 5.0KHz / 9Vp-p Square Wave
CASE MATERIAL	塑膠規格	PBT	ABS
LEAD PIN MATERIAL	導針規格	Bronze	
LEAD WIRE	導線規格		UL1571 AWG32 25±3mm
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-30˚C to +70˚C
WEIGHT	重　量	0.4gms	0.3gm

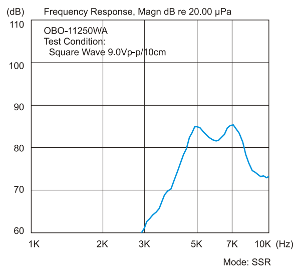
Dimensions (Unit: mm ± 0.5)





Sound Pressure Level vs. Frequency





PIEZOELECTRIC BUZZER

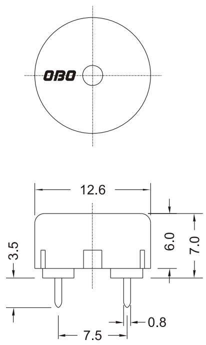
EXTERNAL DRIVE TYPE
外 部 驅 動 式

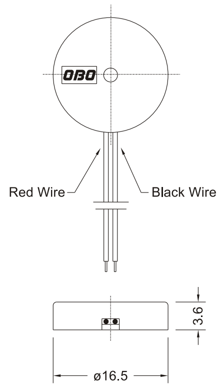
APPLICATIONS 應 用 產 品

• Music toys	音樂玩具
• Home appliances (microwaves, ovens, refrigerators, etc.)	家電用品 （微波爐、電暖爐、冰箱等）
• Communication equipments	通訊設備
• Computer peripherals and office equipments	電腦周邊零組件，辦公室設備
• Instruments, etc.	儀器設備

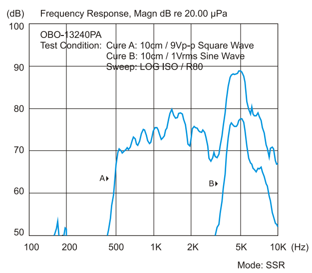
		OBO-13240PA	OBO-152
SOUND PRESSURE LEVEL	輸出音壓	80dB min. at 4.0KHz / 9Vp-p Square Wave / 10cm 70dB min. at 4.0KHz / 1Vrms Sine Wave / 10cm	80dB min. at 4.0KHz / 9Vp-p Square Wave / 10cm 70dB min. at 4.0KHz / 1Vrms Sine Wave / 10cm
CAPACITANCE	靜電容量	7,500pF±30% at 120Hz	14,000pF±30% at 120Hz
ALLOWABLE INPUT VOLTAGE	承受電壓	15Vp-p max.	30Vp-p max.
CURRENT CONSUMPTION	消耗電流	3mA max. at 4.0KHz / 9Vp-p Square Wave	3mA max. at 4.0KHz / 9Vp-p Square Wave
LEAD WIRE	導線規格		UL1571 AWG32 85mm±5.0mm
CASE MATERIAL	塑膠規格	PBT (UL 94V-0)	ABS (UL 94HB)
LEAD PIN MATERIAL	導針規格	Phosphor Bronze	
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-30˚C to +70˚C
WEIGHT	重　　量	0.7gm	0.9gm

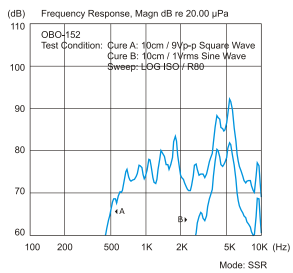
Dimensions (Unit: mm ± 0.5)





Sound Pressure Level vs. Frequency



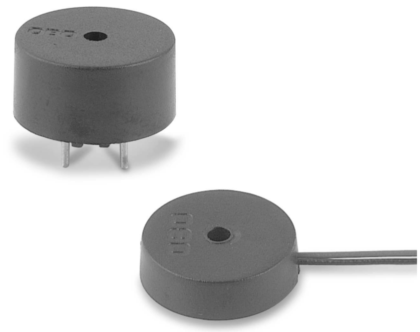


OBO
OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

EXTERNAL DRIVE TYPE
外部驅動式

壓電式蜂鳴器 Piezoelectric Buzzer

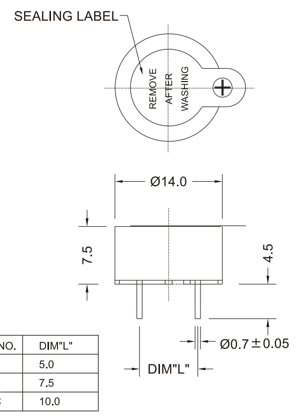


APPLICATIONS 應用產品

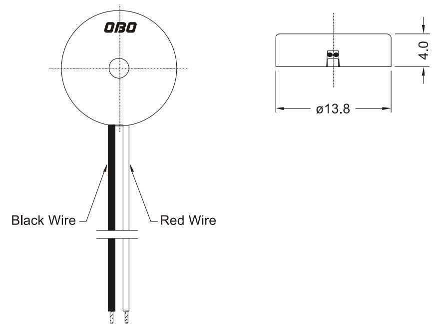
• Music toys	音樂玩具
• Home appliances	家電用品
(microwaves, ovens, refrigerators, etc.)	（微波爐、電暖爐、冰箱等）
• Communication equipments	通訊設備
• Computer peripherals and office equipments	電腦周邊零組件，辦公室設備
• Instruments, etc.	儀器設備

		OBO-14240PA / 14240PB / 14240PC	OBO-14240WA
SOUND PRESSURE LEVEL	輸出音壓	80dB min. at 4.0KHz / 9Vp-p Square Ware / 10cm 70dB min. at 4.0KHz / 1Vrms Sine Wave / 10cm	80dB min. at 4.0KHz / 9Vp-p Square Ware / 10cm 70dB min. at 4.0KHz / 1Vrms Sine Wave / 10cm
CAPACITANCE	靜電容量	10,000pF ± 30% at 120Hz	10,000pF ± 30% at 120Hz
ALLOWABLE INPUT VOLTAGE	承受電壓	15Vp-p max.	15Vp-p max.
CURRENT CONSUMPTION	消耗電流	3mA max. at 4.0KHz / 9Vp-p Square Wave	3mA max. at 4.0KHz / 9Vp-p Square Wave
CASE MATERIAL	塑膠規格	PBT (UL 94V-0)	ABS (UL 94HB)
LEAD PIN MATERIAL	導針規格	Bronze	
LEAD WIRE	導線規格		UL1571 AWG32 85±5mm
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-30˚C to +70˚C
WEIGHT	重 量	1.2gms	0.6gm

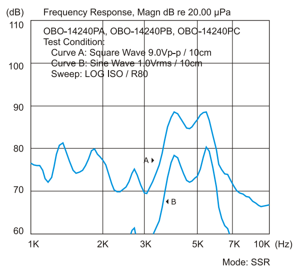
Dimensions (Unit: mm ± 0.5)

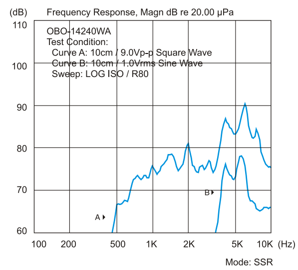


MODEL NO.	DIM"L"
14240PA	5.0
14240PB	7.5
14240PC	10.0



Sound Pressure Level vs. Frequency





OBO
OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

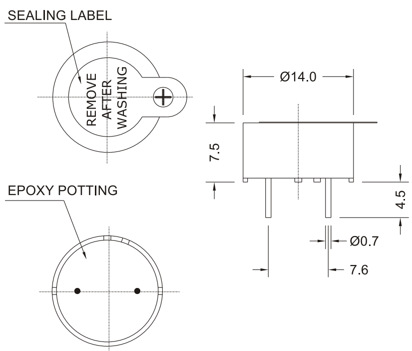
EXTERNAL DRIVE TYPE
外 部 驅 動 式

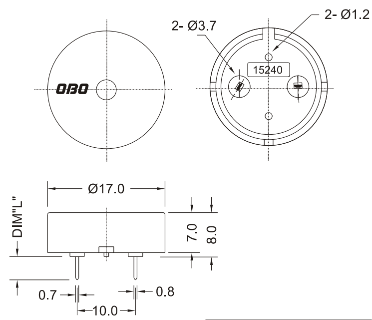
APPLICATIONS　　應 用 產 品

• Music toys	音樂玩具
• Home appliances	家電用品
(microwaves, ovens, refrigerators, etc.)	（微波爐、電暖爐、冰箱等）
• Communication equipments	通訊設備
• Computer peripherals and office equipments	電腦周邊零組件，辦公室設備
• Instruments, etc.	儀器設備

	OBO-15230	OBO-15240PA / OBO-15240PB
SOUND PRESSURE LEVEL 輸出音壓	80dB min. at 3.5KHz / 9Vp-p Square Wave / 10cm 70dB min. at 3.5KHz / 1Vrms Sine Wave / 10cm	80dB min. at 4.0KHz / 9Vp-p Square Wave / 10cm 70dB min. at 4.0KHz / 1Vrms Sine Wave / 10cm
CAPACITANCE 靜電容量	12,000pF±30% at 120Hz	14,000pF±30% at 120Hz
ALLOWABLE INPUT VOLTAGE 承受電壓	15Vp-p max.	30Vp-p max.
CURRENT CONSUMPTION 消耗電流	3mA max. at 3.5KHz / 9Vp-p Square Wave	3mA max. at 4.0KHz / 9Vp-p Square Wave
CASE MATERIAL 塑膠規格	PBT (UL 94V-0)	TOP CASE: PC (UL 94V-2) BOTTOM CASE: PBT (UL 94V-0)
LEAD PIN MATERIAL 導針規格	Bronze	Phosphor Bronze (Sn Plated)
OPERATING TEMP. RANGE 操作溫度	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE 儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT 重　　量	1.2 gm	1.5gms

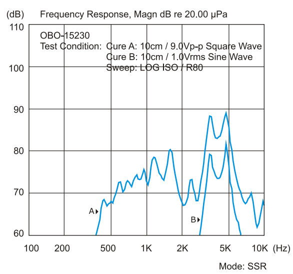
Dimensions (Unit: mm ± 0.5)

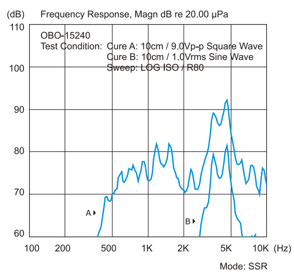




Model No.	DIM"L"
OBO-15240PA	6.5
OBO-15240PB	3.7

Sound Pressure Level vs. Frequency





OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

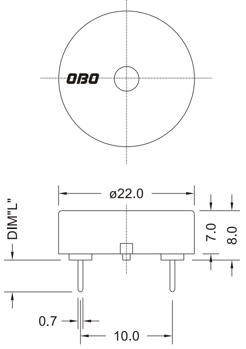
EXTERNAL DRIVE TYPE
外部驅動式

APPLICATIONS 應用產品

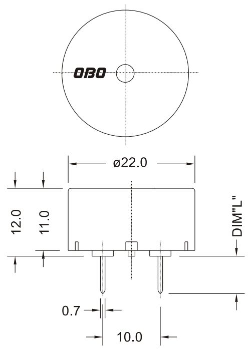
• Music toys	音樂玩具
• Home appliances	家電用品
(microwaves, ovens, refrigerators, etc.)	（微波爐、電暖爐、冰箱等）
• Communication equipments	通訊設備
• Computer peripherals and office equipments	電腦周邊零組件，辦公室設備
• Instruments, etc.	儀器設備

	OBO-20205PA / OBO-20205PB	OBO-22220PA / OBO-22220PB	OBO-22240PA / OBO-22240PB
SOUND PRESSURE LEVEL 輸出音壓	85dB min. at 4.0KHz / 9Vp-p Square Wave / 10cm 75dB min. at 4.0KHz / 1Vrms Sine Wave / 10cm	80dB min. at 2.0KHz / 9Vp-p Square Wave / 10cm 70dB min. at 2.0KHz / 1Vrms Sine Wave / 10cm	90dB min. at 4.0KHz / 12Vp-p Square Wave / 30cm 75dB min. at 4.0KHz / 1Vrms Sine Wave / 30cm
CAPACITANCE 靜電容量	12,000pF±30% at 120Hz	25,000pF±30% at 120Hz	12,000pF±30% at 120Hz
ALLOWABLE INPUT VOLTAGE 承受電壓	30Vp-p max.	30Vp-p max.	30Vp-p max.
CURRENT CONSUMPTION 消耗電流	3mA max. at 4.0KHz / 9Vp-p Square Wave	3mA max. at 2.0KHz / 9Vp-p Square Wave	4mA max. at 4.0KHz / 12Vp-p Square Wave
CASE MATERIAL 塑膠規格	PBT (UL 94V-0)	PBT (UL 94V-0)	PBT (UL 94V-0)
LEAD PIN MATERIAL 導針規格	Phosphor Bronze (Sn Plated)	Phosphor Bronze (Sn Plated)	Phosphor Bronze (Sn Plated)
OPERATING TEMP. RANGE 操作溫度	-20˚C to +70˚C	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE 儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT 重　量	2.7gms	2.9gms	3.2gms

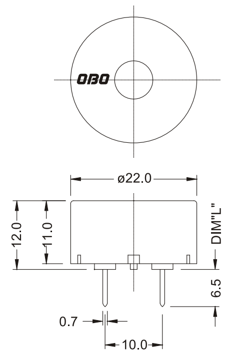
Dimensions (Unit: mm ± 0.5)



Model	DIM"L"
PA	6.5
PB	3.7

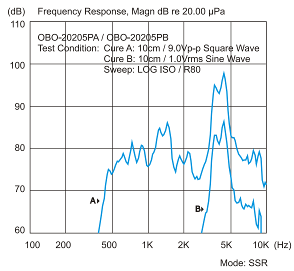


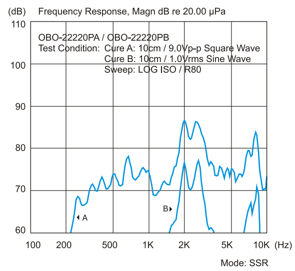
Model	DIM"L"
PA	6.5
PB	3.7

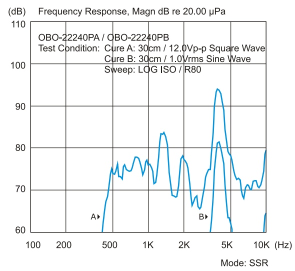


Model	DIM"L"
PA	6.5
PB	3.7

Sound Pressure Level vs. Frequency







OBO
OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

EXTERNAL DRIVE TYPE
外部驅動式

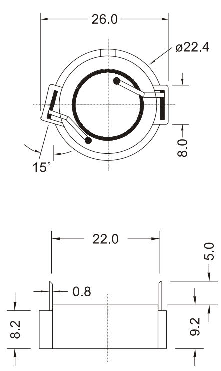
APPLICATIONS 應用產品

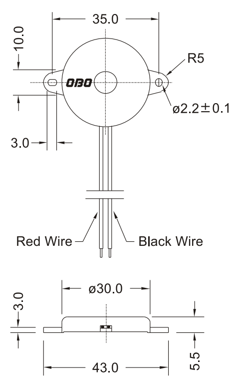
• Music toys	音樂玩具
• Home appliances	家電用品
(microwaves, ovens, refrigerators, etc.)	（微波爐、電暖爐、冰箱等）
• Communication equipments	通訊設備
• Computer peripherals and office equipments	電腦周邊零組件，辦公室設備
• Instruments, etc.	儀器設備

壓電式蜂鳴器 Piezoelectric Buzzer

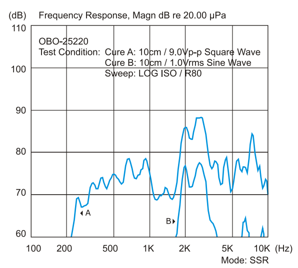
		OBO-25220	OBO-272
SOUND PRESSURE LEVEL	輸出音壓	80dB min. at 2.0KHz / 9Vp-p Square Wave / 10cm 70dB min. at 2.0KHz / 1Vrms Sine Wave / 10cm	90dB min. at 4.4KHz / 9Vp-p Square Wave / 10cm 80dB min. at 4.4KHz / 1Vrms Sine Wave / 10cm
CAPACITANCE	靜電容量	25,000pF±30% at 120Hz	20,000pF±30% at 120Hz
ALLOWABLE INPUT VOLTAGE	承受電壓	30Vp-p max.	30Vp-p max.
CURRENT CONSUMPTION	消耗電流	3mA max. at 2.0KHz / 9Vp-p Square Wave	4mA max. at 4.4KHz / 9Vp-p Square Wave
CASE MATERIAL	塑膠規格	PBT(UL 94V-0)	ABS (UL 94HB)
LEAD PIN MATERIAL	導針規格	Phosphor Bronze	
LEAD WIRE	導線規格		UL 1095 AWG28 85mm±5.0mm
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-30˚C to +70˚C
WEIGHT	重量	2.1gms	4.7gms

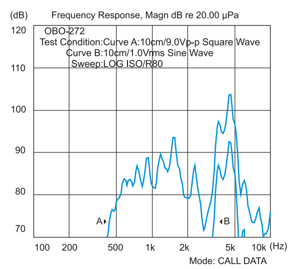
Dimensions (Unit: mm ± 0.5)





Sound Pressure Level vs. Frequency





PIEZOELECTRIC BUZZER

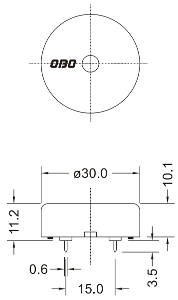
EXTERNAL DRIVE TYPE
外 部 驅 動 式

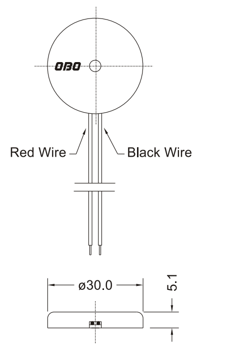
APPLICATIONS — 應用產品

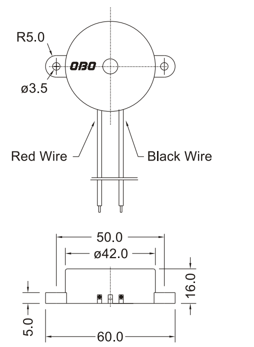
• Music toys	音樂玩具
• Home appliances	家電用品
(microwaves, ovens, refrigerators, etc.)	（微波爐、電暖爐、冰箱等）
• Communication equipments	通訊設備
• Computer peripherals and office equipments	電腦周邊零組件，辦公室設備
• Instruments, etc.	儀器設備

		OBO-27225	OBO-27246	OBO-352
SOUND PRESSURE LEVEL	輸出音壓	85dB min. at 2.5KHz / 9Vp-p Square Wave / 10cm 75dB min. at 2.5KHz / 1Vrms Sine Wave / 10cm	90dB min. at 4.4KHz / 9Vp-p Square Wave / 10cm 80dB min. at 4.4KHz / 1Vrms Sine Wave / 10cm	90dB min. at 2.5KHz / 9Vp-p Square Wave / 10cm 80dB min. at 2.5KHz / 1Vrms Sine Wave / 10cm
CAPACITANCE	靜電容量	20,000pF±30% at 120Hz	20,000pF±30% at 120Hz	30,000pF±30% at 120Hz
ALLOWABLE INPUT VOLTAGE	承受電壓	30Vp-p max.	30Vp-p max.	30Vp-p max.
CURRENT CONSUMPTION	消耗電流	3mA max. at 2.5KHz / 9Vp-p Square Wave	4mA max. at 4.4KHz / 9Vp-p Square Wave	5mA max. at 2.5KHz / 9Vp-p Square Wave
CASE MATERIAL	塑膠規格	Top Case: PC (UL 94V-2) Bottom Case: PBT (UL 94V-0)	ABS (UL 94HB)	Top Case: PBT(UL 94V-0) Bottom Case: ABS (UL 94HB)
LEAD WIRE	導線規格		UL 1095 AWG28 85mm±5.0mm	UL 1095 AWG28 115mm±5.0mm
LEAD PIN MATERIAL	導針規格	Phosphor Bronze (Sn Plated)		
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +60˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-30˚C to +70˚C	-30˚C to +70˚C
WEIGHT	重　量	5.5gms	4.3gms	11.0gms

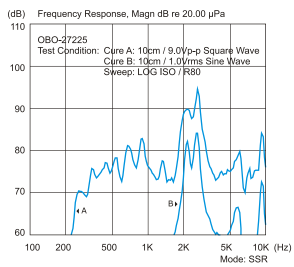
Dimensions (Unit: mm ± 0.5)

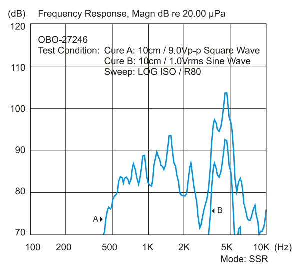


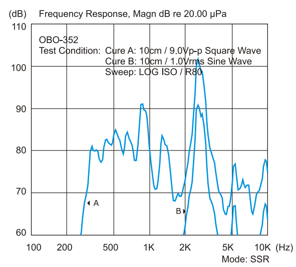




Sound Pressure Level vs. Frequency







PIEZOELECTRIC BUZZER

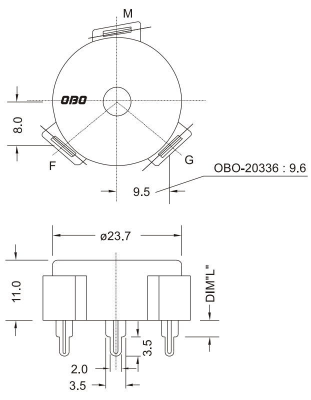
SELF DRIVE TYPE
自 激 式

APPLICATIONS　　應 用 產 品

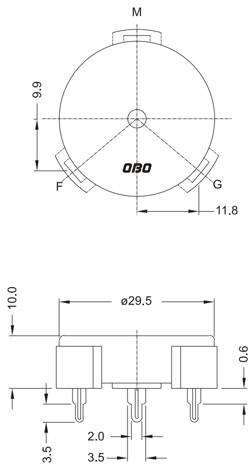
• Clocks	時鐘
• Office equipments, machine tools, toys, video games, etc.	辦公室設備、機器治具、玩具
• Automatic controlling devices, calculators.	自動化控制儀器設備、電算機
• Home appliances equipments (microwave, oven, air conditioner, etc.)	家電用品（微波爐、電暖爐、冷氣等）
• Smoke alarms.	煙霧警報器

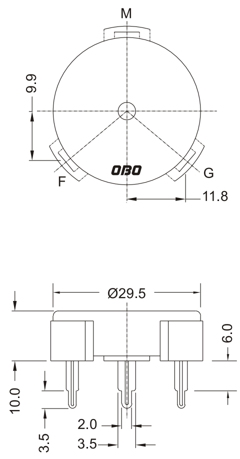
	OBO-20335/OBO-20336	OBO-27335	OBO-27336
SOUND PRESSURE LEVEL 輸出音壓	83dB min. / 30cm / DC 9V	85dB min. / 30cm / DC 9V	85dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY 諧振頻率	3.4±0.5KHz	3.5±0.5KHz	3.5±0.5KHz
ALLOWABLE INPUT VOLTAGE 承受電壓	DC 3 to 27V	DC 3 to 27V	DC 3 to 27V
CURRENT CONSUMPTION 消耗電流	9mA max. / DC 9V	9mA max. / DC 9V	9mA max. / DC 9V
CASE MATERIAL 塑膠規格	PC (UL 94V-2)	PC (UL 94V-2)	PC (UL 94V-2)
LEAD PIN MATERIAL 導針規格	Phosphor Bronze	Phosphor Bronze	Phosphor Bronze
LEAD WIRE 導線規格			
OPERATING TEMP. RANGE 操作溫度	-20˚C to +70˚C	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE 儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT 重　量	2.6gms / 2.8gms	4.4gms	4.4gms

Dimensions (Unit: mm ± 0.5)

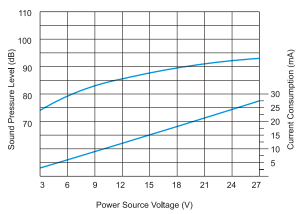


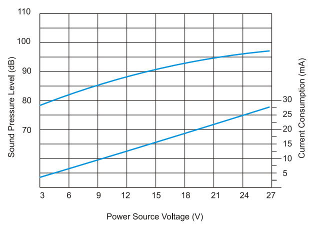
Model No.	DIM"L"
20335	3.0
20336	6.0

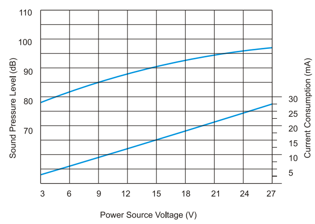




Sound Pressure Level
& Current Consumption
vs. Input Voltage







OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

SELF DRIVE TYPE
自 激 式

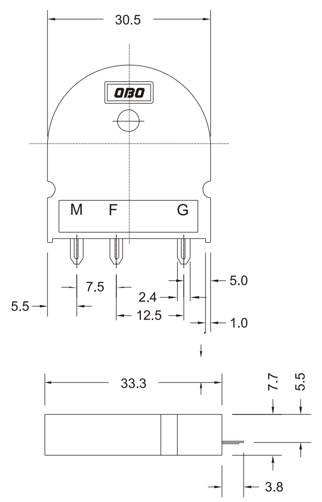
壓電式蜂鳴器 Piezoelectric Buzzer

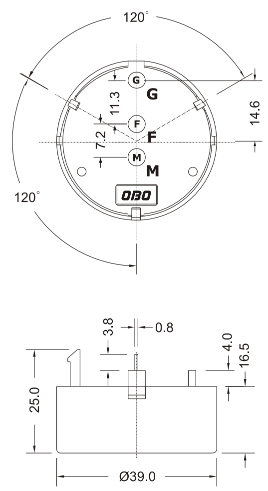
APPLICATIONS 應 用 產 品

• Clocks	時鐘
• Office equipments, machine tools, toys, video games, etc.	辦公室設備、機器冶具、玩具
• Automatic controlling devices, calculators	自動化控制儀器設備、電算機
• Home appliances equipments (microwave, oven, air conditioner, etc.)	家電用品 （微波爐、電暖爐、冷氣等）
• Smoke alarms	煙霧警報器

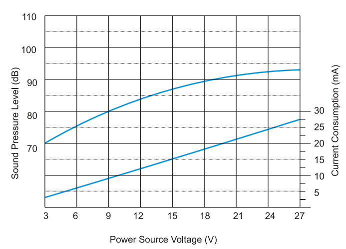
	OBO-30325	OBO-35332
SOUND PRESSURE LEVEL 輸出音壓	80dB min. / 30cm / DC 9V	88dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY 諧振頻率	2.5±0.5KHz	3.2±0.5KHz
ALLOWABLE INPUT VOLTAGE 承受電壓	DC 3 to 27V	DC 3 to 27V
CURRENT CONSUMPTION 消耗電流	9mA max. / DC 9V	9mA max. / DC 9V
CASE MATERIAL 塑膠規格	ABS (UL 94HB)	PC (UL 94V-2)
LEAD PIN MATERIAL 導針規格	Phosphor Bronze	Phosphor Bronze (Sn Plated)
LEAD WIRE 導線規格		
OPERATING TEMP. RANGE 操作溫度	-20˚C to +60˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE 儲存溫度	-30˚C to +70˚C	-40˚C to +85˚C
WEIGHT 重 量	3.8gms	12.5gms

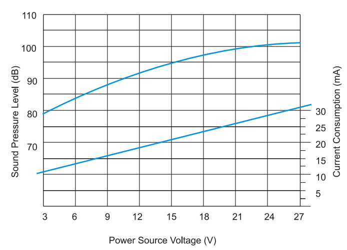
Dimensions (Unit: mm ± 0.5)





Sound Pressure Level
& Current Consumption
vs. Input Voltage





OBO
OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

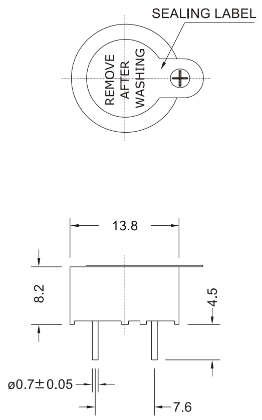
DRIVE CIRCUIT BUILT-IN TYPE
內 含 驅 動 線 路 式

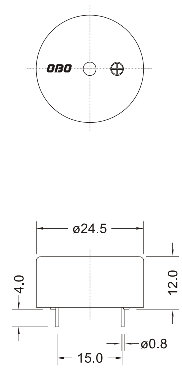
APPLICATIONS 應用產品

• Data processing equipments (i.e., Keyboards, disk drives, circuit boards, malfunction alarms)	資料處理設備（如鍵盤、磁碟機、線路板、多功能警示器）
• Electronic instruments	電子儀器設備
• Medical equipments	醫療設備
• Automatic control devices	自動化控制設備
• Cash registers	收銀機

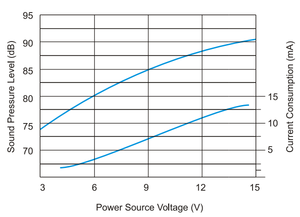
		OBO-15210	OBO-20C1-15
SOUND PRESSURE LEVEL	輸出音壓	85dB min. / 10cm / DC 9V	90dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY	諧振頻率	4.4±0.5KHz	3.4±0.5KHz
ALLOWABLE INPUT VOLTAGE	承受電壓	DC 3 to 15V	DC 3 to 15V
CURRENT CONSUMPTION	消耗電流	8mA max. / DC 9V	7mA max. / DC 9V
TONE	音 調	Single Tone	Continuous Tone
CASE MATERIAL	塑膠規格	PBT (UL 94V-0)	PC (UL 94V-2)
LEAD PIN MATERIAL	導針規格	Brass, Plated of Sn	Bronze
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT	重 量	1.0gm	3.9gms

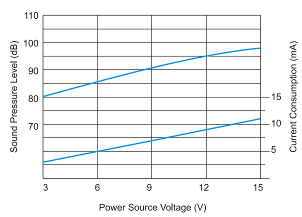
Dimensions (Unit: mm ± 0.5)





Sound Pressure Level & Current Consumption vs. Input Voltage





OBO
OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

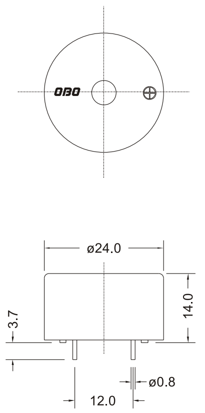
DRIVE CIRCUIT BUILT-IN TYPE
內 含 驅 動 線 路 式

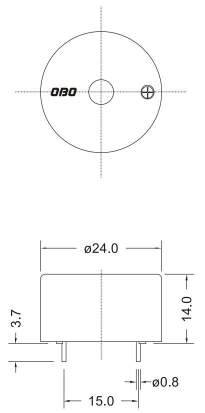
APPLICATIONS 應用產品

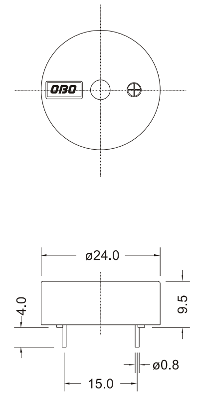
• Data processing equipments (i.e., Keyboards, disk drives, circuit boards, malfunction alarms)	資料處理設備（如鍵盤、磁碟機、線路板、多功能警示器）
• Electronic instruments	電子儀器設備
• Medical equipments	醫療設備
• Automatic control devices	自動化控制設備
• Cash registers	收銀機

	OBO-20C3	OBO-20C4	OBO-20C5
SOUND PRESSURE LEVEL 輸出音壓	83dB min. / 30cm / DC 9V	83dB min. / 30cm / DC 9V	80dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY 諧振頻率	3.8±0.5KHz	3.8±0.5KHz	3.4±0.5KHz
ALLOWABLE INPUT VOLTAGE 承受電壓	DC 3 to 30V	DC 3 to 30V	DC 3 to 30V
CURRENT CONSUMPTION 消耗電流	8mA max. / DC 9V	8mA max. / DC 9V	8mA max. / DC 9V
TONE 音 調	Continuous Tone	Continuous Tone	Continuous Tone
CASE MATERIAL 塑膠規格	PC (UL 94V-2)	PC (UL 94V-2)	PC (UL 94V-2)
LEAD PIN MATERIAL 導針規格	Bronze	Bronze	Bronze
OPERATING TEMP. RANGE 操作溫度	-20˚C to +70˚C	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE 儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT 重 量	3.6gms	3.6gms	2.9gms

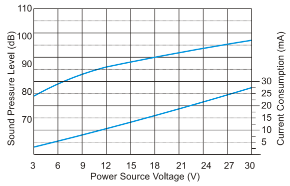
Dimensions (Unit: mm ± 0.5)

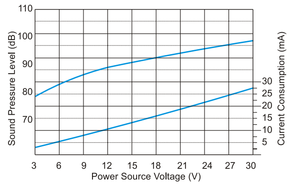


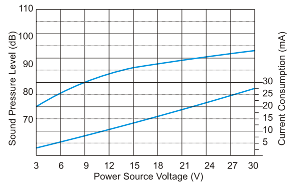




Sound Pressure Level
& Current Consumption
vs. Input Voltage







PIEZOELECTRIC BUZZER

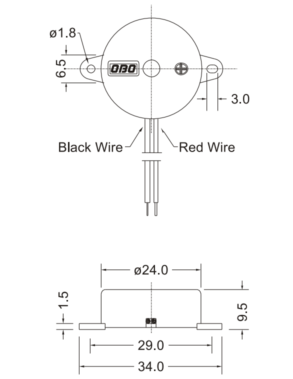
DRIVE CIRCUIT BUILT-IN TYPE
內 含 驅 動 線 路 式

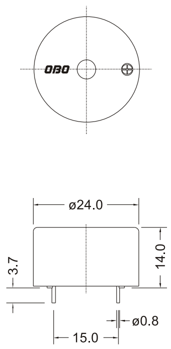
APPLICATIONS 應 用 產 品

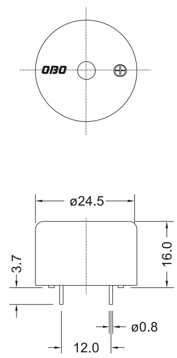
• Data processing equipments (i.e., Keyboards, disk drives, circuit boards, malfunction alarms)	資料處理設備 （如鍵盤、磁碟機、線路板、多功能警示器）
• Electronic instruments	電子儀器設備
• Medical equipments	醫療設備
• Automatic control devices	自動化控制設備
• Cash registers	收銀機

		OBO-20C6	OBO-20C7	OBO-20C9
SOUND PRESSURE LEVEL	輸出音壓	80dB min. / 30cm / DC 9V	83dB min. / 30cm / DC 9V	93dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY	諧振頻率	3.4±0.5KHz	3.4±0.5KHz	3.4±0.5KHz
ALLOWABLE INPUT VOLTAGE	承受電壓	DC 3 to 30V	DC 3 to 30V	DC 3 to 15V
CURRENT CONSUMPTION	消耗電流	8mA max. / DC 9V	8mA max. / DC 9V	7mA max. / DC 9V
CASE MATERIAL	塑膠規格	PC (UL 94V-2)	PC (UL 94V-2)	PC (UL 94V-2)
TONE	音　調	Continuous Tone	Continuous Tone	Continuous Tone
LEAD PIN MATERIAL	導針規格		Bronze	Bronze
LEAD WIRE	導線規格	UL 1095 AWG28 135mm±5mm		
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT	重　量	3.4gms	3.5gms	4.2gms

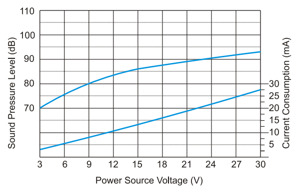
Dimensions (Unit: mm ± 0.5)

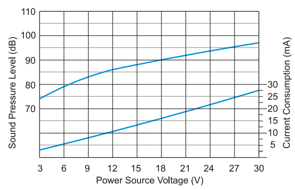


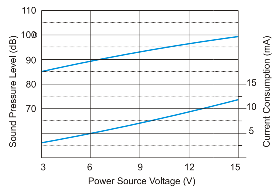




Sound Pressure Level & Current Consumption vs. Input Voltage







OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

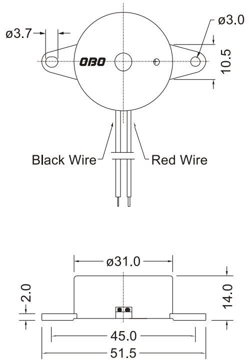
DRIVE CIRCUIT BUILT-IN TYPE
內 含 驅 動 線 路 式

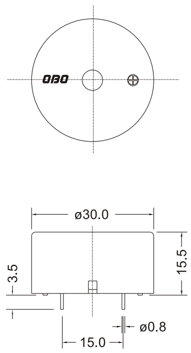
APPLICATIONS 應用產品

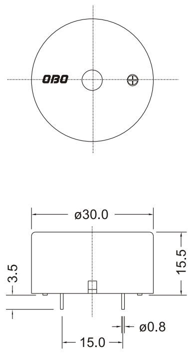
• Data processing equipments (i.e., Keyboards, disk drives, circuit boards, malfunction alarms)	資料處理設備 （如鍵盤、磁碟機、線路板、多功能警示器）
• Electronic instruments	電子儀器設備
• Medical equipments	醫療設備
• Automatic control devices	自動化控制設備
• Cash registers	收銀機

		OBO-27C0	OBO-27C1	OBO-27C2
SOUND PRESSURE LEVEL	輸出音壓	97dB min. / 30cm / DC 9V	83dB min. / 30cm / DC 9V	87dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY	諧振頻率	3.5±0.5KHz	2.5±0.5KHz	3.5±0.5KHz
ALLOWABLE INPUT VOLTAGE	承受電壓	DC 3 to 20V	DC 3 to 30V	DC 3 to 30V
CURRENT CONSUMPTION	消耗電流	8mA max. / DC 9V	8mA max. / DC 9V	8mA max. / DC 9V
CASE MATERIAL	塑膠規格	ABS (UL 94HB)	PC (UL 94V-2)	PC (UL 94V-2)
TONE	音　調	Continuous Tone	Continuous Tone	Continuous Tone
LEAD PIN MATERIAL	導針規格			
LEAD WIRE	導線規格	UL 1095 AWG28 100mm±5mm		
OPERATING TEMP. RANGE	操作溫度	-20˚C to +60˚C	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-30˚C to +70˚C	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT	重　量	7.3gms	5.4gms	6.0gms

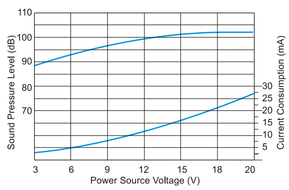
Dimensions (Unit: mm ± 0.5)

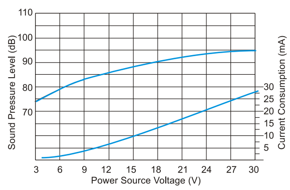


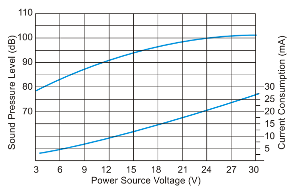




Sound Pressure Level & Current Consumption vs. Input Voltage







PIEZOELECTRIC BUZZER

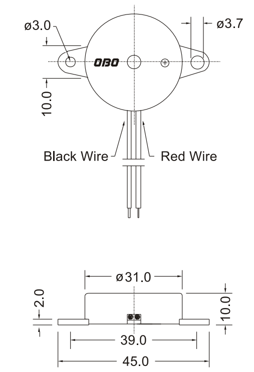
DRIVE CIRCUIT BUILT-IN TYPE
內 含 驅 動 線 路 式

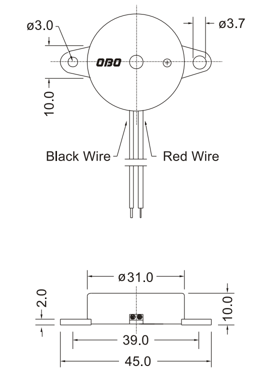
APPLICATIONS　應 用 產 品

- Data processing equipments　資料處理設備
  (i.e., Keyboards, disk drives, circuit boards, malfunction alarms)　（如鍵盤、磁碟機、線路板、多功能警示器）
- Electronic instruments　電子儀器設備
- Medical equipments　醫療設備
- Automatic control devices　自動化控制設備
- Cash registers　收銀機

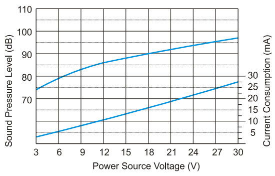
		OBO-27C3	OBO-27C4
SOUND PRESSURE LEVEL	輸出音壓	80dB min. / 30cm / DC 9V	85dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY	諧振頻率	2.5±0.5KHz	3.5±0.5KHz
ALLOWABLE INPUT VOLTAGE	承受電壓	DC 3 to 30V	DC 3 to 30V
CURRENT CONSUMPTION	消耗電流	8mA max. / DC 9V	8mA max. / DC 9V
CASE MATERIAL	塑膠規格	PBT(UL 94V-0)	PBT(UL 94V-0)
TONE	音　調	Continuous Tone	Continuous Tone
LEAD PIN MATERIAL	導針規格		
LEAD WIRE	導線規格	UL 1095 AWG28 75mm±5mm	UL 1095 AWG28 75mm±5mm
OPERATING TEMP. RANGE	操作溫度	-30˚C to +70˚C	-30˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT	重　量	7gms	7gms

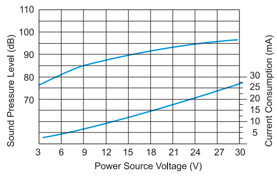
Dimensions (Unit: mm ± 0.5)





Sound Pressure Level & Current Consumption vs. Input Voltage





PIEZOELECTRIC BUZZER

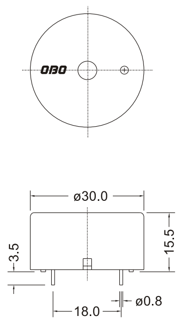
DRIVE CIRCUIT BUILT-IN TYPE
內 含 驅 動 線 路 式

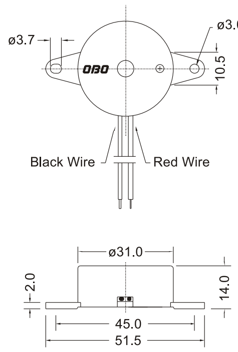
APPLICATIONS 應 用 產 品

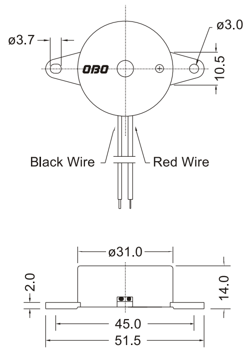
- Data processing equipments 資料處理設備
  (i.e., Keyboards, disk drives, circuit boards, malfunction alarms) （如鍵盤、磁碟機、線路板、多功能警示器）
- Electronic instruments 電子儀器設備
- Medical equipments 醫療設備
- Automatic control devices 自動化控制設備
- Cash registers 收銀機

		OBO-27C8	OBO-27C9	OBO-27P1
SOUND PRESSURE LEVEL	輸出音壓	87dB min. / 30cm / DC 9V	87dB min. / 30cm / DC 9V	85dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY	諧振頻率	3.5±0.5KHz	3.5±0.5KHz	3.4±0.5KHz
ALLOWABLE INPUT VOLTAGE	承受電壓	DC 3 to 30V	DC 3 to 30V	DC 3 to 20V
CURRENT CONSUMPTION	消耗電流	8mA max. / DC 9V	10mA max. / DC 9V	6mA max. / DC 9V
CASE MATERIAL	塑膠規格	PC (UL 94V-2)	ABS (UL 94HB)	ABS (UL 94HB)
TONE	音 調	Continuous Tone	Continuous Tone	Pulse Tone; 420ms±20% / period / DC 9V
LEAD PIN MATERIAL	導針規格			
LEAD WIRE	導線規格		UL 1095 AWG28 100mm±5mm	UL 1095 AWG28 100mm±5mm
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +60˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-30˚C to +70˚C	-30˚C to +70˚C
WEIGHT	重 量	6.0gms	6.9gms	7.0gms

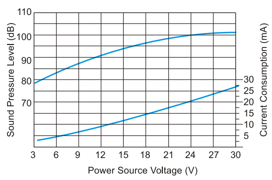
Dimensions (Unit: mm ± 0.5)

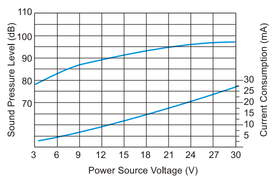


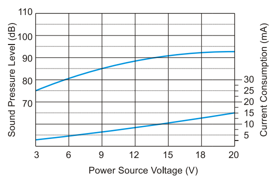




Sound Pressure Level
& Current Consumption
vs. Input Voltage







PIEZOELECTRIC BUZZER

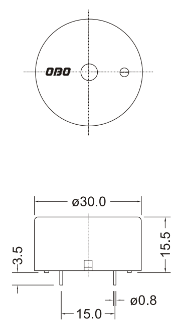
DRIVE CIRCUIT BUILT-IN TYPE
內 含 驅 動 線 路 式

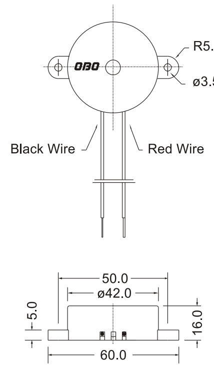
APPLICATIONS 應用產品

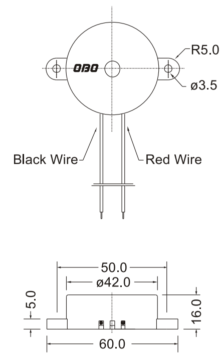
• Data processing equipments (i.e., Keyboards, disk drives, circuit boards, malfunction alarms)	資料處理設備（如鍵盤、磁碟機、線路板、多功能警示器）
• Electronic instruments	電子儀器設備
• Medical equipments	醫療設備
• Automatic control devices	自動化控制設備
• Fire alarms, burglar alarms, gas detectors	火災警報器、防盜警報器、氣體偵測器

	OBO-27P2	OBO-35C1	OBO-35C2
SOUND PRESSURE LEVEL 輸出音壓	87dB min. / 30cm / DC 9V	88dB min. / 30cm / DC 9V	97dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY 諧振頻率	3.4±0.5KHz	2.8±0.5KHz	2.8±0.5KHz
ALLOWABLE INPUT VOLTAGE 承受電壓	DC 5 to 20V	DC 3 to 30V	DC 3 to 20V
CURRENT CONSUMPTION 消耗電流	6mA max. / DC 9V	8mA max. / DC 9V	12mA max. / DC 9V
CASE MATERIAL 塑膠規格	PC (UL 94V-2)	PBT(UL 94V-0)	PBT(UL 94V-0)
TONE 音 調	Pulse Tone; 390ms±20% / period / DC 9V	Continuous Tone	Continuous Tone
LEAD PIN MATERIAL 導針規格			
LEAD WIRE 導線規格		UL 1007 AWG26 120mm±5mm	UL 1007 AWG26 120mm±5mm
OPERATING TEMP. RANGE 操作溫度	-20˚C to +70˚C	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE 儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT 重 量	6.4gms	13.0gms	13.0gms

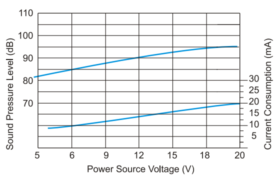
Dimensions (Unit: mm ± 0.5)

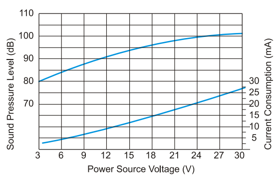


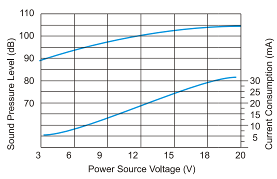




Sound Pressure Level
& Current Consumption
vs. Input Voltage







PIEZOELECTRIC BUZZER

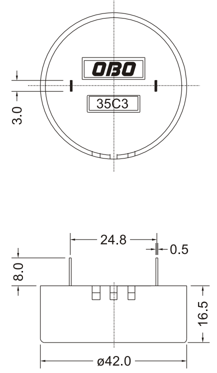
DRIVE CIRCUIT BUILT-IN TYPE
內 含 驅 動 線 路 式

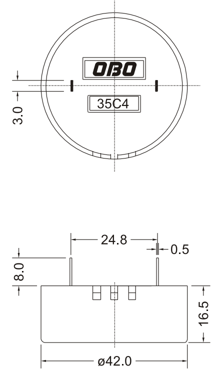
APPLICATIONS 應 用 產 品

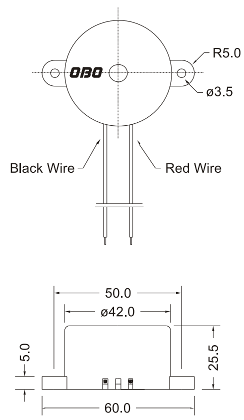
• Automotive alarms	自動化警報器
• Toys, game machines, etc.	玩具、遊戲器材等
• Electrical appliances	各類電子產品
• Automatic control devices, conveyors, medical equipments	自動化控制儀器、自動輸送裝置、醫療器材
• Fire alarms, burglar alarms, gas detectors	火災警報器、防盜警報器、氣體偵測器

	OBO-35C3	OBO-35C4	OBO-35C5
SOUND PRESSURE LEVEL 輸出音壓	88dB min. / 30cm / DC 9V	100dB min. / 30cm / DC 9V	103dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY 諧振頻率	2.8±0.5KHz	2.8±0.5KHz	2.8±0.5KHz
ALLOWABLE INPUT VOLTAGE 承受電壓	DC 3 to 30V	DC 3 to 20V	DC 3 to 15V
CURRENT CONSUMPTION 消耗電流	8mA max. / DC 9V	12mA max. / DC 9V	45mA max. / DC 9V
CASE MATERIAL 塑膠規格	PC (UL 94V-2)	PC (UL 94V-2)	ABS (UL 94HB)
TONE 音 調	Continuous Tone	Continuous Tone	Continuous Tone
LEAD PIN / WIRE MATERIAL 導針/線規格	Phosphor Bronze	Phosphor Bronze	UL 1007 AWG26 115mm±5mm
OPERATING TEMP. RANGE 操作溫度	-20˚C to +70˚C	-20˚C to +70˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE 儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-40˚C to +70˚C
WEIGHT 重 量	13.0gms	13.8gms	16.7gms

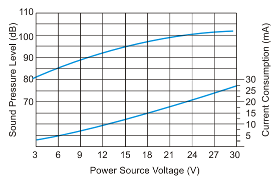
Dimensions (Unit: mm ± 0.5)

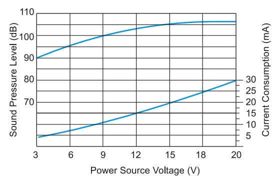


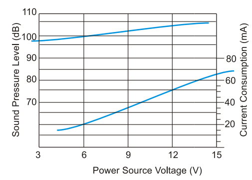




Sound Pressure Level & Current Consumption vs. Input Voltage







OBO PRO.2 INC.

PIEZOELECTRIC BUZZER

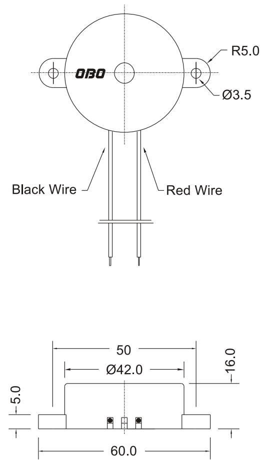
DRIVE CIRCUIT BUILT-IN TYPE
內 含 驅 動 線 路 式

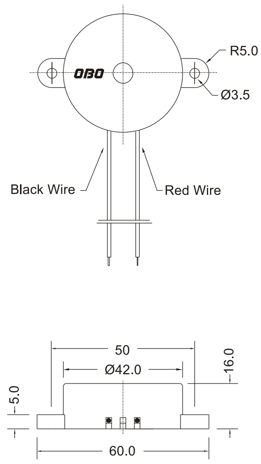
APPLICATIONS 應 用 產 品

• Automotive alarms	自動化警報器
• Toys, game machines, etc.	玩具、遊戲器材等
• Electrical appliances	各類電子產品
• Automatic control devices, conveyors, medical equipments	自動化控制儀器、自動輸送裝置、醫療器材
• Fire alarms, burglar alarms, gas detectors	火災警報器、防盜警報器、氣體偵測器

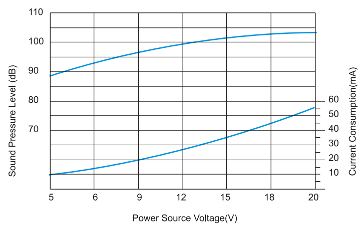
	OBO-35D1	OBO-35P2
SOUND PRESSURE LEVEL 輸出音壓	97dB min. / 30cm / DC 9V	93dB min. / 30cm / DC 9V
OSCILLATING FREQUENCY 諧振頻率	Abt. 2.9 or 3.05 KHz / DC 9V	2.6±0.5KHz
ALLOWABLE INPUT VOLTAGE 承受電壓	DC 5 to 20V	DC 5 to 20V
CURRENT CONSUMPTION 消耗電流	20mA max. / DC 9V	12mA max. / DC 9V
CASE MATERIAL 塑膠規格	PC (UL 94V-2)	PC (UL 94V-2)
TONE 音 調	Dual Tone; 320ms±20%/DC 9V	Pulse Tone；380ms±20%/Period/DC9V
LEAD PIN / WIRE MATERIAL 導針/線規格	UL 1007 AWG26 120mm±5mm	UL 1007 AWG26 120mm±5mm
OPERATING TEMP. RANGE 操作溫度	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE 儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT 重 量	15.0gms	15.0gms

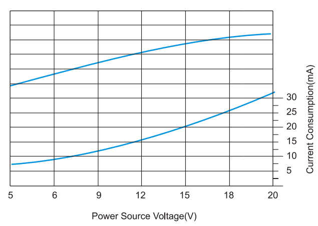
Dimensions (Unit: mm ± 0.5)





Sound Pressure Level
& Current Consumption
vs. Input Voltage





Note

Magnetic Transducer
電 磁 式 蜂 鳴 器

APPLICATIONS

- Enterprise computing and storage
- P. O. S. device

PART NUMBERING SYSTEM
電磁式蜂鳴器產品編號原則

PART NUMBERING SYSTEM

OBO- 12 01 N - B 1 W

- **W: For Wire type only (No numbering for pin type)**
- **1: Numbering for various spec. of marketing or leads length**
- **B: Numbering for various spec. of frequency, impedance & material**
- **N: Serial number for various types**
  - A,B,K : for the external drive with sealed type
  - C,D,F : for the internal drive with sealed type
  - G,H,J : for the external drive without sealed type
  - R,N : for the side emission hole design
  - M : for the bigger emission hold
  - Y : for the aside emission hold on the top of buzzer
  - S,T : for the type of SMD buzzer
- **01: For the rated voltage**
  - ex. 1.5V numbering by 01 ; 3.0V numbering by 03
- **12: Diameter for the buzzer**

電磁式蜂鳴器產品編號原則

OBO- 12 01 N - B 1 W

- W：表 Wire type.（pin type則不編碼）
- 1：外觀流水號
- B：特性流水碼，區別不同頻率，阻抗，材質
- N：系列碼
  - A,B,K：表外部驅動線路式，封膠防水
  - C,D,F：表內部驅動線路式，封膠防水
  - G,H,J：表外部驅動線路式，無封膠防水
  - R,N ：表側孔發音
  - M ：表大孔發音
  - Y ：表正面偏孔發音
  - S,T ：表SMD TYPE
- 01：設定電壓碼
  - 例 1.5V 以 0.1表示；3.0V 以 03表示
- 12：成品直徑

MAGNETIC TRANSDUCER

PRODUCT INDEX
電 磁 式 蜂 鳴 器 產 品 索 引

MAGNETIC TRANSDUCER

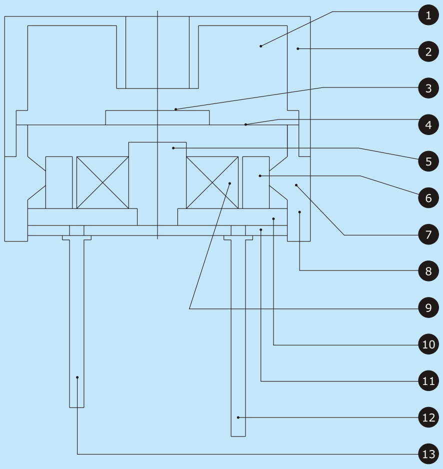
MODEL NO.	Dimensions (mm)	Rated Voltage (V)	Operating Voltage (V)	Resistance (Ω)	Rated Frequency (Hz)	SPL At 10cm (dBA)	Current Consumption (mA)	Operating Temp. (˚C)	Termnial Type	Page NO.
OBO-30AL1	8.5×8.5×3.0	3.0	2~4	16±3	2,300	Min. 83	Max. 100	-30~+70	SMD	37
OBO-30AP1	8.5×8.5×3.0	3.0	2~4	16±3	2,700	Min. 85	Max. 100	-30~+70	SMD	37
OBO-40AL1	8.5×8.5×4.0	3.0	2~4	16±3	2,300	Min. 87	Max. 80	-30~+70	SMD	38
OBO-40AP1	8.5×8.5×4.0	3.0	2~4	16±3	2,700	Min. 90	Max. 80	-30~+70	SMD	38
OBO-40BS1	9.0×4.0	1.5	1~2	5.5±1	2,730	Min. 85	Max. 80	-30~+70	SMD	39
OBO-40BS2	9.0×4.0	3.0	2~4	15±3	2,730	Min. 85	Max. 80	-30~+70	SMD	39
OBO-40BS3	9.0×4.0	5.0	4~6	30±5	2,730	Min. 85	Max. 80	-30~+70	SMD	39
OBO-45AL1	8.5×8.5×4.5	3.0	2~4	16±3	2,300	Min. 87	Max. 80	-30~+70	SMD	40
OBO-45AP1	8.5×8.5×4.5	3.0	2~4	16±3	2,700	Min. 87	Max. 80	-30~+70	SMD	40
OBO-45BP1	9.0×4.5	3.0	2~4	16±3	2,700	Min. 85	Max. 100	-20~+60	SMD	40
OBO-0903S-A2	8.5×8.5×3.0	3.0	2~5	16±4	2,700	Min. 87	Max. 100	-30~+70	SMD	41
OBO-0905S-A2	8.5×8.5×3.0	5.0	4~7	30±4	2,700	Min. 87	Max. 100	-30~+70	SMD	41
OBO-50UP1	9.6×9.6×5	5.0	4~7	-	2,700±300	Min. 85	Max. 30	-20~+70	SMD	42
OBO-65UN1	12.8×12.8×7.0	5.0	4~7	-	2,400±300	Min. 85	Max. 30	-20~+70	SMD	42
OBO-100UN1	12.8×12.8×10.0	12.0	8~16	-	2,400±300	Min. 85	Max. 30	-20~+70	SMD	42
OBO-0901A-A2	9.0×4.0	1.5	1~2	5.5±1	2,730	Min. 85	Max. 80	-20~+60	PIN	43
OBO-0903A-A2	9.0×4.0	3.0	2~4	15±3	2,730	Min. 85	Max. 80	-20~+60	PIN	43
OBO-0905A-A2	9.0×4.0	5.0	4~6	30±5	2,730	Min. 85	Max. 80	-20~+60	PIN	43
OBO-1001R-A2	9.6×5.0	1.5	1~2	5.5±2	2,730	Min. 85	Max. 80	-20~+60	PIN	44
OBO-1003R-A2	9.6×5.0	3.0	2~4	25±3	2,730	Min. 85	Max. 70	-20~+60	PIN	44
OBO-1005R-A2	9.6×5.0	5.0	4~6	30±5	2,730	Min. 85	Max. 100	-20~+60	PIN	44
OBO-1201G-A1	12.0×8.5	1.5	1~2	16±2	2,048	Min. 85	Max. 55	-25~+70	PIN	45
OBO-1201G-B1	12.0×8.5	1.5	1~3	42±6	2,048	Min. 85	Max. 15	-20~+70	PIN	45
OBO-1206G-C1	12.0×8.5	6.0	4~8	73±6	2,048	Min. 82	Max. 30	-20~+70	PIN	45
OBO-1201M-A3	12.0×5.5	1.5	1~3	16±2	2,048	Min. 75	Max. 30	-20~+70	PIN	46
OBO-1201M-B3	12.0×5.5	1.5	1~3	42±6	2,048	Min. 70	Max. 15	-25~+70	PIN	46
OBO-1203M-A3	12.0×5.5	3.0	1~5	16±2	2,048	Min. 85	Max. 70	-20~+60	PIN	47
OBO-1205M-B3	12.0×5.5	5.0	3~8	42±6	2,048	Min. 85	Max. 50	-30~+80	PIN	47
OBO-1205A-D2	12.0×9.0	5.0	3~7	42±5	2,048	Min. 82	Max. 50	-20~+70	PIN	48
OBO-1212A-D2	12.0×9.0	12.0	7~16	140±14	2,400	Min. 85	Max. 40	-20~+70	PIN	48
OBO-1201A-A2	12.0×9.0	1.5	1~2	6.5±1	2,400	Min. 75	Max. 70	-25~+70	PIN	49
OBO-1206A-A2	12.0×9.0	6.0	4~8	45±6	2,400	Min. 85	Max. 50	-20~+70	PIN	49
OBO-1212A-A2	12.0×9.0	12.0	6~15	140±14	2,400	Min. 85	Max. 40	-20~+70	PIN	49
OBO-1201C-A2	12.0×9.5	1.5	1.2~3	-	2,300±400	Min. 75	Max. 20	-20~+70	PIN	50
OBO-1206C-A2	12.0×9.5	6.0	3~8	-	2,300±300	Min. 85	Max. 30	-20~+70	PIN	50
OBO-1212C-A2	12.0×9.5	12.0	8~16	-	2,300±300	Min. 85	Max. 30	-30~+85	PIN	50
OBO-1201D-A2	12.0×7.5	1.5	1.3~3	-	2,300±500	Min. 75	Max. 25	-20~+70	PIN	51
OBO-1203D-A2	12.0×7.5	3.0	2~5	-	2,300±400	Min. 83	Max. 30	-20~+70	PIN	51
OBO-1205D-A2	12.0×7.5	5.0	3~7	-	2,300±400	Min. 83	Max. 30	-25~+70	PIN	51
OBO-1212D-A2	12.0×7.5	12.0	9~15	-	2,300±400	Min. 83	Max. 30	-30~+85	PIN	51

CONSTRUCTION, BASIC POINT FOR ADEQUATE USES, STANDARD DRIVING FOR 9ϕ, 12ϕ MAGNETIC TRANSDULER
電磁式蜂鳴器產品結構、使用特性、建議線路

With reference to the below drawing which shows the construction of 9ø, 12ø type magnetic transducers, the operation principle of miniature sound transducers can be explained as follows :

As shown in the drawing, the metal vibrating disk located in between two covers oscillated and makes sound by the magnetic field which attracts the vibrating disk being affected by the imposed magnetic flux.

This movement is generated by the current through the coil which is located in the magnetic circuits consisting of permanent magnetic and iron core.



NO.	Name of Materials Parts	料品名稱
1	Cavity	腔體
2	Cover	上蓋
3	Vibrating weight	質量片
4	Vibrating disk	振動片
5	Pole	
6	Magnet	磁鐵
7	Magnet holder	磁鐵放置區
8	Coil	線圈
9	Yoke plate	Yoke片
10	P.C. board	PC板
11	Pin long	長PIN
12	Pin short	短PIN
13		

CONSTRUCTION VIEW OF 9Ø, 12Ø TYPE

BASIC POINT FOR ADEQUATE USES（使 用 特 性）

1.Frequency Characteristics 頻率

Magnetic Transducers are driven by an input frequency. The given frequency characteristics can be obtained only when applying square wave (Vo-p). 電磁式產品是輸入頻率做驅動，且頻率曲線會以方波Vo-p表示

The end-users must know the facts that the characteristics of frequency may be quite change in different shapes with the applied various waves, like sine wave, square wave (Vo-p) or the other waves.

客戶於使用時要明白，不同的頻率驅動時頻率曲線的表現會改變

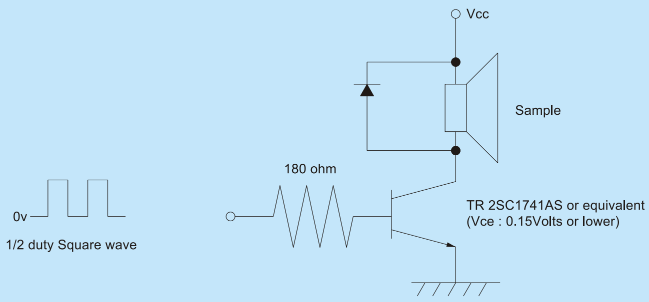
2.Rated Voltage 電壓

When other voltage are applied than our recommended one, the characteristics of frequency will be also changed.

To have best performance, the recommended voltage by OBO has better being used always.

當電壓改變時，頻率表現也會改變，建議由客戶提供資料以獲得較好的頻率表現

STANDARD DRIVING CIRCUIT FOR TRANSDUCER（9ϕ，12ϕ 建 議 路 線）



OBO
OBO PRO.2 INC.

MAGNETIC TRANSDUCER

SMD MAGNETIC TRANSDUCER
S M D 電 磁 式 蜂 鳴 器

FEATURES 特 點

- SMD small size — SMD小尺寸
- Side opening for sound emission — 側孔發音

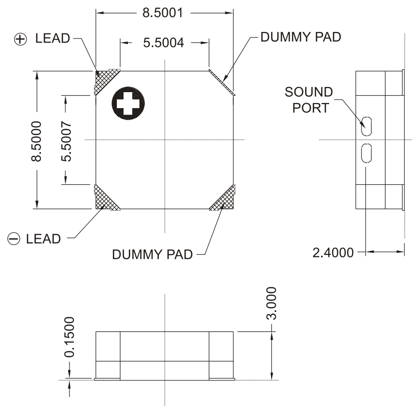
APPLICATIONS 應 用 產 品

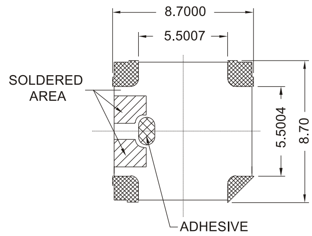
- P.O.S. DEVICE — 讀卡機

☆ Value applying rated voltage (resonant frequency, 1/2 duty square wave)

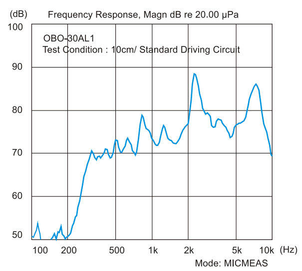
	OBO-30AL1	OBO-30AP1
RATED VOLTAGE 設定電壓	3.0VDC	3.0VDC
OPERATING VOLTAGE 電壓範圍	2~4V	2~4V
☆ RATED CURRENT 消耗電流	max. 100mA	max. 100mA
☆ SOUND PRESSURE LEVEL AT 10 CM 輸出音壓	min. 83dB	min. 85dB
COIL RESISTANCE 線圈電阻	16±3Ω	16±3Ω
RATED FREQUENCY 額定頻率	2,300Hz	2,700Hz
OPERATING TEMP. RANGE 操作溫度	-30˚C to +70˚C	-30˚C to +70˚C
STORAGE TEMP. RANGE 儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT 重　量	0.5gm	0.5gm
TERMINAL 導　端	SMD Type	SMD Type

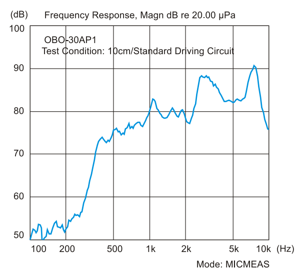
Dimensions (Unit: mm ± 0.2)





Frequency Response

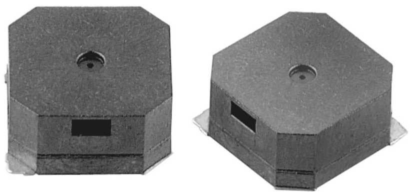




OBO PRO.2 INC.

MAGNETIC TRANSDUCER

SMD MAGNETIC TRANSDUCER
S M D 電 磁 式 蜂 鳴 器



FEATURES 特點

• SMD small size	SMD小尺寸
• Side opening for sound emission	側孔發音

APPLICATIONS 應用產品

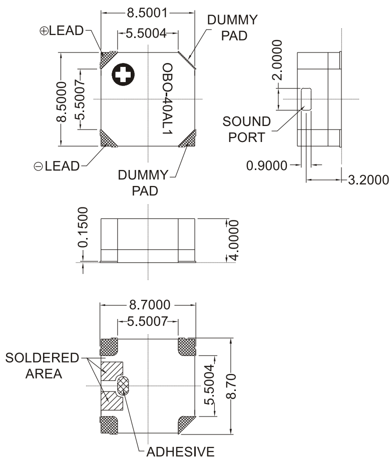
• P.O.S. DEVICE	讀卡機

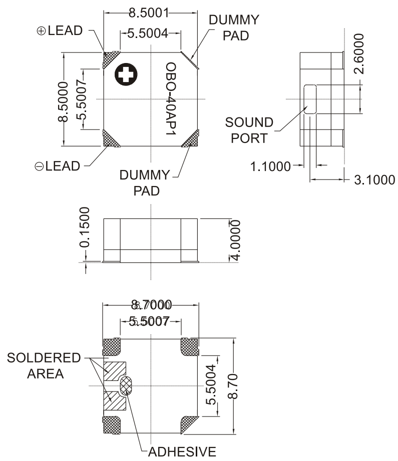
電磁式蜂鳴器 Magnetic Transducer

☆ Value applying rated voltage (resonant frequency, 1/2 duty square wave)

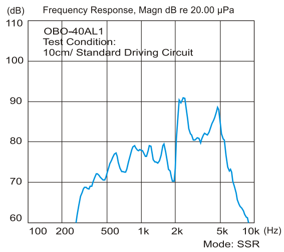
		OBO-40AL1	OBO-40AP1
RATED VOLTAGE	設定電壓	3.0VDC	3.0VDC
OPERATING VOLTAGE	電壓範圍	2~4V	2~4V
☆ RATED CURRENT	消耗電流	max. 80mA	max. 80mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 87dB	min. 90dB
COIL RESISTANCE	線圈電阻	16±3Ω	16±3Ω
RATED FREQUENCY	額定頻率	2,300Hz	2,700Hz
OPERATING TEMP. RANGE	操作溫度	-30˚C to +70˚C	-30˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT	重　量	0.6gm	0.6gm
TERMINAL	導　端	SMD Type	SMD Type

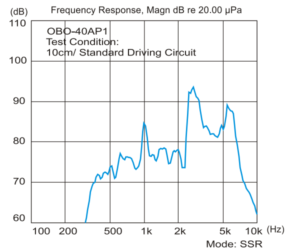
Dimensions (Unit: mm ± 0.2)



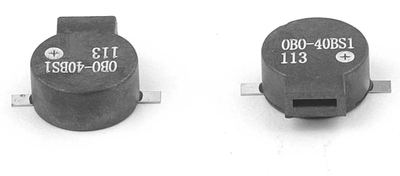


Frequency Response





SMD MAGNETIC TRANSDUCER
S M D 電 磁 式 蜂 鳴 器



FEATURES 特 點

• SMD small size	SMD小尺寸
• Side opening for sound emission	側孔發音

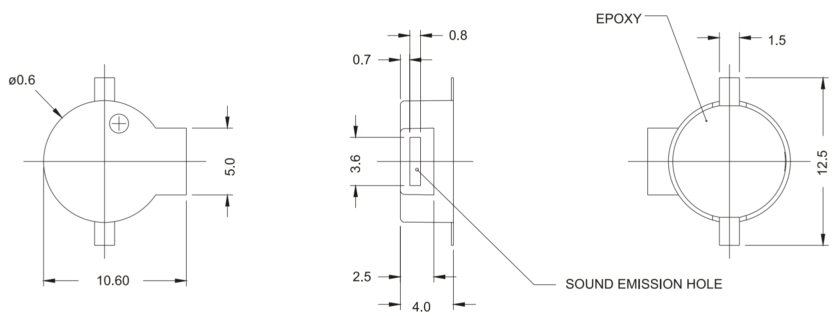
APPLICATIONS 應 用 產 品

• P.O.S. DEVICE	讀卡機

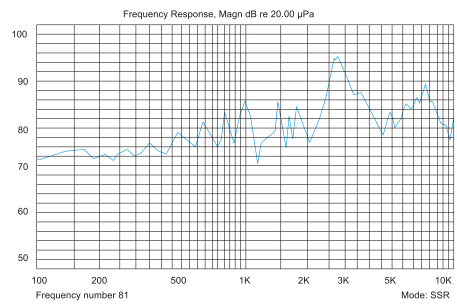
☆ Value applying rated voltage (resonant frequency, 1/2 duty square wave)

		OBO-40BS1	OBO-40BS2	OBO-40BS3
RATED VOLTAGE	設定電壓	1.5VDC	3.0VDC	5.0VDC
OPERATING VOLTAGE	電壓範圍	1~2V	2~4V	4~6V
☆ RATED CURRENT	消耗電流	max. 80mA	max. 80mA	max. 80mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 85dB	min. 85dB	min. 85dB
COIL RESISTANCE	線圈電阻	5.5±1Ω	15±3Ω	30±5Ω
RATED FREQUENCY	額定頻率	2,730Hz	2,730Hz	2,730Hz
OPERATING TEMP. RANGE	操作溫度	-30˚C to +70˚C	-30˚C to +70˚C	-30˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT	重　量	1.0gm	1.0gm	1.0gm
TERMINAL	導　端	SMD Type	SMD Type	SMD Type

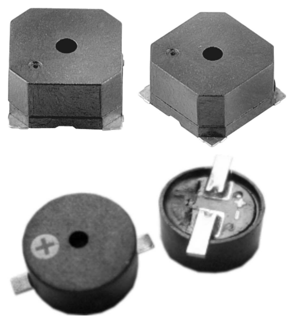
Dimensions (Unit: mm ± 0.5)



Frequency Response



SMD MAGNETIC TRANSDUCER
S M D 電 磁 式 蜂 鳴 器



FEATURES 特 點

- SMD small size SMD小尺寸
- Side opening for sound emission 側孔發音

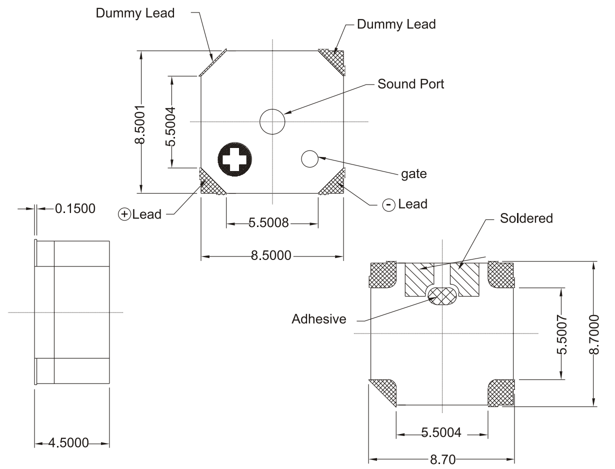
APPLICATIONS 應 用 產 品

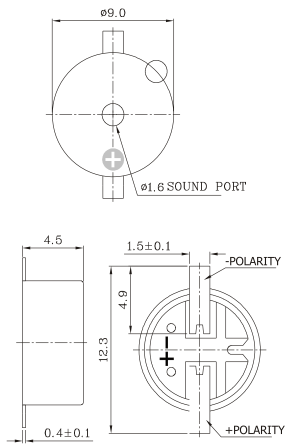
- P.O.S. DEVICE 讀卡機

☆ Value applying rated voltage (resonant frequency, 1/2 duty square wave)

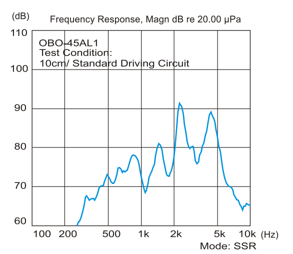
		OBO-45AL1	OBO-45AP1	OBO-45BP1
RATED VOLTAGE	設定電壓	3.0VDC	3.0VDC	3VDC
OPERATING VOLTAGE	電壓範圍	2~4 V	2~4 V	2~4V
☆ RATED CURRENT	消耗電流	max. 80mA	max. 80mA	max. 100mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 87dB	min. 87dB	min. 85dB
COIL RESISTANCE	線圈電阻	16±3Ω	16±3Ω	16±3Ω
RATED FREQUENCY	額定頻率	2,300Hz	2,700Hz	2,700Hz
OPERATING TEMP. RANGE	操作溫度	-30˚C to +70˚C	-30˚C to +70˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-30˚C to +80˚C
WEIGHT	重 量	0.6gm	0.6gm	0.8gm
TERMINAL	導 端	SMD Type	SMD Type	SMD Type

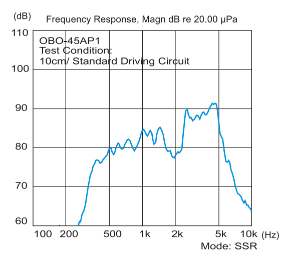
Dimensions (Unit: mm ± 0.2)

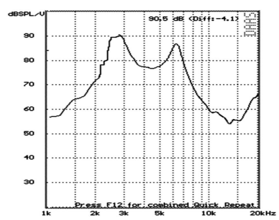




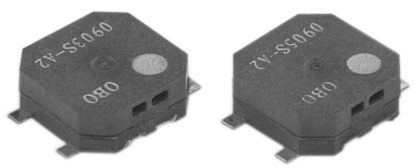
Frequency Response







SMD MAGNETIC TRANSDUCER
SMD電磁式蜂鳴器



FEATURES 特點

• SMD small size	SMD小尺寸
• Side opening for sound emission	側孔發音

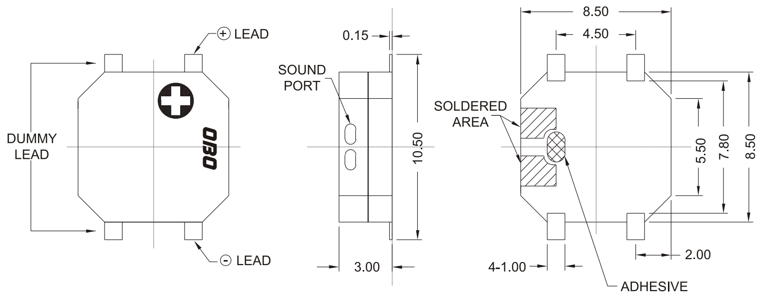
APPLICATIONS 應用產品

• Enterprise computing and storage	企業電腦系統

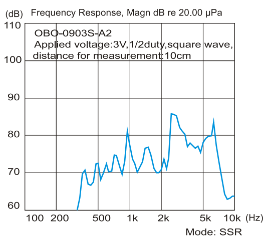
☆ Value applying rated voltage (resonant frequency, 1/2 duty square wave)

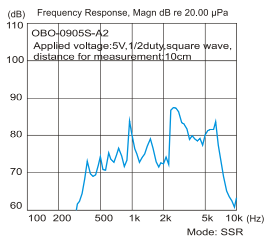
		OBO-0903S-A2	OBO-0905S-A2
RATED VOLTAGE	設定電壓	3.0VDC	5.0VDC
OPERATING VOLTAGE	電壓範圍	2~5V	4~7V
☆ RATED CURRENT	消耗電流	max.100mA	max.100mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 87dB	min. 87dB
COIL RESISTANCE	線圈電阻	16±4Ω	30±4Ω
RATED FREQUENCY	額定頻率	2,700Hz	2,700Hz
OPERATING TEMP. RANGE	操作溫度	-30˚C to +70˚C	-30˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT	重 量	0.5gm	0.5gm
TERMINAL	導 端	SMD Type	SMD Type

Dimensions (Unit: mm ± 0.2)



Frequency Response





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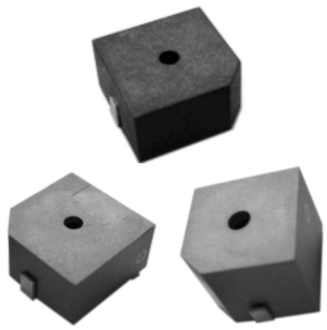
OBO PRO.2 INC.

MAGNETIC TRANSDUCER

SMD MAGNETIC TRANSDUCER
S M D 電 磁 式 蜂 鳴 器



FEATURES 特 點

- SMD small size　SMD小尺寸
- Side opening for sound emission　側孔發音

APPLICATIONS 應 用 產 品

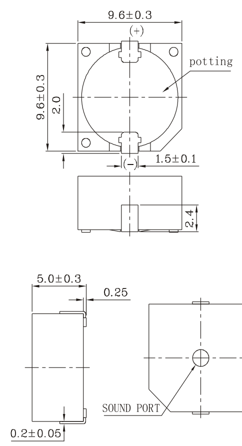
- P.O.S. DEVICE　讀卡機

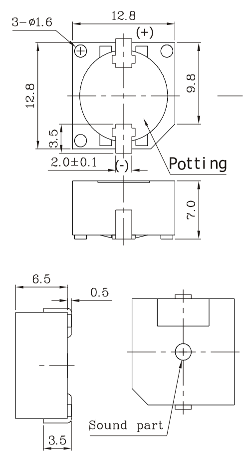
☆ Value applying rated voltage (resonant frequency, 1/2 duty square wave)

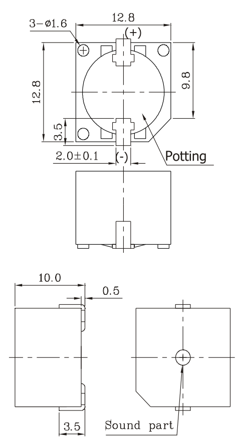
電磁式蜂鳴器 Magnetic Transducer

	OBO-50UP1	OBO-65UN1	OBO-100UN1
RATED VOLTAGE 設定電壓	5.0VDC	5.0VDC	12.0VDC
OPERATING VOLTAGE 電壓範圍	4~7V	4~7V	8~16V
☆ RATED CURRENT 消耗電流	max. 30mA	max. 30mA	max. 30mA
☆ SOUND PRESSURE LEVEL AT 10 CM 輸出音壓	min. 85dB	min. 85dB	min. 85dB
COIL RESISTANCE 線圈電阻			
RATED FREQUENCY 額定頻率	2.7±0.3KHz	2.4±0.3KHz	2.4±0.3Hz
OPERATING TEMP. RANGE 操作溫度	-20˚C to +70˚C	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE 儲存溫度	-30˚C to +85˚C	-30˚C to +80˚C	-30˚C to +80˚C
WEIGHT 重　量	1.5gm	2.0gm	2.5gm
TERMINAL 導　端	SMD Type	SMD Type	SMD Type

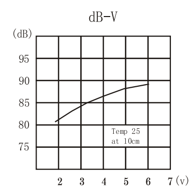
Dimensions (Unit: mm ± 0.2)

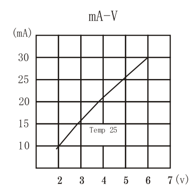


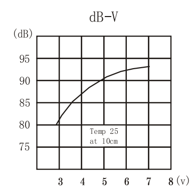


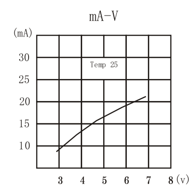


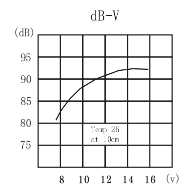
Frequency Response

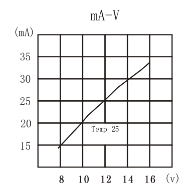












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OBO PRO.2 INC.

MAGNETIC TRANSDUCER

MAGNETIC TRANSDUCER
電磁式蜂鳴器

FEATURES 特點

• Small size, capable for wave soldering	小尺寸、可做波峰焊
• Top opening for sound emission	正孔發音

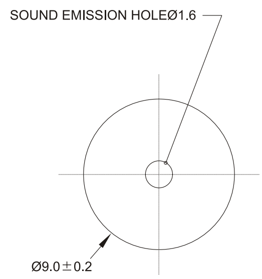
APPLICATIONS 應用產品

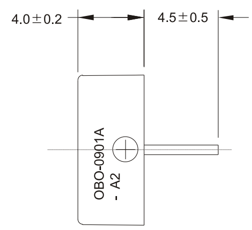
• WHITE goods	家電用品

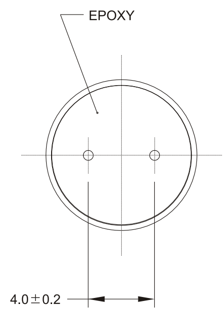
☆ Value applying rated voltage (2730Hz, 1/2 duty square wave)

		OBO-0901A-A2	OBO-0903A-A2	OBO-0905A-A2
RATED VOLTAGE	設定電壓	1.5VDC	3.0VDC	5.0VDC
OPERATING VOLTAGE	電壓範圍	1~2V	2~4V	4~6V
☆ RATED CURRENT	消耗電流	max. 80mA	max. 80mA	max. 80mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 85dB	min. 85dB	min. 85dB
COIL RESISTANCE	線圈電阻	5.5±1Ω	15±3Ω	30±5Ω
RATED FREQUENCY	額定頻率	2,730Hz	2,730Hz	2,730Hz
OPERATING TEMP. RANGE	操作溫度	-20˚C to +60˚C	-20˚C to +60˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT	重 量	0.7gm	0.7gm	0.7gm

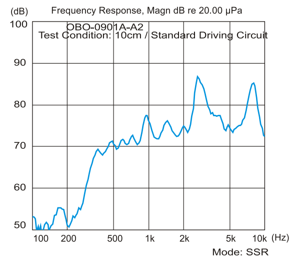
Dimensions (Unit: mm ± 0.5)

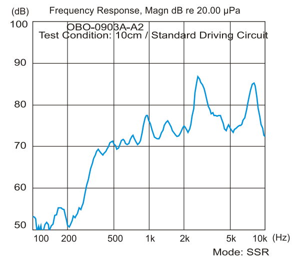


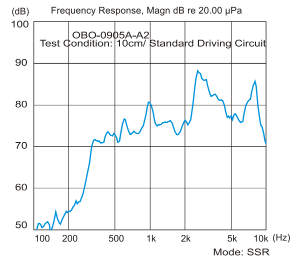




Frequency Response







OBO PRO.2 INC.

MAGNETIC TRANSDUCER

MAGNETIC TRANSDUCER
電磁式蜂鳴器

電磁式蜂鳴器 Magnetic Transducer

FEATURES 特點

• Small size, capable for wave soldering	小尺寸、可做波峰焊
• Side opening for sound emission	側孔發音

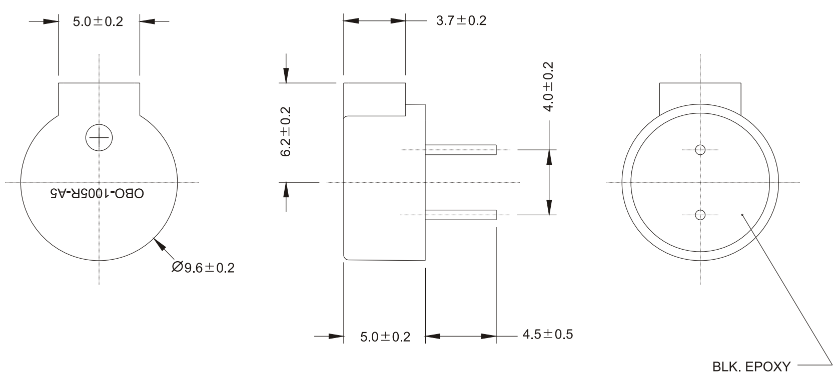
APPLICATIONS 應用產品

• WHITE goods	家電用品

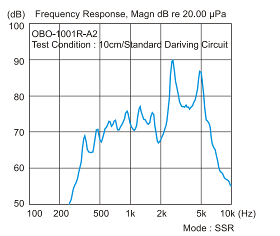
☆ Value applying rated voltage (2730Hz, 1/2 duty square wave)

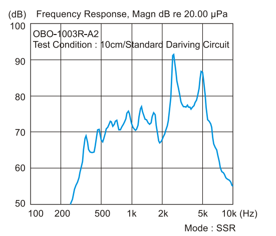
		OBO-1001R-A2	OBO-1003R-A2	OBO-1005R-A2
RATED VOLTAGE	設定電壓	1.5VDC	3.0VDC	5.0VDC
OPERATING VOLTAGE	電壓範圍	1~2V	2~4V	4~6V
☆ RATED CURRENT	消耗電流	max. 80mA	max. 70mA	max. 100mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 85dB	min. 85dB	min. 85dB
COIL RESISTANCE	線圈電阻	5.5±2Ω	25±3Ω	30±5Ω
RATED FREQUENCY	額定頻率	2,730Hz	2,730Hz	2,730Hz
OPERATING TEMP. RANGE	操作溫度	-20˚C to +60˚C	-20˚C to +60˚C	-20˚C to +60˚C
STORAGE TEMP. RANGE	儲存溫度	-40˚C to +85˚C	-40˚C to +85˚C	-40˚C to +85˚C
WEIGHT	重　量	1.0gm	1.0gm	1.0gm

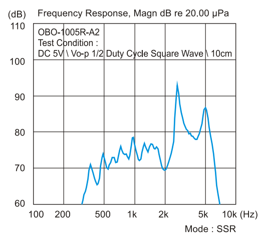
Dimensions (Unit: mm ± 0.5)



Sound Pressure Level vs. Frequency
Applied Voltage : Rated Voltage
1/2 duty Square wave
Distance for Measurement : 10cm







OBO PRO.2 INC.

MAGNETIC TRANSDUCER

MAGNETIC TRANSDUCER
電磁式蜂鳴器

FEATURES 特點

- Small size, high sound output not allowed for wave soldering 小尺寸、高音壓、不可作波峰焊

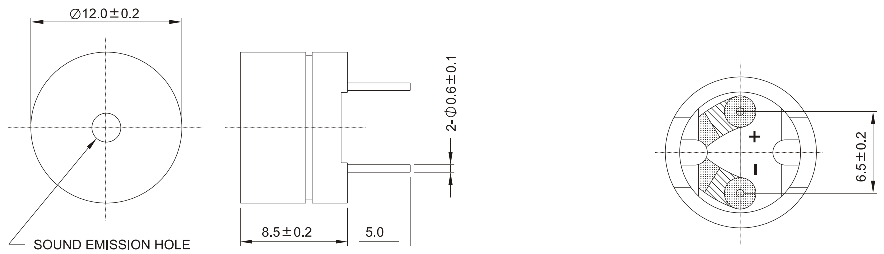
APPLICATIONS 應用產品

- WHITE goods 家電用品

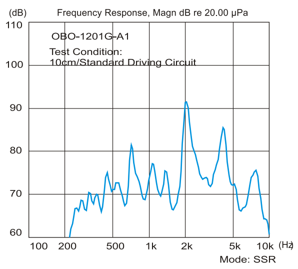
☆Value applying rated voltage (2048Hz, 1/2 duty square wave)

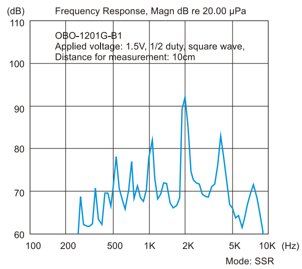
		OBO-1201G-A1	OBO-1201G-B1	OBO-1206G-C1
RATED VOLTAGE	設定電壓	1.5VDC	1.5VDC	6.0VDC
OPERATING VOLTAGE	電壓範圍	1~2V	1~3V	4~8V
☆ RATED CURRENT	消耗電流	max. 55mA	max. 15mA	max. 30mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 85dB	min. 85dB	min. 82dB
COIL RESISTANCE	線圈電阻	16±2Ω	42±6Ω	73±6Ω
RATED FREQUENCY	額定頻率	2,048Hz	2,048Hz	2,048Hz±150Hz
OPERATING TEMP. RANGE	操作溫度	-25˚C to +70˚C	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-30˚C to +80˚C	-30˚C to +80˚C	-30˚C to +80˚C
WEIGHT	重 量	1.3gms	2.0gms	1.5gms

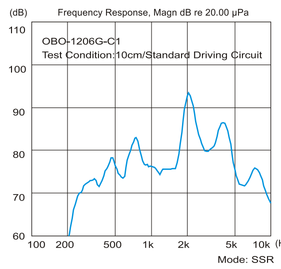
Dimensions (Unit: mm ± 0.5)



Sound Pressure Level vs. Frequency
Applied Voltage : 1.5V
1/2 duty Square wave
Distance for Measurement : 10cm







OBO
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MAGNETIC TRANSDUCER

MAGNETIC TRANSDUCER
電磁式蜂鳴器

FEATURES 特點

• Small Size, not allowed for wave soldering	小尺寸、不可作波峰焊

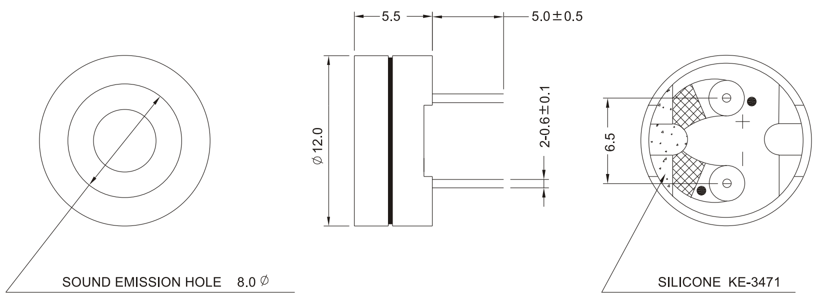
APPLICATIONS 應用產品

• WHITE goods	家電用品

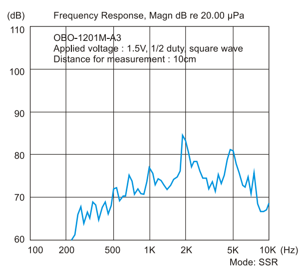
☆Value applying rated voltage (2048Hz, 1/2 duty square wave)

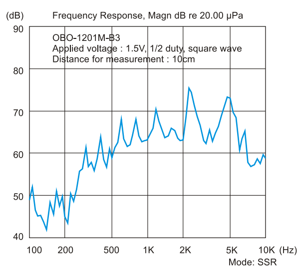
		OBO-1201M-A3	OBO-1201M-B3
RATED VOLTAGE	設定電壓	1.5VDC	1.5VDC
OPERATING VOLTAGE	電壓範圍	1~3V	1~3V
☆ RATED CURRENT	消耗電流	max. 30mA	max. 15mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 75dB	min. 70dB
COIL RESISTANCE	線圈電阻	16±2Ω	42±6Ω
RATED FREQUENCY	額定頻率	2,048Hz	2,048Hz
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-25˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-30˚C to +85˚C	-30˚C to +80˚C
WEIGHT	重　量	1.3gms	1.3gms

Dimensions (Unit: mm ± 0.5)



Sound Pressure Level vs. Frequency
Applied Voltage : 1.5V
1/2 duty Square wave
Distance for Measurement : 10cm





電磁式蜂鳴器 Magnetic Transducer

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OBO PRO.2 INC.

MAGNETIC TRANSDUCER

MAGNETIC TRANSDUCER
電磁式蜂鳴器

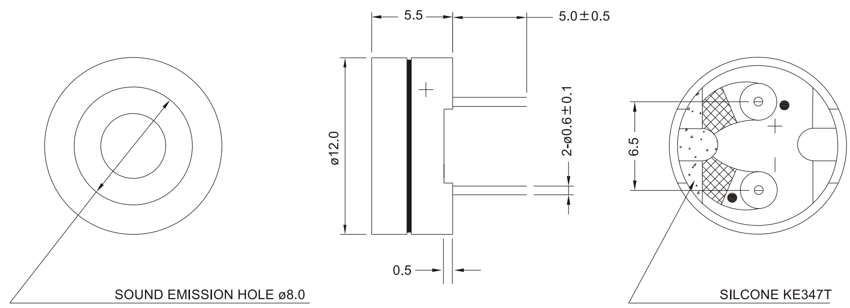
FEATURES	特點
• Small Size, not allowed for wave soldering	小尺寸、不可作波峰焊

APPLICATIONS	應用產品
• WHITE goods	家電用品

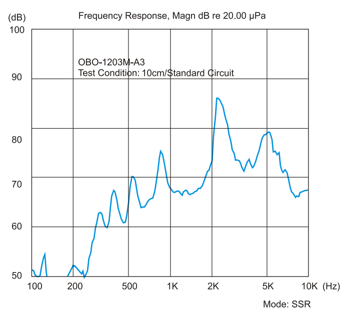
☆Value applying rated voltage (2048Hz, 1/2 duty square wave)

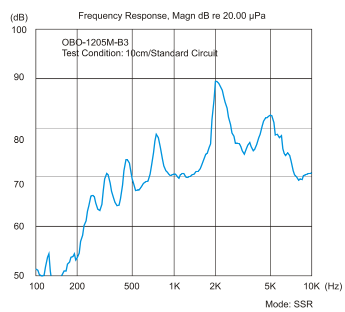
		OBO-1203M-A3	OBO-1205M-B3
RATED VOLTAGE	設定電壓	3.0VDC	5.0VDC
OPERATING VOLTAGE	電壓範圍	1~5V	3~8V
☆ RATED CURRENT	消耗電流	max. 70mA	max. 50mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 85dB	min. 85dB
COIL RESISTANCE	線圈電阻	16 ±2Ω	42 ±6Ω
RATED FREQUENCY	額定頻率	2,048 Hz	2,048 Hz
OPERATING TEMP. RANGE	操作溫度	-20˚C to +60˚C	-30˚C to +80˚C
STORAGE TEMP. RANGE	儲存溫度	-30˚C to +70˚C	-30˚C to +85˚C
WEIGHT	重　量	1.3gms	2gms

Dimensions (Unit: mm ±0.5)



Sound Pressure Level vs. Frequency
Applied Voltage: 3.0V / 5.0V
1/2 duty Square Wave
Distance for Measurement: 10cm





OBO
OBO PRO.2 INC.

MAGNETIC TRANSDUCER

MAGNETIC TRANSDUCER
電磁式蜂鳴器

FEATURES 特點

- Sealed design for wave soldering and washing 封膠、可作波封焊及水洗

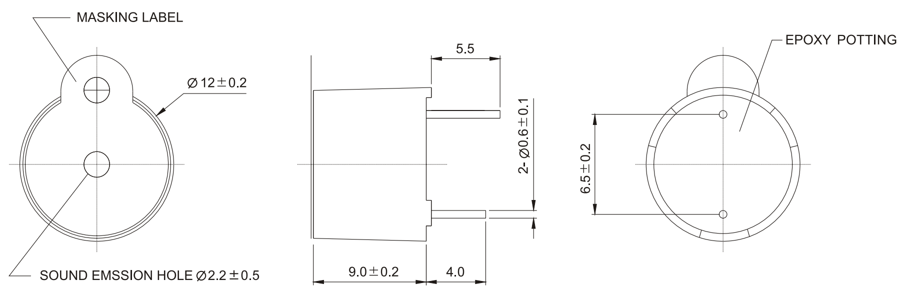
APPLICATIONS 應用產品

- WHITE goods 家電用品

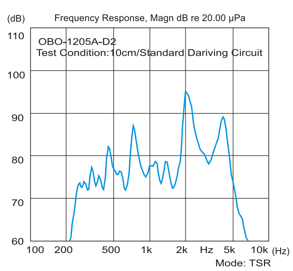
☆ Value applying rated voltage (resonant frequency, 1/2 duty square wave)

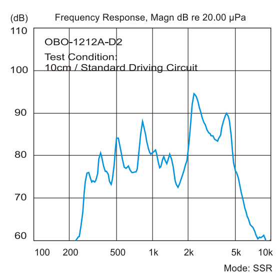
		OBO-1205A-D2	OBO-1212A-D2
RATED VOLTAGE	設定電壓	5VDC	12VDC
OPERATING VOLTAGE	電壓範圍	3~7V	7~16V
☆ RATED CURRENT	消耗電流	max. 50mA	max. 40mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 82dB	min. 85dB
COIL RESISTANCE	線圈電阻	42±5Ω	140±14Ω
RATED FREQUENCY	額定頻率	2,048Hz	2,400Hz
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-30˚C to +75˚C	-30˚C to +80˚C
WEIGHT	重　　量	2gms	1.5gms

Dimensions (Unit: mm ± 0.5)



Sound Pressure Level vs. Frequency
Applied Voltage : Rated Voltage
1/2 duty Square wave
Distance for Measurement : 10cm





MAGNETIC TRANSDUCER

MAGNETIC TRANSDUCER
電磁式蜂鳴器

FEATURES 特點

• Sealed design for wave soldering and washing 封膠、可作波封焊及水洗

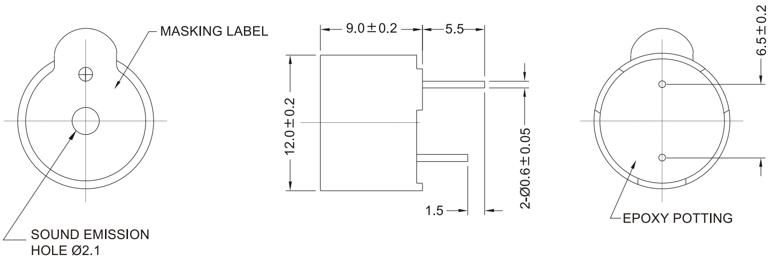
APPLICATIONS 應用產品

• WHITE goods 家電用品

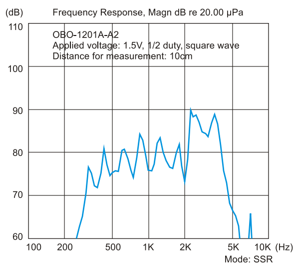
☆Value applying rated voltage (2400Hz, 1/2 duty square wave)

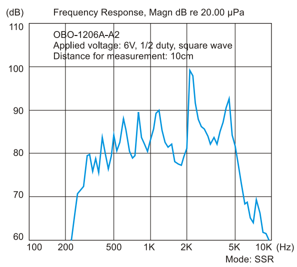
		OBO-1201A-A2	OBO-1206A-A2	OBO-1212A-A2
RATED VOLTAGE	設定電壓	1.5VDC	6VDC	12VDC
OPERATING VOLTAGE	電壓範圍	1~2V	4~8V	6~15 V
☆ RATED CURRENT	消耗電流	max. 70mA	max. 50mA	max. 40mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 75dB	min. 85dB	min. 85dB
COIL RESISTANCE	線圈電阻	6.5±1Ω	45±6Ω	140±14Ω
RATED FREQUENCY	額定頻率	2,400Hz	2,400Hz	2,400Hz
OPERATING TEMP. RANGE	操作溫度	-25˚C to +70˚C	-20˚C to +70˚C	-20˚C to +70˚C
STORAGE TEMP. RANGE	儲存溫度	-30˚C to +80˚C	-30˚C to +80˚C	-30˚C to +80˚C
WEIGHT	重　量	2gms	2gms	2gms

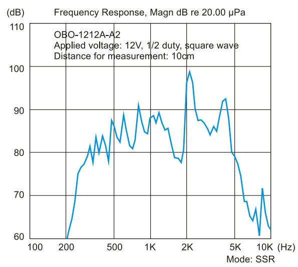
Dimensions (Unit: mm ± 0.5)



Sound Pressure Level vs.
Frequency
Applied Voltage : Rated Voltage
1/2 duty Square wave
Distance for Measurement : 10cm







MAGNETIC TRANSDUCER

BUILT-IN OSCILLATING CIRCUIT TYPE
內 含 線 路 式 電 磁 式 蜂 鳴 器

FEATURES 特點

- Sealed with built-in oscillating circuit for wave soldering and washing 封膠防水及內含驅動線路設計、可波峰焊及水洗

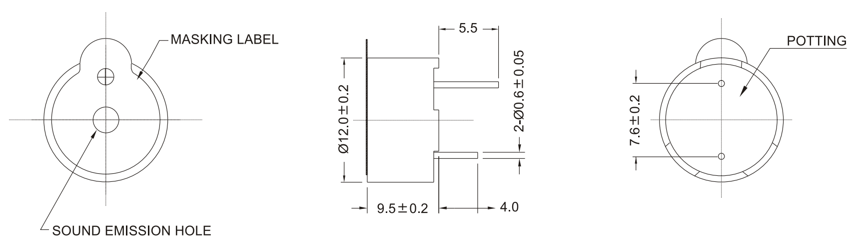
APPLICATIONS 應用產品

- WHITE goods 家電用品

☆ Value applying rated voltage (DC)

		OBO-1201C-A2	OBO-1206C-A2	OBO-1212C-A2
RATED VOLTAGE	設定電壓	1.5VDC	6VDC	12VDC
OPERATING VOLTAGE	電壓範圍	1.2~3V	3~8V	8~16V
☆ RATED CURRENT	消耗電流	max. 20mA	max. 30mA	max. 30mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 75dB	min. 85dB	min. 85dB
☆ FREQUENCY OF OUTPUT SINGAL	輸出頻率	2,300Hz±400Hz	2,300Hz±300Hz	2,300Hz±300Hz
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +70˚C	-30˚C to +85˚C
STORAGE TEMP. RANGE	儲存溫度	-30˚C to +80˚C	-30˚C to +80˚C	-40˚C to +85˚C
WEIGHT	重　量	2gms	2gms	2gms

Dimensions (Unit: mm ±0.5)



OBO
OBO PRO.2 INC.

MAGNETIC TRANSDUCER

BUILT-IN OSCILLATING CIRCUIT TYPE
內 含 線 路 式 電 磁 式 蜂 鳴 器

FEATURES 特 點

• Sealed with built-in oscillating circuit for wave soldering and washing
封膠防水及內含驅動線路設計、可波峰焊及水洗

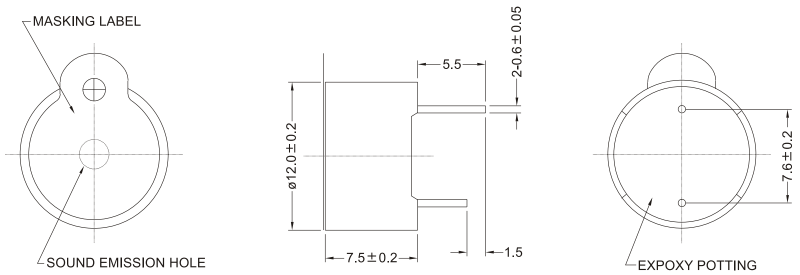
APPLICATIONS 應 用 產 品

• WHITE goods
家電用品

☆ Value applying rated voltage (DC)

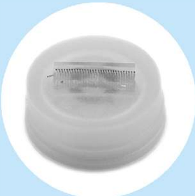
		OBO-1201D-A2	OBO-1203D-A2	OBO-1205D-A2	OBO-1212D-A2
RATED VOLTAGE	設定電壓	1.5VDC	3VDC	5VDC	12VDC
OPERATING VOLTAGE	電壓範圍	1.3~3V	2~5V	3~7V	9~15V
☆ RATED CURRENT	消耗電流	max. 25mA	max. 30mA	max. 30mA	max. 30mA
☆ SOUND PRESSURE LEVEL AT 10 CM	輸出音壓	min. 75dB	min. 83dB	min. 83dB	min. 83dB
☆ FREQUENCY OF OUTPUT SINGAL	輸出頻率	2,300Hz±500 Hz	2,300Hz±400 Hz	2,300Hz±400 Hz	2,300Hz±400 Hz
OPERATING TEMP. RANGE	操作溫度	-20˚C to +70˚C	-20˚C to +70˚C	-25˚C to +70˚C	-30˚C to +85˚C
STORAGE TEMP. RANGE	儲存溫度	-30˚C to +80˚C	-20˚C to +85˚C	-30˚C to +85˚C	-30˚C to +85˚C
WEIGHT	重　量	2gms	2gms	2gms	2gms

Dimensions (Unit: mm ±0.5)



Note

Condenser Microphone
電 容 式 麥 克 風


APPLICATIONS

- Any Type of Telephones
- GSM / PDA Phone
- Multimedia
- Recorders

PART NUMBERING SYSTEM
電容式麥克風產品編號原則

PART NUMBERING SYSTEM

OBO-04F N - 0B - 001

- **Suffix for various spec. of impedance, input voltage and sensitivity level.** (001)
- **Serial number for various types & tolerance of sensitivity** (0B)
  - 0 : for standard type, 1~9 : for special type
  - A : sensitivity level with +/-2dB tolerance
  - B : sensitivity level with +/-3dB tolerance
  - C : sensitivity level with +/-4dB tolerance
- **For leads type** (N)

N : W/O leads	W : Wire type	R : With Mic. Holder
KP : Pin type	A : Pin type W/Capacitor	M : With Capacitor & Mic. Holder
B : Wire type W/Capacitor	C : W/Capacitor only	G : Wire type W/Mic. Holder
T : Wire type W/Mic. Holder & Capacitor		H : PIN Type W/Mic. Holder

- **Various microphone types** (OBO-04F)

NOTE : The testing conditions of input voltage and impedance are able to be changed as per specific inquiry

電容式麥克風產品編號原則

OBO-04F N - 0B - 001

- 流水號，依不同測試電壓、阻值及感度而定 (001)
- 規格流水號及感度誤差別 (0B)
  - 0 :標準品　1~9 :特殊規格
  - A :感度誤差+/-2dB
  - B :感度誤差+/-3dB
  - C :感度誤差+/-4dB
- 材料焊接類 (N)

N :標準品	W :焊線	R :加導電橡膠套
KP :焊PIN	A :焊PIN+電容	M :加電容貼片及導電橡膠套
B :焊線+電容	C :焊電容	G :焊線+橡膠套
T :焊線+橡膠套+電容貼片		H :焊PIN+橡膠套

- 系列編碼 (OBO-04F)

注意：電阻值（Ω）及輸出電壓（V）可依客戶需求作變更

OBO PRO.2 INC.

CONDENSER MICROPHONE

PRODUCT INDEX
電容式麥克風產品索引

ELECTRIC CONDENSER MICROPHONE

MODEL NO.	Dimensions	Testing Conditions		指向性	Directivity	Capacitor	Page
	DØ×H(mm)	Vs	RL(Ω)				NO.
OBO-D64MN-0B-00Q	6.0×2.2	-	-	全指向	Omnidirectional	-	58
OBO-M41EN-2B-012	4.0×1.5	2.0V	2.2K	全指向	Omnidirectional	-	59
OBO-M62EN-2B-012	6.0×2.2	2.0V	2.2K	全指向	Omnidirectional	-	59
OBO-B68DN-0C	6.0×1.8	2.0V	2.2K	雜音濾除	Noise Cancelling	-	60
OBO-64DN-0C	6.0×2.2	2.0V	2.2K	雜音濾除	Noise Cancelling	-	60
OBO-08DN-0C	6.0×2.7	2.0V	2.2K	雜音濾除	Noise Cancelling	-	61
OBO-20DN-0C	9.7×5.0	1.5V	680Ω	雜音濾除	Noise Cancelling	-	61
OBO-B45BN-0B-017	4.0×1.5	2.0V	2.2K	單指向	Unidirectional	-	62
OBO-16BN-0C	6.0×5.2	2.0V	2.2K	單指向	Unidirectional	-	63
OBO-20BN-0C	9.7×5.0	1.5V	680Ω	單指向	Unidirectional	-	63
OBO-B41SN-0B	4.0×1.0	2.0V	2.2K	全指向	Omnidirectional	-	64
OBO-B41KP-0B	4.0×1.0	2.0V	2.2K	全指向	Omnidirectional	-	64
OBO-B41EN-0B	4.0×1.0	2.0V	2.2K	全指向	Omnidirectional	-	64
OBO-B43SN-0B	4.0×1.3	2.0V	2.2K	全指向	Omnidirectional	-	65
OBO-B43KP-0B	4.0×1.3	2.0V	2.2K	全指向	Omnidirectional	-	65
OBO-B43EN-0B	4.0×1.3	2.0V	2.2K	全指向	Omnidirectional	-	65
OBO-45SN-0B	4.0×1.5	2.0V	2.2K	全指向	Omnidirectional	-	66
OBO-45KP-0B	4.0×1.5	2.0V	2.2K	全指向	Omnidirectional	-	66
OBO-45EN-0B	4.0×1.5	2.0V	2.2K	全指向	Omnidirectional	-	66
OBO-48KP-0B	4.5×1.8	2.0V	2.2K	全指向	Omnidirectional	-	67
OBO-40SN-0B	4.5×3.0	2.0V	2.2K	全指向	Omnidirectional	-	68
OBO-40KP-0B	4.5×3.0	2.0V	2.2K	全指向	Omnidirectional	-	68
OBO-40EN-0B	4.5×3.0	2.0V	2.2K	全指向	Omnidirectional	-	68
OBO-63SN-0B	6.0×1.3	2.0V	2.2K	全指向	Omnidirectional	-	69
OBO-63KP-0B	6.0×1.3	2.0V	2.2K	全指向	Omnidirectional	-	69
OBO-65SN-0B	6.0×1.5	2.0V	2.2K	全指向	Omnidirectional	-	70
OBO-65KP-0B	6.0×1.5	2.0V	2.2K	全指向	Omnidirectional	-	70
OBO-65EC-0B	6.0×1.5	2.0V	2.2K	全指向	Omnidirectional	-	70
OBO-68SN-0B	6.0×1.8	2.0V	2.2K	全指向	Omnidirectional	-	71
OBO-68KP-0B	6.0×1.8	2.0V	2.2K	全指向	Omnidirectional	-	71
OBO-68EC-0B	6.0×1.8	2.0V	2.2K	全指向	Omnidirectional	-	71
OBO-64SN-0B	6.0×2.2	2.0V	2.2K	全指向	Omnidirectional	-	72
OBO-64KP-0B	6.0×2.2	2.0V	2.2K	全指向	Omnidirectional	-	72
OBO-64EC-0B	6.0×2.2	2.0V	2.2K	全指向	Omnidirectional	-	72
OBO-62SN-0B	6.0×2.7	2.0V	2.2K	全指向	Omnidirectional	-	73
OBO-62KP-0B	6.0×2.7	2.0V	2.2K	全指向	Omnidirectional	-	73
OBO-62EC-0B	6.0×2.7	2.0V	2.2K	全指向	Omnidirectional	-	73
OBO-54LN-0B	9.7×4.5	2.0V	2.2K	全指向	Omnidirectional	-	74
OBO-54LP-0B	9.7×4.5	2.0V	2.2K	全指向	Omnidirectional	-	74
OBO-04FN-0B	9.7×6.5	4.5V	2.2K	全指向	Omnidirectional	-	75
OBO-04FP-0B	9.7×6.5	4.5V	2.2K	全指向	Omnidirectional	-	75

Note : The testing conditions of input voltage and impedance are able to be changed for a specific sensitivity level.

注意事項

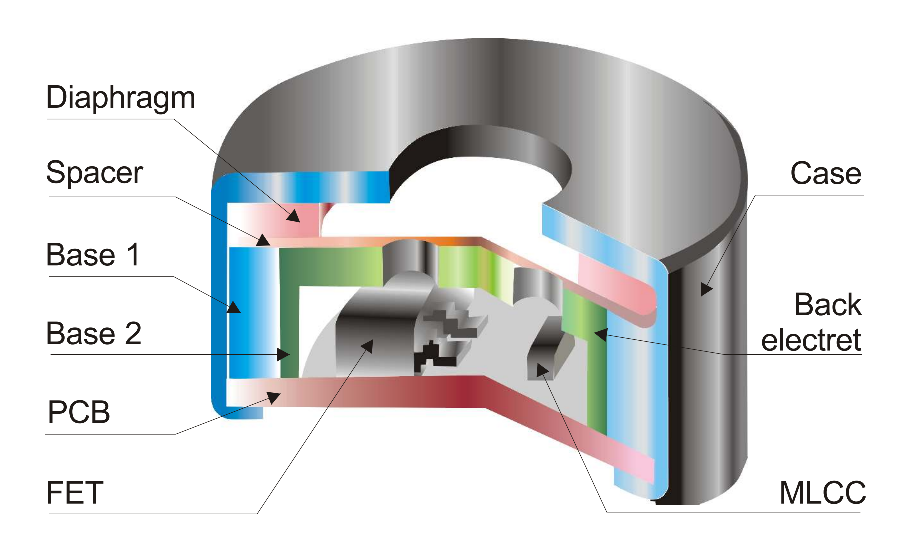
依I.E.C.（國際電子協會）建議，
以"Pa"為感度標示單位。
"Pa"比"μbar" 感度單位增加20dB，
例如 ： -60dB (0dB=1V/μbar) = -40dB (0dB=1V/Pa)

ATTENTION

We use Pascale (Pa) indication of sensitivity as per the recommendation of I.E.C. (International Electrotechnical Commission).
The sensitivity of "Pa" will increase 20dB of μbar indication.
Example : -60dB (0dB=1V/μbar) = -40dB (0dB=1V/Pa)

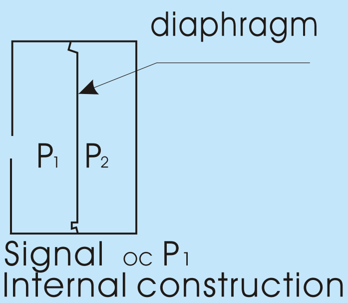
CONSTRUCTION AND DIRECTIONAL EXPLANATION (I)
麥 克 風 結 構 圖 及 指 向 性 說 明 (I)

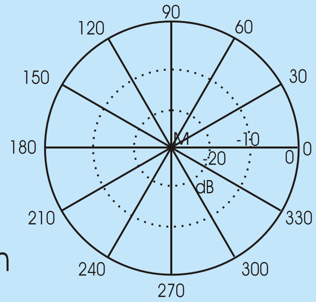
STRUCTURAL SCHEMA OF ELECTRET CONDENSER MICROPHONE （麥 克 風 結 構）



OMNIDIRECTIONAL 全 指 向 麥 克 風

An omnidirectional microphone (also known as a pressure microphone) is a microphone that picks up sound equally well from any direction. It has one sound port. Its output is proportional to the SPL sound pressure microphone that picks up sound equally well from any direction. and at the opening of the sound port. (全指向麥克風是指在任何指向的音質均相同)



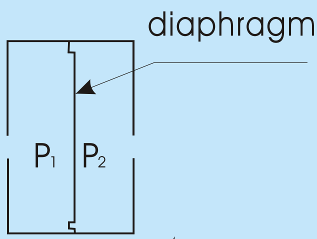


CONSTRUCTION AND DIRECTIONAL EXPLANATION (II)
麥 克 風 結 構 圖 及 指 向 性 說 明 (II)

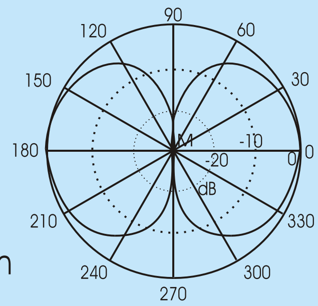
NOISE CANCELLING 雜 音 濾 除 型 麥 克 風

A noise cancelling microphone (also known as pressure gradient or close talking) is a directional microphone designed for use close to the talker's mouth. Its directional pattern looks like a figure 8, and is called cosine or bidirectional. Thus, the front and rear ports are interchangeable. This microphone is used in headset booms or hand-held microphones. It provides the greatest signal-to-noise ratio available for acoustically transducing a person's voice.

雜音濾除型麥克風是專為近講設計，可使用在耳機或手持式麥克風，可提供相當好的雜音過濾尤其是人聲的部份。



Signal $\propto \Delta P$
Internal construction

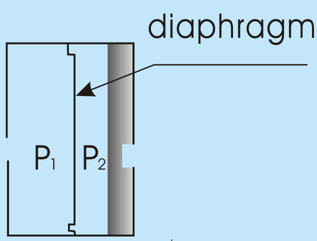


Polar pattem

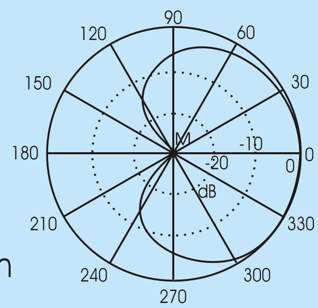
UNIDIRECTIONAL 單 指 向 麥 克 風

A unidirectional microphone is a directional microphone that improves the signal-to-noise ratio compared to an omnidirectional mic, if it's close to and pointed at the sound source.

單指向麥克風是指向性麥克風相較於全指向可改善訊號與雜音之比率。



Signal $\propto \Delta \propto \beta$
Internal construction



Polar pattem

OBO PRO.2 INC.

CONDENSER MICROPHONE

DIGITAL MICROPHONE
數字型麥克風

电容式麥克風 Condenser Microphone

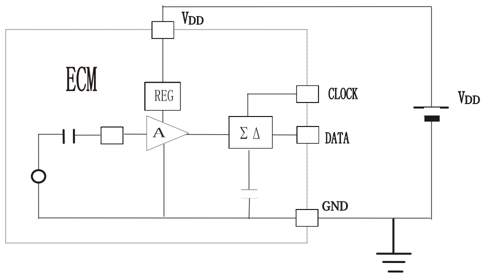
FEATURES 特色

- Very small, thin type omni-directional microphone 超小、薄型全向麥克風
- Most suited to products having limited space 最適合自動貼裝工藝要求產品
- Todesign for high resistance to vibrations 高抗震、高耐溫設計

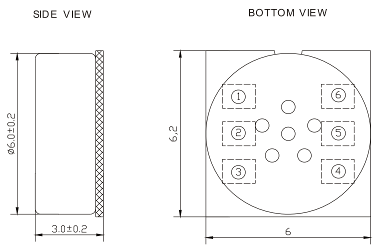
OBO-D64MN-0B-00Q

Parameter	Symbol	Min	Typ	Max	Unit	Comments
Sensitivity(analog signals output）	S	-29	-26	-23	dB	0dB=1V/Pa,at 1kHz
Noise transfer function cut-off	NTF		0.055 x fCLK		MHz	Relative to fCLK
Modulator order			4			Given by design
Idle mode tone frequency	fT	22			KHz	@ Fclk=1 MHz
Clock freq.(sample rate)	fCLK	1	2.4	3	MHz	
Clock duty cycle	fDC	40	50	60	%	
Jitter tolerance	δ			0.5	ns	
Output Voltage low	VIOL	-0.3		0.35 X VDD	V	
Output Voltage high	VIOH	0.65 X VDD	VDD+0.3	V		
Output current at high voltage	IH	1		10	mA	Short circuit current
Extended Vdd range		2.4	3.3	3.63	V	
Signal to Noise Ratio	S/N	57			dB	at 1kHz S.P.L=1Pa (A-Weighted Curve)

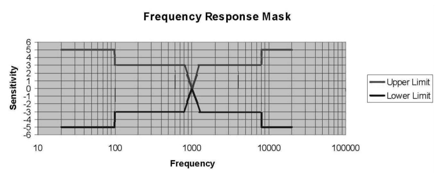
Schematic Diagram 測定電路圖



Dimensions (Unit: mm±0.2) 尺寸圖



Typical Frequency Response Curve 頻率響應圖



CONDENSER MICROPHONE

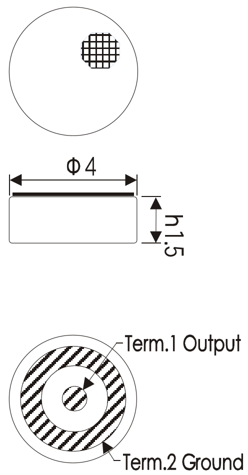
SMD MICROPHONE
S M D 麥 克 風

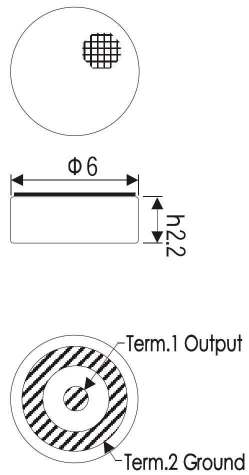
FEATURES 特 色

- Very small, thin type omni-directional microphone 超小超薄型全向性麥克風
- Most suited to products having limited space 最適合自動貼裝工藝要求的產品
- Todesign for high resistance to vibrations 高抗震、高耐溫設計
- Capacitor inside: 內部電容
- 10pF(DECT,PHS,PCN,PCS.etc.) 10pF(DECT,PHS,PCN,PCS.etc.)
- 33pF(GSM,PDS.etc.) 33pF(GSM,PDS.etc.)
- 10pF+33pF(DECT,PHS,GSM,PDS.etc.) 10pF+33pF(DECT,PHS,GSM,PDS.etc.)

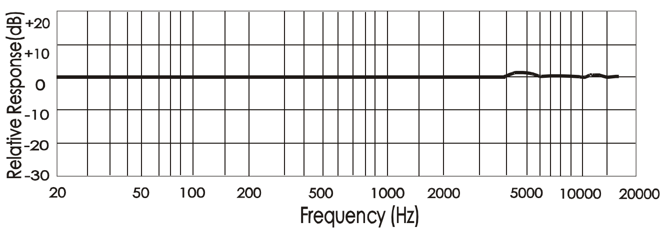
	OBO-M41EN-2B-012 / OBO-M62EN-2B-012
SENSITIVITY 感 度	Vs=2.0V, RL=2.2KΩ □ -42±3dB □ -44±3dB □ -46±3dB F=1KHz 0dB=1V/Pa Within
SENSITIVITY REDUCTION 感度遞減	-3dB at 1.5V
FREQUENCY 頻 率	20~6,000Hz
MAX. WORKING VOLTAGE 最大工作電壓	Max. 10V
CURRENT CONSUMPTION 電流消耗	Max. 0.5mA
S/N RATIO 信 噪 比	More than 58dB
WEIGHT 重 量	Max. 1.0gm

Dimensions (Unit: mm±0.2) 尺 寸 圖





Typical Frequency Response Curve 頻率響應圖



電容式麥克風 Condenser Microphone

NOISE CANCELLING MICROPHONE
雜音濾除型電容式麥克風

FEATURES 特色

• Noise cancelling	雜音濾除
• Small, thin type	超小、薄型
• Close talk characteristics effectively reduce ambient noise	近講，雜音濾除效果佳

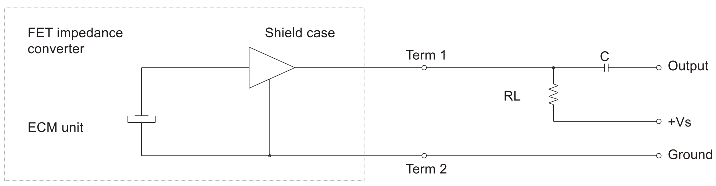
APPLICATIONS 應用產品

• Phone. VOIP phone. Headset	手機、VOIP、耳機

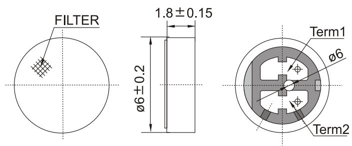
OBO-B68DN-0C / OBO-64DN-0C

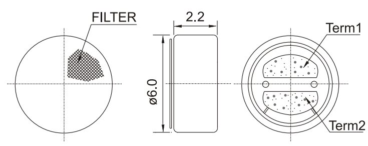
		Vs=2.0V, RL=2.2KΩ
SENSITIVITY	感　度	-51±4dB
		F=1KHz 0dB=1V/Pa
SENSITIVITY REDUCTION	感度遞減	Within -3dB at 1.5V compare to 3.0V
FREQUENCY	頻　率	100~10,000Hz
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA
S/N RATIO	信 噪 比	More than 50dB
STORAGE TEMPERATURE	儲存溫度	-40˚C to +70˚C
WEIGHT	重　量	Max. 0.2gm

Schematic Diagram 測定電路圖

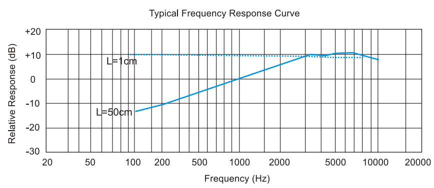


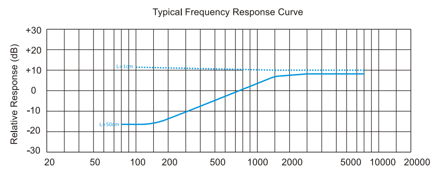
Dimensions (Unit: mm±0.2) 尺寸圖





Typical Frequency Response Curve 頻率響應圖





OBO PRO.2 INC.

CONDENSER MICROPHONE

NOISE CANCELLING MICROPHONE
雜 音 濾 除 型 電 容 式 麥 克 風

FEATURES 特 色

• Noise cancelling	雜音濾除
• Small, thin type	超小、薄型
• Close talk characteristics effectively reduce ambient noise	近講，雜音濾除效果佳

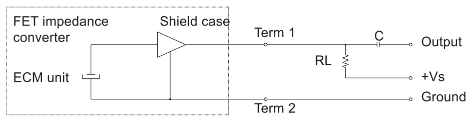
APPLICATIONS 應 用 產 品

• Phone. VOIP phone. Headset	手機、VOIP、耳機

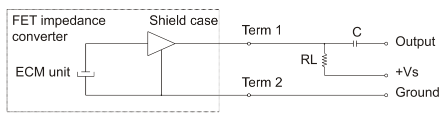
		OBO-08DN-0C	OBO-20DN-0C
SENSITIVITY	感　度	Vs=2.0V, RL=2.2KΩ	Vs=1.5V, RL=680Ω
		☐ -47±4dB　☐ -51±4dB	-54±4dB
		F=1KHz 0dB=1V/Pa	F=1KHz 0dB=1V/Pa
SENSITIVITY REDUCTION	感度遞減	Within -3dB at 1.5V compare to 3.0V	Within -3dB at 1.0V compare to 3.0V
FREQUENCY	頻　率	100~10,000Hz	100~10,000Hz
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V	Max. 10V
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA	Max. 0.5mA
S/N RATIO	信 噪 比	More than 50dB	More than 56dB
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C	-40˚C to +70˚C
WEIGHT	重　量	Max. 0.3gm	Max. 1.0gm

Schematic Diagram 測定電路圖

OBO-08DN-0C:

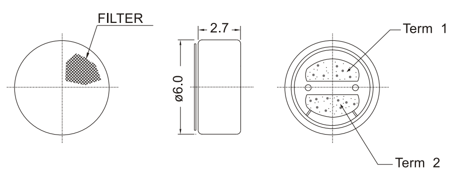


OBO-20DN-0C:

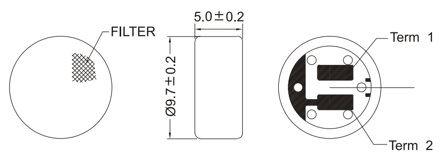


Dimensions (Unit: mm±0.2) 尺 寸 圖

OBO-08DN-0C:

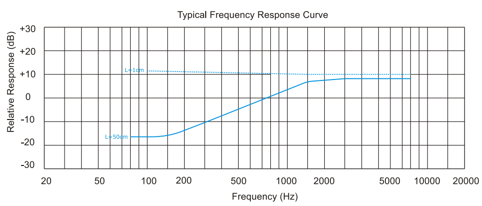


OBO-20DN-0C:



Typical Frequency Response Curve 頻率響應圖

OBO-08DN-0C:



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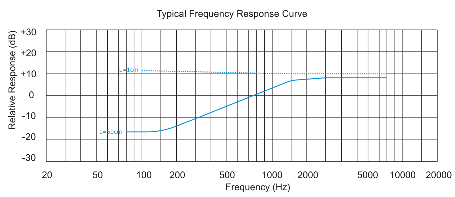


電容式麥克風 Condenser Microphone

OBO PRO.2 INC.

CONDENSER MICROPHONE

UNIDIRECTIONAL MICROPHONE
單指向電容式麥克風

FEATURES 特色

- Unidirectional Mic, for general use — 單一指向，泛用型

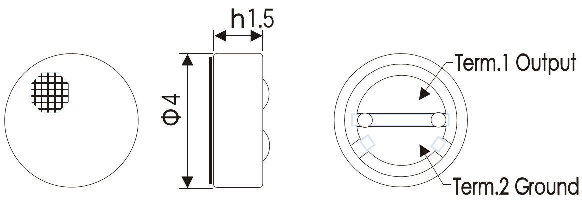
APPLICATIONS 應用產品

- Mobile Phone. Headset — 手機、耳機

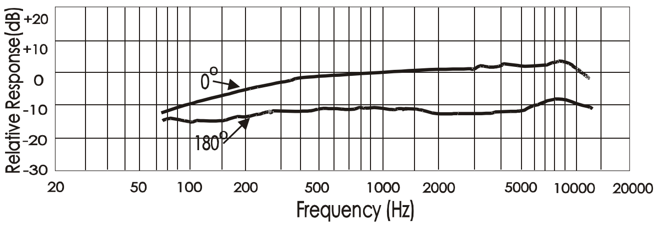
OBO-B45BN-0B-017

SENSITIVITY	感　度	Vs=2.0V, RL=2.2KΩ -50±3dB F=1KHz 0dB=1V/Pa
SENSITIVITY REDUCTION	感度遞減	Within -3dB at 1.5V
FREQUENCY	頻　率	100~12,000Hz
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA
S/N RATIO	信噪比	More than 55dB
STORAGE TEMPERATURE	儲存溫度	-40˚C to +70˚C
WEIGHT	重　量	Max. 0.3gm

Dimensions (Unit: mm±0.2) 尺寸圖



Typical Frequency Response Curve 頻率響應圖



OBO PRO.2 INC.

CONDENSER MICROPHONE

UNIDIRECTIONAL MICROPHONE
單指向電容式麥克風

FEATURES 特色

- Unidirectional Mic, for general use 單一指向，泛用型

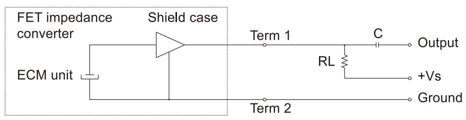
APPLICATIONS 應用產品

- Mobile Phone. Headset 手機、耳機

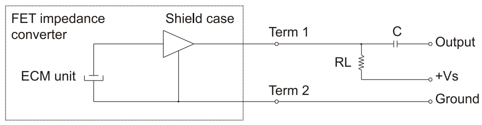
	OBO-16BN-0C	OBO-20BN-0C
SENSITIVITY 感 度	Vs=2.0V, RL=2.2KΩ	Vs=1.5V, RL=680Ω
	-50±4dB	☐ -47±4dB ☐ -50±4dB
	F=1KHz 0dB=1V/Pa	F=1KHz 0dB=1V/Pa
SENSITIVITY REDUCTION 感度遞減	Within -3dB at 1.5V compare to 3.0V	Within -3dB at 1.5V compare to 3.0V
FREQUENCY 頻 率	100~12,000Hz	100~12,000Hz
MAX. WORKING VOLTAGE 最大工作電壓	Max. 10V	Max. 10V
CURRENT CONSUMPTION 電流消耗	Max. 0.5mA	Max. 0.5mA
S/N RATIO 信 噪 比	More than 56dB	More than 58dB
STORAGE TEMPERATURE 儲存溫度	-40˚C to +70˚C	-25˚C to +70˚C
WEIGHT 重 量	Max. 0.4gm	Max. 0.8gm

Schematic Diagram 測定電路圖

OBO-16BN-0C:

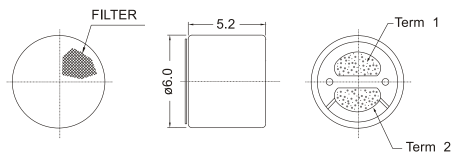


OBO-20BN-0C:

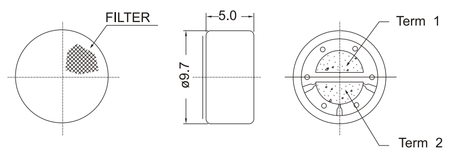


Dimensions (Unit: mm±0.2) 尺 寸 圖

OBO-16BN-0C:

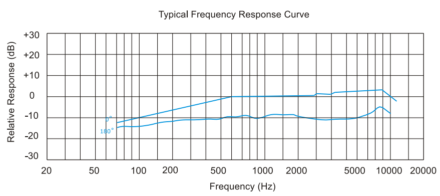


OBO-20BN-0C:



Typical Frequency Response Curve 頻率響應圖

OBO-16BN-0C:



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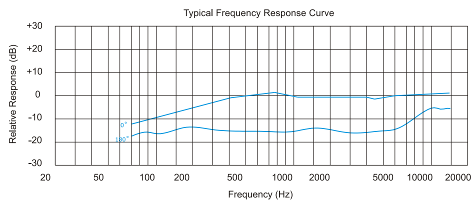
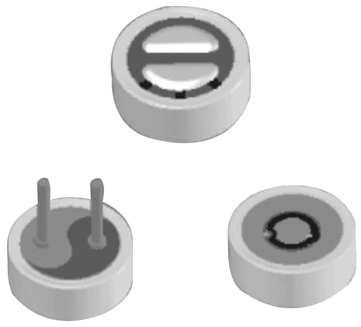


OBO
OBO PRO.2 INC.

CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全 指 向 電 容 式 麥 克 風



FEATURES 特 色

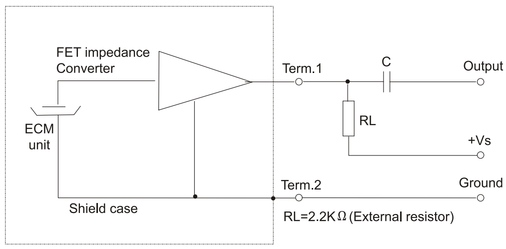
- Omnidiretional type 全指向性
- Ultra thin 超薄

APPLICATIONS 應 用 產 品

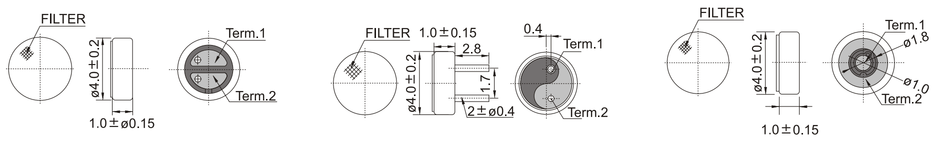
- For GSM, PDA....Dual Band applications 通用於GSM，PDA，雙頻機…等

		OBO-B41SN-0B	OBO-B41KP-0B	OBO-B41EN-0B
SENSITIVITY	感　度	☐ Vs=2.0V, RL=2.2KΩ ☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB F=1KHz 0dB=1V/Pa Within		
SENSITIVITY REDUCTION	感度遞減	-3dB at 1.5V compare to 3.0V		
FREQUENCY	頻　率	20~16,000Hz		
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V		
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA		
S/N RATIO	信 噪 比	More than 56dB		
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C		
WEIGHT	重　量	Max. 1.0gm		

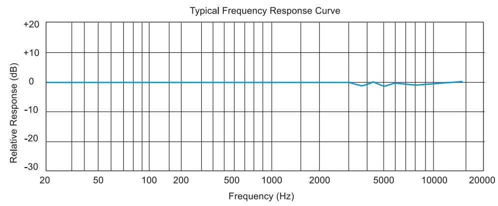
Schematic Diagram 測定電路圖



Dimensions (Unit: mm±0.2) 尺 寸 圖



Typical Frequency Response Curve 頻率響應圖

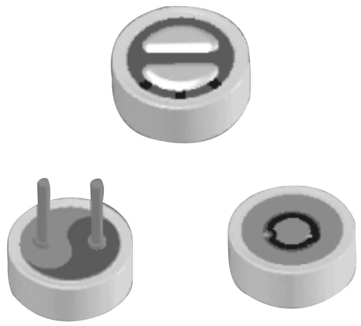


電容式麥克風 Condenser Microphone

OBO PRO.2 INC.

CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全 指 向 電 容 式 麥 克 風



FEATURES 特 色

• Omnidiretional type	全指向性
• Ultra thin	超薄

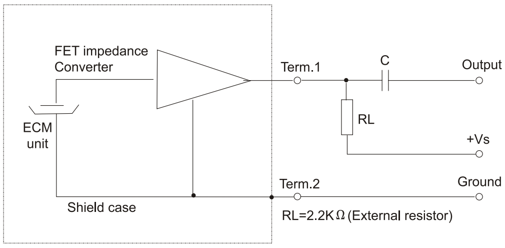
APPLICATIONS 應 用 產 品

• For GSM, PDA....Dual Band applications	通用於GSM，PDA，雙頻機…等

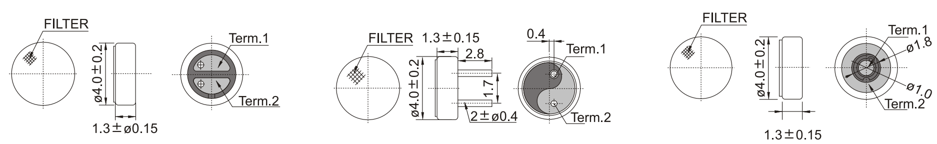
OBO-B43SN-0B | **OBO-B43KP-0B** | **OBO-B43EN-0B**

		☐ Vs=2.0V, RL=2.2KΩ
SENSITIVITY	感　度	☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB F=1KHz 0dB=1V/Pa Within
SENSITIVITY REDUCTION	感度遞減	-3dB at 1.5V compare to 3.0V
FREQUENCY	頻　率	50~16,000Hz
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA
S/N RATIO	信 噪 比	More than 60dB
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C
WEIGHT	重　量	Max. 1.0gm

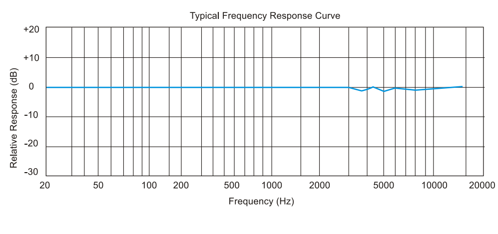
Schematic Diagram 測定電路圖



Dimensions (Unit: mm±0.2) 尺 寸 圖



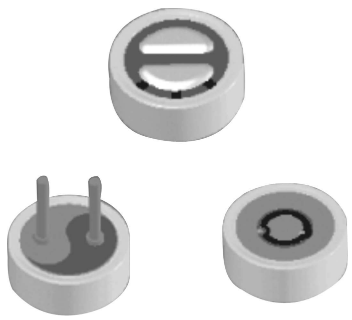
Typical Frequency Response Curve 頻率響應圖



OBO PRO.2 INC.

CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全指向電容式麥克風



FEATURES 特色

- Omnidiretional type 全指向性
- Ultra thin 超薄

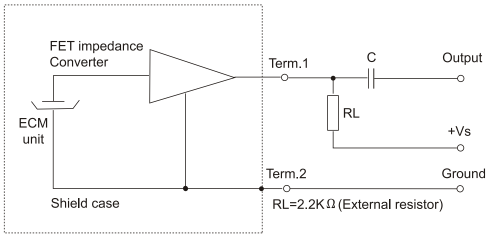
APPLICATIONS 應用產品

- For GSM, PDA....Dual Band applications 通用於GSM，PDA，雙頻機…等

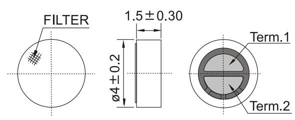
OBO-45SN-0B | **OBO-45KP-0B** | **OBO-45EN-0B**

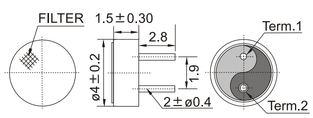
SENSITIVITY	感　度	☐ Vs=2.0V, RL=2.2KΩ ☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB F=1KHz 0dB=1V/Pa
SENSITIVITY REDUCTION	感度遞減	Within -3dB at 1.5V compare to 3.0V
FREQUENCY	頻　率	50~16,000Hz
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA
S/N RATIO	信噪比	More than 60dB
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C
WEIGHT	重　量	Max. 1.0gm

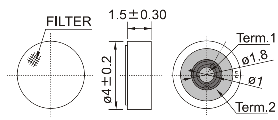
Schematic Diagram 測定電路圖



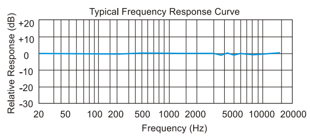
Dimensions (Unit: mm±0.2) 尺寸圖

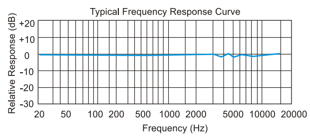


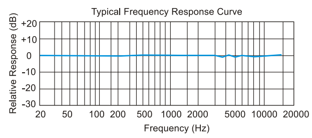




Typical Frequency Response Curve 頻率響應圖







CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全指向電容式麥克風

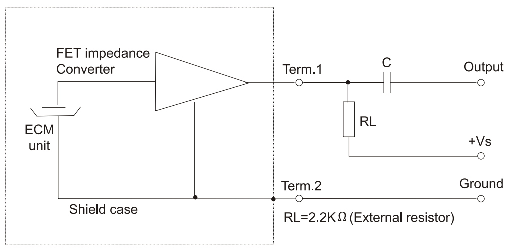
FEATURES	特色
• Omnidiretional type	全指向性
• Ultra thin	超薄

APPLICATIONS	應用產品
• For GSM, PDA....Dual Band applications	通用於GSM，PDA，雙頻機…等

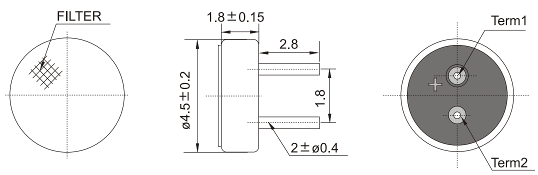
OBO-48KP-0B

SENSITIVITY	感　度	☐ Vs=2.0V, RL=2.2KΩ ☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB F=1KHz 0dB=1V/Pa
SENSITIVITY REDUCTION	感度遞減	Within -3dB at 1.5V compare to 3.0V
FREQUENCY	頻　率	50~16,000Hz
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA
S/N RATIO	信 噪 比	More than 60dB
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C
WEIGHT	重　量	Max. 0.7gm

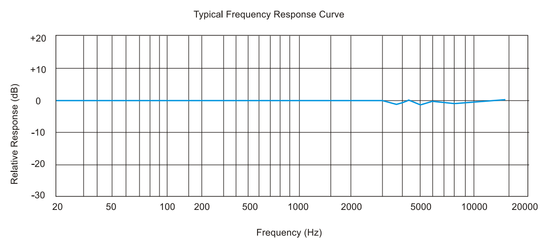
Schematic Diagram 測定電路圖



Dimensions (Unit: mm±0.2) 尺寸圖



Typical Frequency Response Curve 頻率響應圖



電容式麥克風 Condenser Microphone

CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全指向電容式麥克風

FEATURES 特色

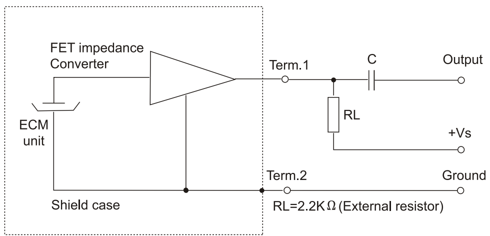
- Omnidiretional type 全指向性
- Ultra thin 超薄

APPLICATIONS 應用產品

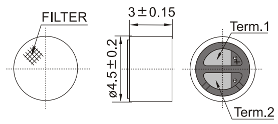
- For GSM, PDA....Dual Band applications 通用於GSM，PDA，雙頻機…等

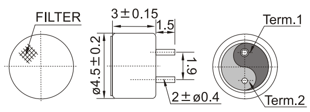
		OBO-40SN-0B / OBO-40KP-0B / OBO-40EN-0B
SENSITIVITY	感度	☐ Vs=2.0V, RL=2.2KΩ ☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB F=1KHz 0dB=1V/Pa Within
SENSITIVITY REDUCTION	感度遞減	-3dB at 1.5V compare to 3.0V
FREQUENCY	頻率	50~16,000Hz
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA
S/N RATIO	信噪比	More than 60dB
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C
WEIGHT	重量	Max. 1.0gm

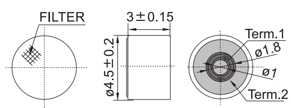
Schematic Diagram 測定電路圖



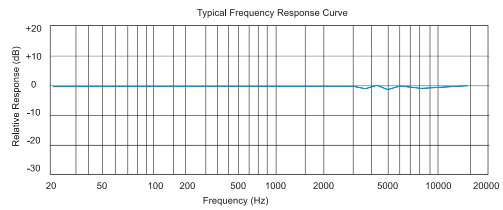
Dimensions (Unit: mm±0.2) 尺寸圖







Typical Frequency Response Curve 頻率響應圖

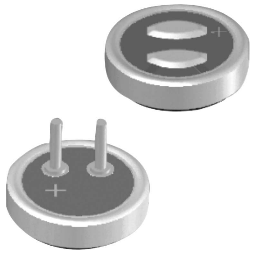


電容式麥克風 Condenser Microphone

OBO
OBO PRO.2 INC.

CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全指向電容式麥克風



FEATURES　特色

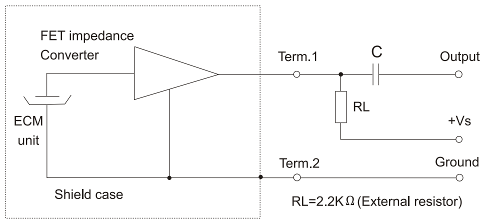
• Omnidiretional type	全指向性
• Ultra thin	超薄

APPLICATIONS　應用產品

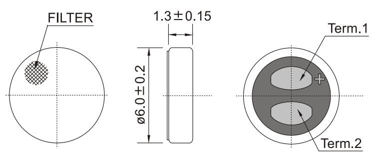
• For GSM, PDA....Dual Band applications	通用於GSM，PDA，雙頻機…等

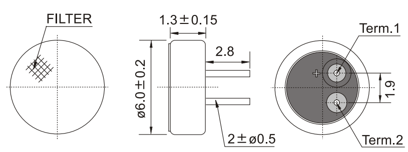
		OBO-63SN-0B / OBO-63KP-0B
SENSITIVITY	感　度	☐ Vs=2.0V, RL=2.2KΩ ☐ -38±3dB　☐ -40±3dB　☐ -42±3dB　☐ -44±3dB F=1KHz 0dB=1V/Pa
SENSITIVITY REDUCTION	感度遞減	Within -3dB at 1.5V compare to 3.0V
FREQUENCY	頻　率	50~16,000Hz
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA
S/N RATIO	信 噪 比	More than 60dB
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C
WEIGHT	重　量	Max. 1.0gm

Schematic Diagram　測定電路圖

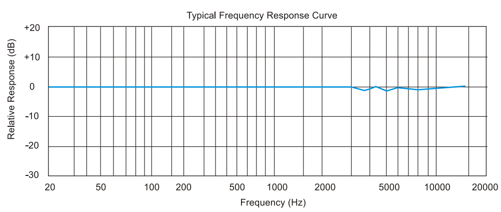


Dimensions (Unit: mm±0.2)　尺寸圖





Typical Frequency Response Curve　頻率響應圖

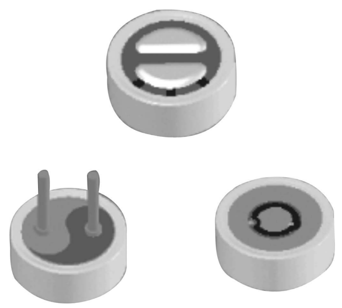


電容式麥克風 Condenser Microphone

OBO PRO.2 INC.

CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全指向電容式麥克風



FEATURES 特色

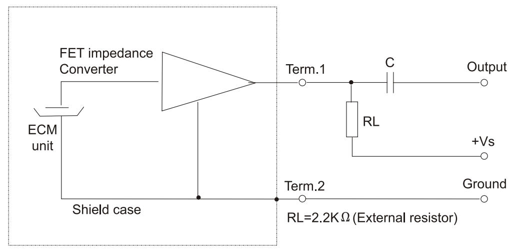
• Omnidiretional type	全指向性
• Ultra thin	超薄

APPLICATIONS 應用產品

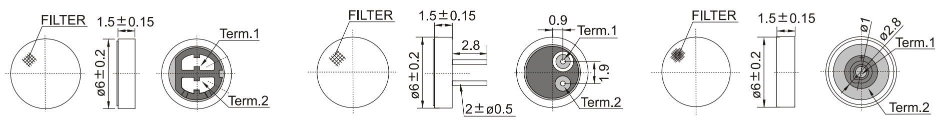
• For GSM, PDA....Dual Band applications	通用於GSM，PDA，雙頻機…等

		OBO-65SN-0B / OBO-65KP-0B / OBO-65EC-0B
SENSITIVITY	感 度	☐ Vs=2.0V, RL=2.2KΩ ☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB
SENSITIVITY REDUCTION	感度遞減	F=1KHz 0dB=1V/Pa Within -3dB at 1.5V compare to 3.0V
FREQUENCY	頻 率	50~16,000Hz
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA
S/N RATIO	信 噪 比	More than 60dB
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C
WEIGHT	重 量	Max. 1.0gm

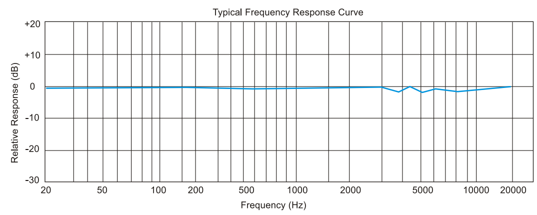
Schematic Diagram 測定電路圖



Dimensions (Unit: mm±0.2) 尺寸圖



Typical Frequency Response Curve 頻率響應圖

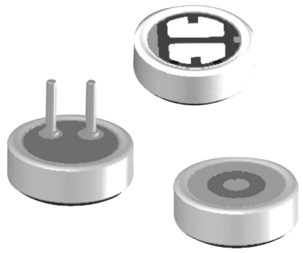


電容式麥克風 Condenser Microphone

OBO PRO.2 INC.

CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全指向電容式麥克風



FEATURES 特色

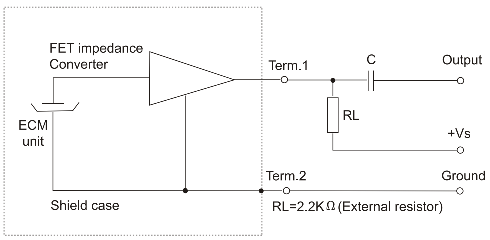
- Omnidiretional type 全指向性
- Ultra thin 超薄

APPLICATIONS 應用產品

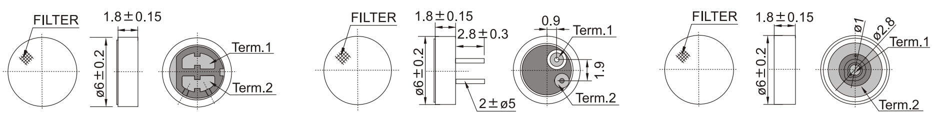
- For GSM, PDA....Dual Band applications 通用於GSM，PDA，雙頻機…等

	OBO-68SN-0B	OBO-68KP-0B	OBO-68EC-0B
SENSITIVITY 感度	☐ Vs=2.0V, RL=2.2KΩ ☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB F=1KHz 0dB=1V/Pa Within		
SENSITIVITY REDUCTION 感度遞減	-3dB at 1.5V compare to 3.0V		
FREQUENCY 頻率	50~16,000Hz		
MAX. WORKING VOLTAGE 最大工作電壓	Max. 10V		
CURRENT CONSUMPTION 電流消耗	Max. 0.5mA		
S/N RATIO 信噪比	More than 60dB		
STORAGE TEMPERATURE 儲存溫度	-25˚C to +70˚C		
WEIGHT 重量	Max. 1.0gm		

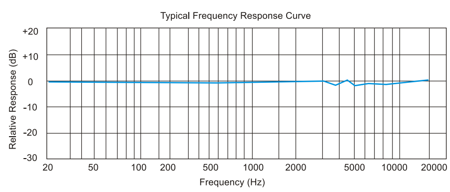
Schematic Diagram 測定電路圖



Dimensions (Unit: mm±0.2) 尺寸圖



Typical Frequency Response Curve 頻率響應圖



電容式麥克風 Condenser Microphone

OBO
OBO PRO.2 INC.

CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全指向電容式麥克風

FEATURES 特色

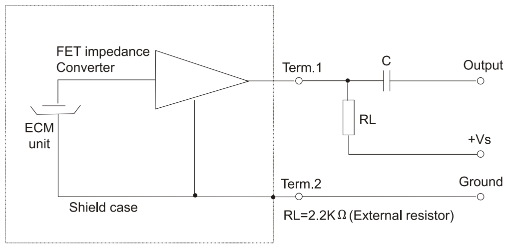
- Omnidiretional type 全指向性
- Ultra thin 超薄

APPLICATIONS 應用產品

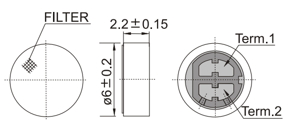
- For GSM, PDA....Dual Band applications 通用於GSM，PDA，雙頻機…等

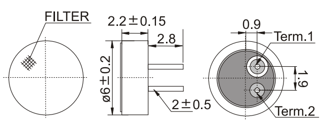
		OBO-64SN-0B	OBO-64KP-0B	OBO-64EC-0B
SENSITIVITY	感度	☐ Vs=2.0V, RL=2.2KΩ ☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB F=1KHz 0dB=1V/Pa Within		
SENSITIVITY REDUCTION	感度遞減	-3dB at 1.5V compare to 3.0V		
FREQUENCY	頻率	50~16,000Hz		
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V		
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA		
S/N RATIO	信噪比	More than 60dB		
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C		
WEIGHT	重量	Max. 1.0gm		

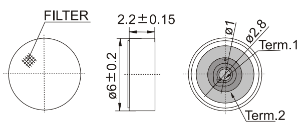
Schematic Diagram 測定電路圖



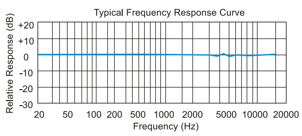
Dimensions (Unit: mm±0.2) 尺寸圖

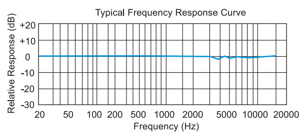


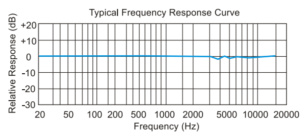




Typical Frequency Response Curve 頻率響應圖







CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全指向電容式麥克風

FEATURES 特色

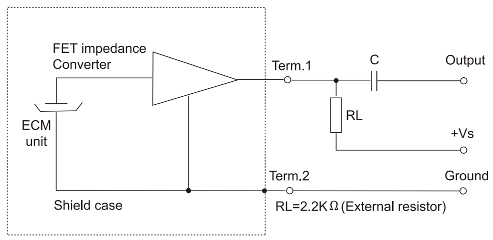
- Omnidiretional type 全指向性
- Ultra thin 超薄

APPLICATIONS 應用產品

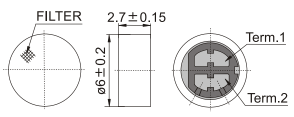
- For GSM, PDA....Dual Band applications 通用於GSM，PDA，雙頻機…等

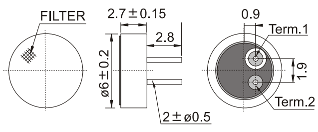
		OBO-62SN-0B	OBO-62KA-0B	OBO-62EC-0B
SENSITIVITY	感 度	☐ Vs=2.0V, RL=2.2KΩ ☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB F=1KHz 0dB=1V/Pa Within		
SENSITIVITY REDUCTION	感度遞減	-3dB at 1.5V compare to 3.0V		
FREQUENCY	頻 率	50~16,000Hz		
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V		
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA		
S/N RATIO	信 噪 比	More than 60dB		
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C		
WEIGHT	重 量	Max. 1.0gm		

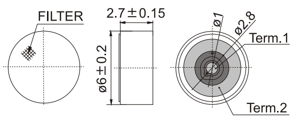
Schematic Diagram 測定電路圖



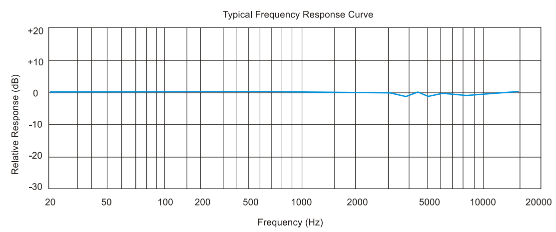
Dimensions (Unit: mm±0.2) 尺寸圖







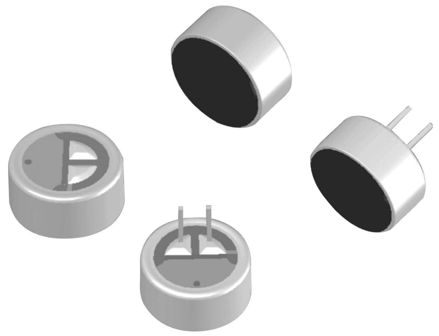
Typical Frequency Response Curve 頻率響應圖



OBO PRO.2 INC.

CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全指向電容式麥克風



FEATURES 特色

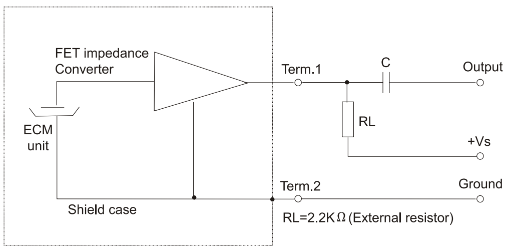
• Omnidiretional type — 全指向性

APPLICATIONS 應用產品

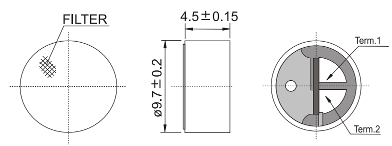
• suitable for all telephones, intercoms and computers applications — 適用於各種電話、對講機及電腦產品

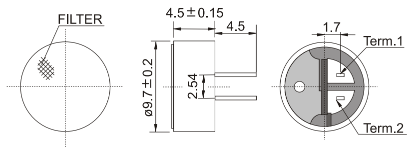
		OBO-54LN-0B / OBO-54LP-0B
SENSITIVITY	感度	☐ Vs=2.0V, RL=2.2KΩ ☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB F=1KHz 0dB=1V/Pa
SENSITIVITY REDUCTION	感度遞減	Within -3dB at 1.5V compare to 3.0V
FREQUENCY	頻率	50~16,000Hz
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA
S/N RATIO	信噪比	More than 60dB
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C
WEIGHT	重量	Max. 0.7gm

Schematic Diagram 測定電路圖

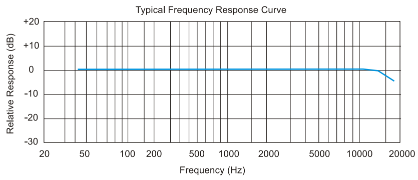


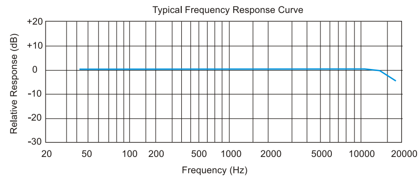
Dimensions (Unit: mm±0.2) 尺寸圖





Typical Frequency Response Curve 頻率響應圖

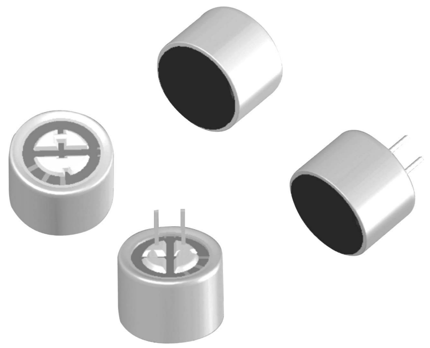




OBO
OBO PRO.2 INC.

CONDENSER MICROPHONE

OMNIDIRECTIONAL MICROPHONE
全指向電容式麥克風



FEATURES 特色

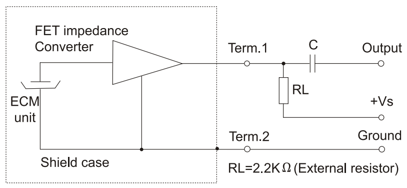
• Omnidirectional type — 全指向性

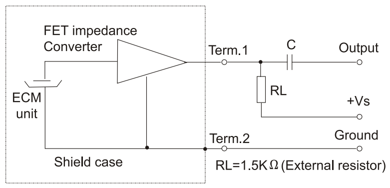
APPLICATIONS 應用產品

• Useful for almost any type of telephone and other applications — 適用於任何電話機或其他用途

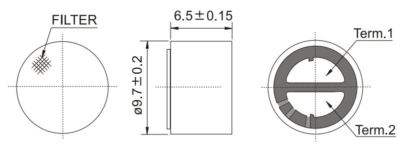
		OBO-04FN-0B	OBO-04FP-0B
		☐ Vs=4.5V, RL=2.2KΩ	☐ Vs=1.5V, RL=1.5KΩ
SENSITIVITY	感　度	☐ -38±3dB ☐ -40±3dB ☐ -42±3dB ☐ -44±3dB	
		F=1KHz 0dB=1V/Pa	
SENSITIVITY REDUCTION	感度遞減	Within -3dB at 1.5V compare to 3.0V	
FREQUENCY	頻　率	50~16,000Hz	
MAX. WORKING VOLTAGE	最大工作電壓	Max. 10V	
CURRENT CONSUMPTION	電流消耗	Max. 0.5mA	
S/N RATIO	信噪比	More than 60dB	
STORAGE TEMPERATURE	儲存溫度	-25˚C to +70˚C	
WEIGHT	重　量	Max. 1.0gm	

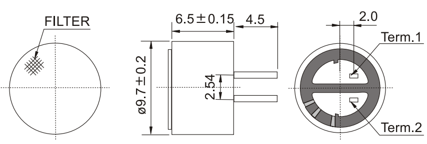
Schematic Diagram 測定電路圖



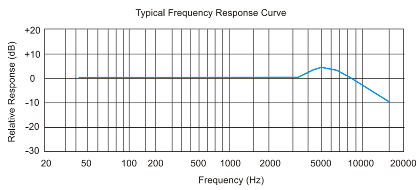


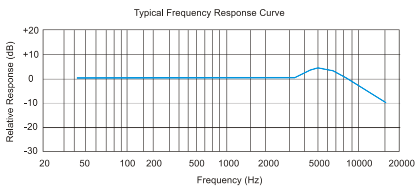
Dimensions (Unit: mm±0.2) 尺寸圖





Typical Frequency Response Curve 頻率響應圖





Note

Mylar Speaker
薄膜喇叭



APPLICATIONS

- Handy video games
- Computer peripherals
- Electric dictionary
- Computer modems
- Communication equipments

薄膜喇叭 Mylar Speaker

PART NUMBERING SYSTEM
薄膜喇叭產品編號原則

PART NUMBERING SYSTEM

OBO-13 032 F - 01

- 01 — Serial number for various special spec.
- F — Frame type
  F : metal housing / G : plastic housing
- 032 — Nominal Impedance, ex : 032=32ohms
- 13 — Diameter of Mylar Speaker

NOTE : The number of impedance and power rate are able to be change as per specific inquiry.

薄膜喇叭產品編號原則

OBO-13 032 F - 01

- 01 — 規格流水號
- F — 外框材料及形狀
  F :金屬外框 G :塑膠外框 K :非圓形
- 032 — 電阻值，ex :032=32ohms
- 13 — 喇叭外徑，單位m/m

注意：電阻值（Ω）及輸出功率（W）可依客戶需求作變更

PRODUCT INDEX
薄 膜 喇 叭 產 品 索 引

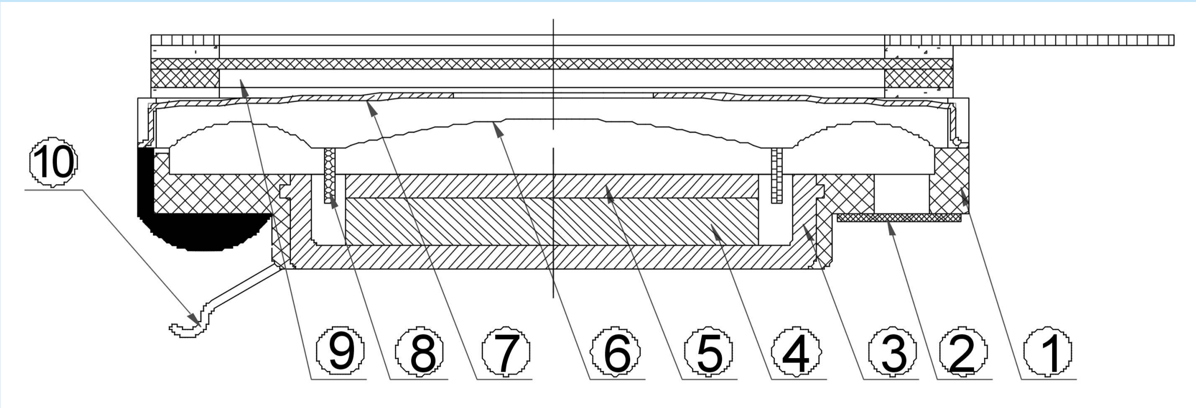
MYLAR SPEAKER

MODEL NO.	Impedance (Ω+/-15%)	Power Rating Normal	Power Rating Max.	F0 (Hz+/-20%)	SPL (+/-3dB)	Frequency (Hz)	Dimensions (mm)	Weight (gms)	Page NO.
OBO-18008G-0501	8	500	1,000	800	91	800~10,000	18.0x5.3	2.5	81
OBO-28008G-0501	8	700	1,000	550	87	550~10,000	28.0x5.75	5	81
OBO-30008K-0501	8	700	1,000	700	90	700~10,000	30.0x20.0x5.8	5	82
OBO-10008F-0301	8	300	500	1,200	83	1,200~20,000	10.0x2.9	0.6	83
OBO-10032F-05	32	10	20	700	98	400~6,000	10.0x3.3	0.7	83
OBO-13008G-0401	8	500	1,000	1,100	86	1,100~10,000	13.0x4.1	1.3	84
OBO-15008G-1801	8	500	1,000	1,000	87	1,000~10,000	15.0x3.6	1.3	84
OBO-15008G-1901	8	500	1,000	1,050	89	1,050~10,000	15.0x4.3	1.4	85
OBO-15008K-06	8	300	600	750	85	750~10,000	15.0x11.0x5.5	1.2	85
OBO-15008K-0701	8	500	1,000	1,000	87	1,000~10,000	15.0x11.0x4.2	1.2	86
OBO-16008G-07	8	500	1,000	800	88	800~10,000	16.0x5.5	1.5	86
OBO-16008G-08	8	500	1,000	900	88	900~10,000	16.0x5.75	1.5	87
OBO-16008G-0901	8	700	1,000	850	89	850~10,000	16.0x4.1	1.3	87
OBO-17008G-02	8	800	1,000	1,000	92	200~20,000	17.0x6.3	1.5	88
OBO-17008G-05	8	500	1,000	1,000	89	1,000~10,000	17.0x5.8	1.5	88
OBO-17008K-0201	8	700	1,000	950	88	950~10,000	17.0x11.0x4.9	1.4	89
OBO-18008G-06	8	700	1,000	850	92	850~10,000	18.0x7.5	1.6	89
OBO-18008G-0701	8	500	1,000	850	90	850~10,000	18.0x3.35	1.5	90
OBO-18008K-02	8	500	1,000	950	87	950~10,000	18.0x13.0x6.1	1.5	90
OBO-18008K-03	8	500	1,100	900	88	900~10,000	18.0x13.0x5.8	1.4	91
OBO-18008K-0501	8	500	1,000	950	88	950~10,000	18.0x10.0x4.0	1.4	91
OBO-20008K-0401	8	500	1,000	1,000	86	1,000~10,000	20.0x10.0x4.5	1.4	92
OBO-20008G-0601	8	500	1,000	600	89	600~10,000	20.0x5.2	2.7	92
OBO-20008G-07	8	700	1,000	700	91	700~10,000	20.0x6.7	2.2	93
OBO-20008K-0501	8	700	1,000	950	90	950~10,000	20.0x14.0x4.05	1.6	93
OBO-20008K-08	8	700	1,000	800	88	800~10,000	20.0x14.0x6.0	1.6	94
OBO-23008G-0601	8	700	1,000	750	92	750~10,000	23.0x5.0	5	94
OBO-24008K-05	8	500	1,000	850	90	850~10,000	24.0x15.0x4.0	1.5	95
OBO-30008K-0401	8	700	1,000	700	91	700~10,000	30.0x20.0x5.2	5	95
OBO-36008F-01	8	100	200	400	80	300~6,000	36.0x4.8	7.5	96
OBO-36008F-02	8	200	500	550	83	350~6,000	36.0x4.8	8.5	96
OBO-36008F-03	8	500	1,000	530	86	350~6,800	36.0x4.8	8.3	97
OBO-36016F-02	16	500	1,000	530	85	350~11,000	36.0x4.8	8.5	97
OBO-36032F-01	32	100	200	400	80	300~5,000	36.0x4.8	8.5	98
OBO-36025F-01	25	200	500	500	83	320~7,200	36.0x4.8	8.5	98
OBO-40008F-01	8	200	500	500	80	350~8,000	40.0x5.0	9.2	99
OBO-40008F-03	8	500	1,000	550	84	350~5,800	40.0x5.0	9.45	99
OBO-40008F-04	8	1,000	2,000	550	87	350~5,000	40.0x5.0	9.2	100
OBO-40032F-01	32	200	500	560	80	320~6,500	40.0x5.0	9.5	100
OBO-50050G-01	50	200	500	400	81	250~10,000	50.0x8.0	10.5	101
OBO-25008K-01	8	1,000	2,000	800	81	800~20,000	25.0x14.0x4.5	1.7	102
OBO-35004K-01	4	1,000	2,000	600	81	600~20,000	35.0x16.0x5.0	2.6	103
OBO-35008K-01	8	1,000	2,000	600	81	450~20,000	35.0x16.0x5.0	2.6	103

Note : The number of impedance and power rate are able to be changed as per specific inquiry.

CONSTRUCTION OF MYLAR SPEAKER
薄膜喇叭結構

CONSTRUCTION OF MYLAR SPEAKER 薄膜喇叭結構



NO	DESCRIPTION	料品名稱
1	FRAME	塑膠殼/鐵殼
2	DAMPER	不織布
3	U YOKE	U鐵
4	MAGNET	磁鐵
5	POLE PIECE	華司
6	DIAPHRAGM	振膜
7	FRONT CAP	上蓋
8	VOICE COIL	線圈
9	SCREEN	防塵布
10	TERMINAL PIN / WIRE	PIN/線 機種

OBO
OBO PRO.2 INC.

VIBRATION SPEAKER

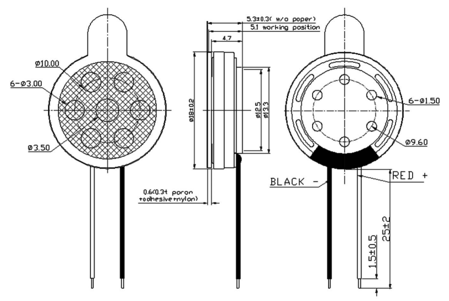
振 動 喇 叭

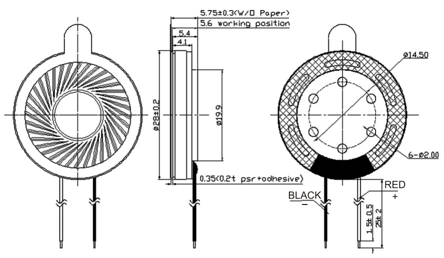
APPLICATIONS 應用產品

• Communication Equipments	通訊設備

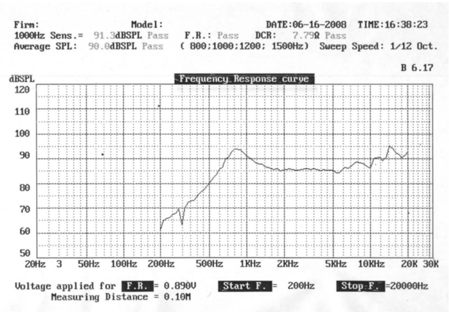
		OBO-18008G-0501	OBO-28008G-0501
DIMENSIONS	尺 寸	18.0×5.3 mm	28.0×5.75 mm
NOMINAL IMPEDANCE	阻 値	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING	設 定 值	Normal 500mW/Max 1000mW	Normal 700mW/Max 1000mW
LOWEST RESONANT FREQUENCY	最低頻率	S: 800±20%Hz at 1VrmS V: 260±6Hz(0.6V)	S: 550±20%Hz at 1VrmS V: 160±6Hz(1.0V)
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	91±3dB /100mW/10cm at 1KHz.	87±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE	頻率範圍	800Hz~10000Hz	550Hz~10000Hz
DISTORTION	失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE	操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE	儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT	重 量	2.5gms	5gms

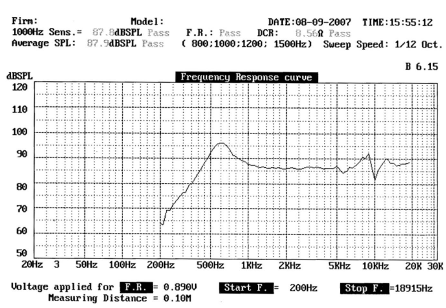
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





薄膜喇叭 Mylar Speaker

OBO
OBO PRO.2 INC.

VIBRATION SPEAKER

振動喇叭

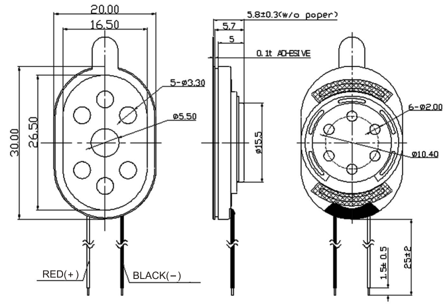
APPLICATIONS 應用產品

• Communication Equipments	通訊設備

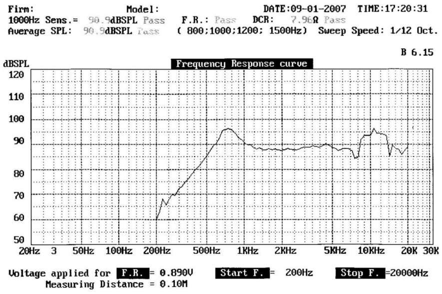
OBO-30008K-0501

DIMENSIONS	尺　寸	30.0×20.0×5.8 mm
NOMINAL IMPEDANCE	阻　值	8Ω±15% at 2 KHz, 1Vrms
POWER RATING	設定值	Normal 700mW/Max 1000mW
LOWEST RESONANT FREQUENCY	最低頻率	S: 700±20%Hz at 1VrmS V: 190±6Hz(0.6V)
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	90±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE	頻率範圍	700Hz~10000Hz
DISTORTION	失真程度	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE	操作溫度	-20℃ to +70℃
STORAGE TEMP. RANGE	儲存溫度	-40℃ to +80℃
WEIGHT	重　量	5gms

Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖



Frequency Response Curve
(Distance: 0.1m)
頻率響應圖



薄膜喇叭 Mylar Speaker

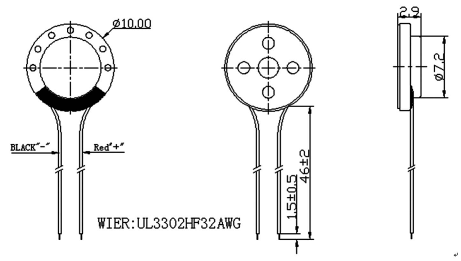
MYLAR SPEAKER 薄膜喇叭

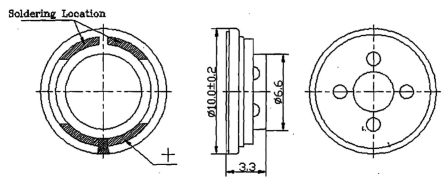
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

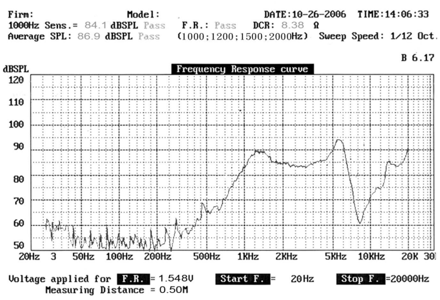
	OBO-10008F-0301	OBO-10032F-05
DIMENSIONS 尺寸	10.0×2.9 mm	10.0×3.3 mm
NOMINAL IMPEDANCE 阻值	8Ω±15% at 1 KHz/1V	32Ω±15% at 1.2 KHz/0.2V
POWER RATING 設定值	Normal 300mW/Max 500mW	Normal 10mW/Max 20mW
LOWEST RESONANT FREQUENCY 最低頻率	1200±20%Hz	700Hz±150Hz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	83±3dB /300mW/10cm average at 1.0 1.2 1.5 2.0KHz	98±3dB /0.178V/IEC 318 average at 1000Hz~2000Hz
FREQUENCY RANGE 頻率範圍	1200Hz~20000Hz	400Hz~6000Hz
DISTORTION 失真程度	5% Maximum at1000Hz. 0.2V	5% Maximum at1000Hz/0.178V
OPERATING TEMP. RANGE 操作溫度	-20℃ to +55℃	-25℃ to +50℃
STORAGE TEMP. RANGE 儲存溫度	-25℃ to +55℃	-25℃ to +55℃
WEIGHT 重量	0.6gms	0.7gms

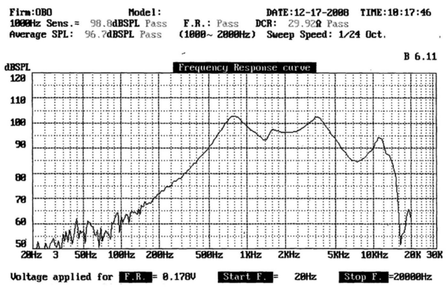
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.5m)
頻率響應圖





OBO
OBO PRO.2 INC.

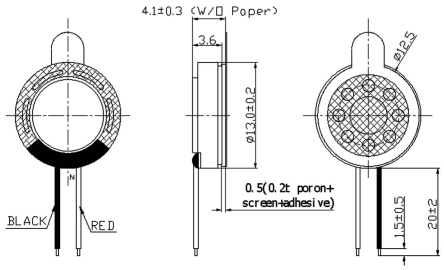
MYLAR SPEAKER 薄膜喇叭

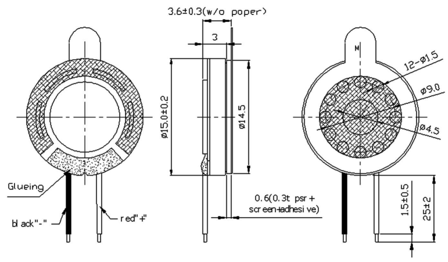
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

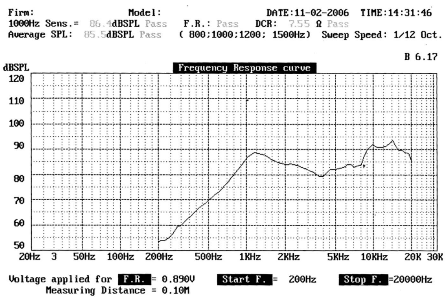
	OBO-13008G-0401	OBO-15008G-1801
DIMENSIONS 尺寸	13.0×4.1mm	15.0×3.6 mm
NOMINAL IMPEDANCE 阻值	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING 設定值	Normal 500mW/Max 1000mW	Normal 500mW/Max 1000mW
LOWEST RESONANT FREQUENCY 最低頻率	1100±20%Hz	1000±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	86±3dB /100mW/10cm at 1KHz	87±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE 頻率範圍	1100Hz~10000Hz	1000Hz~10000Hz
DISTORTION 失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重量	1.3gms	1.3gms

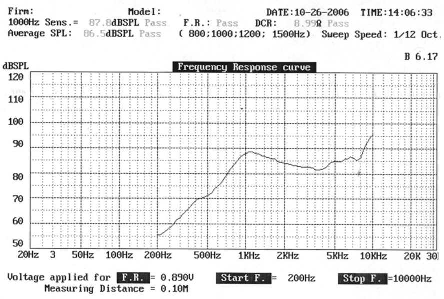
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





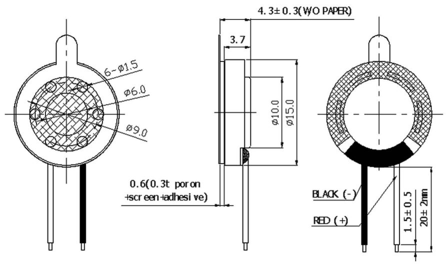
MYLAR SPEAKER 薄膜喇叭

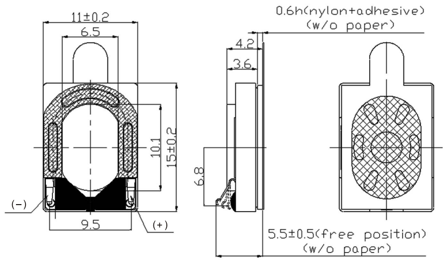
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

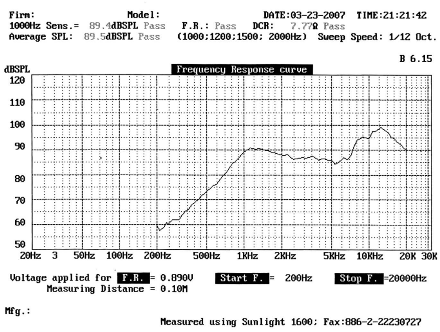
	OBO-15008G-1901	OBO-15008K-06
DIMENSIONS 尺寸	15.0×4.3 mm	15.0×11.0×5.5 mm
NOMINAL IMPEDANCE 阻值	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING 設定值	Normal 500mW/Max 1000mW	Normal 300mW/Max 600mW
LOWEST RESONANT FREQUENCY 最低頻率	1050±20%Hz at 1VrmS	750±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	89±3dB /100mW/10cm at 1KHz.	85±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE 頻率範圍	1050Hz~10000Hz	750Hz~10000Hz
DISTORTION 失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重量	1.4gms	1.2gms

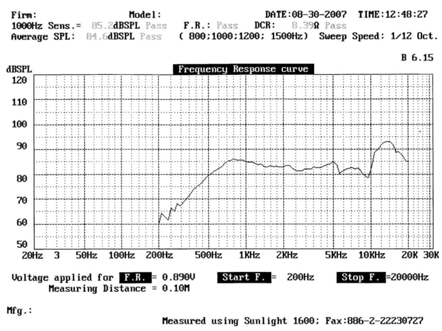
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





OBO
OBO PRO.2 INC.

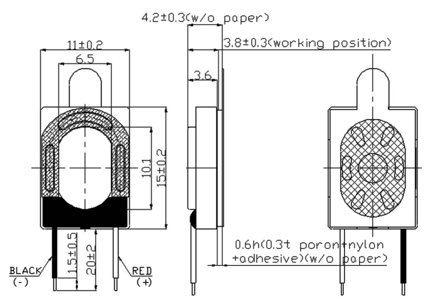
MYLAR SPEAKER 薄膜喇叭

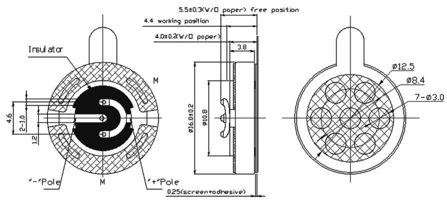
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

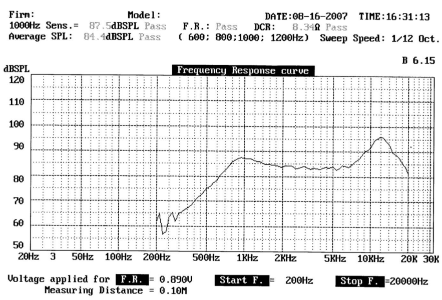
	OBO-15008K-0701	OBO-16008G-07
DIMENSIONS 尺 寸	15.0×11.0×4.2 mm	16.0×5.5 mm
NOMINAL IMPEDANCE 阻 值	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING 設 定 值	Normal 500mW/Max 1000mW	Normal 500mW/Max 1000mW
LOWEST RESONANT FREQUENCY 最低頻率	1000±20%Hz at 1VrmS	800±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	87±3dB /100mW/10cm at 1KHz.	88±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE 頻率範圍	1000Hz~10000Hz	800Hz~10000Hz
DISTORTION 失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重 量	1.2gms	1.5gms

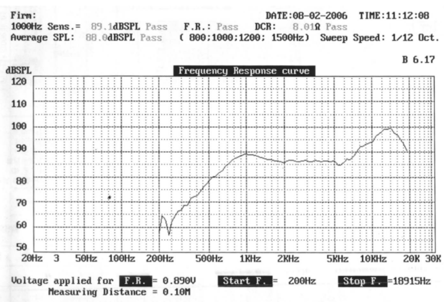
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





薄膜喇叭 Mylar Speaker

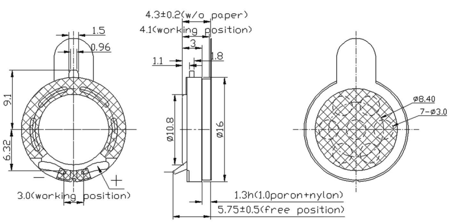
MYLAR SPEAKER 薄膜喇叭

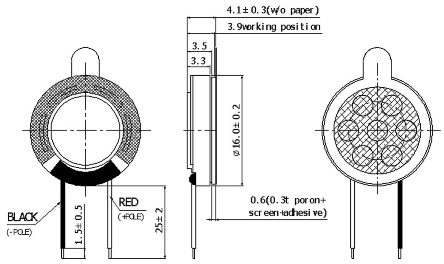
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

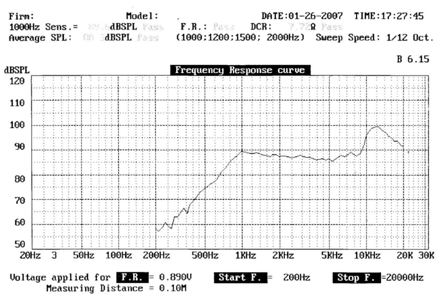
		OBO-16008G-08	OBO-16008G-0901
DIMENSIONS	尺 寸	16.0×5.75 mm	16.0×4.1 mm
NOMINAL IMPEDANCE	阻 值	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING	設 定 值	Normal 500mW/Max 1000mW	Normal 700mW/Max 1000mW
LOWEST RESONANT FREQUENCY	最低頻率	900±20%Hz at 1VrmS	850±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	88±3dB /100mW/10cm at 1KHz.	89±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE	頻率範圍	900Hz~10000Hz	850Hz~10000Hz
DISTORTION	失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE	操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE	儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT	重 量	1.5gms	1.3gms

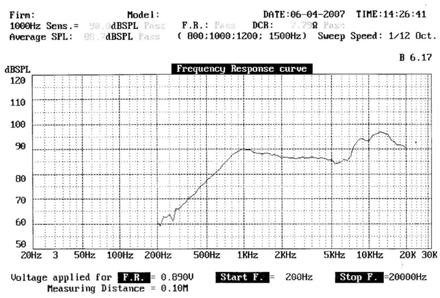
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





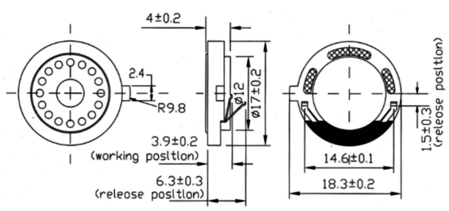
MYLAR SPEAKER 薄膜喇叭

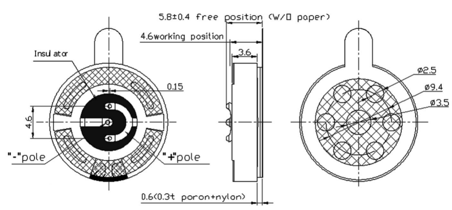
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

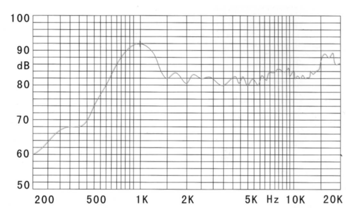
	OBO-17008G-02	OBO-17008G-05
DIMENSIONS 尺寸	17.0×6.3 mm	17.0×5.8 mm
NOMINAL IMPEDANCE 阻值	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING 設定值	Normal 800mW/Max 1000mW	Normal 500mW/Max 1000mW
LOWEST RESONANT FREQUENCY 最低頻率	1000±20%Hz at 1VrmS	1000±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	92±3dB /100mW/10cm at 1KHz.	89±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE 頻率範圍	200Hz~20000Hz	1000Hz~10000Hz
DISTORTION 失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重量	1.5gms	1.5gms

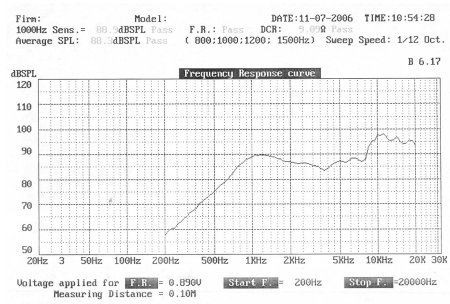
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





OBO PRO.2 INC.

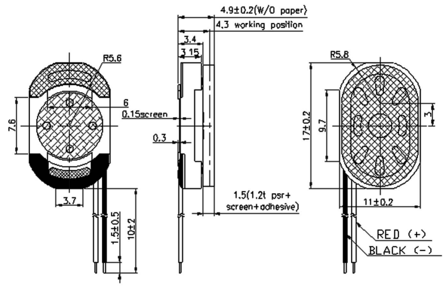
MYLAR SPEAKER 薄膜喇叭

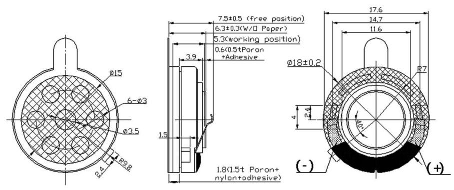
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

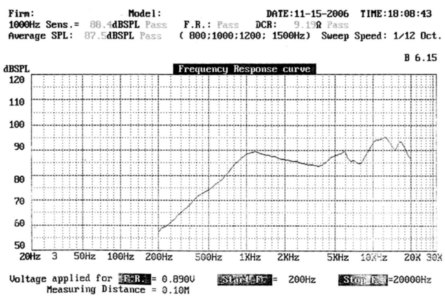
		OBO-17008K-0201	OBO-18008G-06
DIMENSIONS	尺 寸	17.0×11.0×4.9 mm	18.0×7.5 mm
NOMINAL IMPEDANCE	阻 值	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING	設 定 值	Normal 700mW/Max 1000mW	Normal 700mW/Max 1000mW
LOWEST RESONANT FREQUENCY	最低頻率	950±20%Hz at 1VrmS	850±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	88±3dB /100mW/10cm at 1KHz.	92±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE	頻率範圍	950Hz~10000Hz	850Hz~10000Hz
DISTORTION	失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE	操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE	儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT	重 量	1.4gms	1.6gms

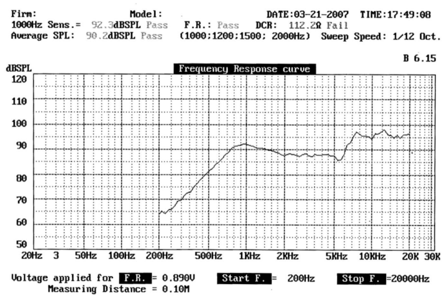
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





薄膜喇叭 Mylar Speaker

OBO
OBO PRO.2 INC.

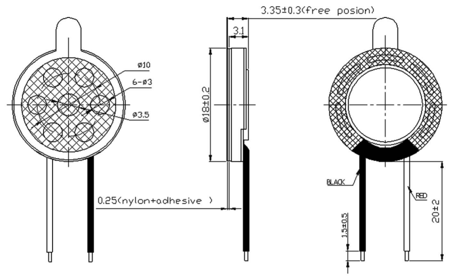
MYLAR SPEAKER 薄 膜 喇 叭

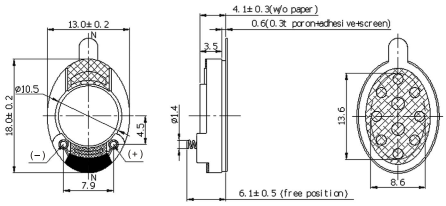
APPLICATIONS 應 用 產 品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

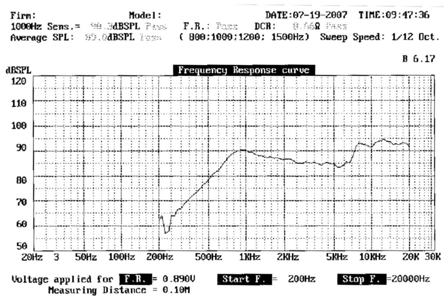
	OBO-18008G-0701	OBO-18008K-02
DIMENSIONS 尺 寸	18.0×3.35 mm	18.0×13.0×6.1 mm
NOMINAL IMPEDANCE 阻 値	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING 設 定 値	Normal 500mW/Max 1000mW	Normal 500mW/Max 1000mW
LOWEST RESONANT FREQUENCY 最低頻率	850±20%Hz at 1VrmS	950±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	90±3dB /100mW/10cm at 1KHz.	87±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE 頻率範圍	850Hz~10000Hz	950Hz~10000Hz
DISTORTION 失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重 量	1.5gms	1.5gms

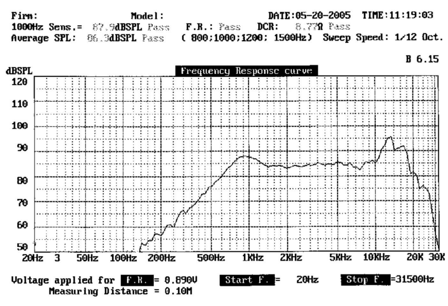
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





薄膜喇叭 Mylar Speaker

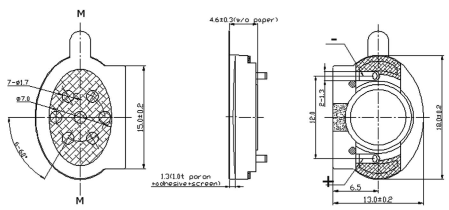
MYLAR SPEAKER 薄 膜 喇 叭

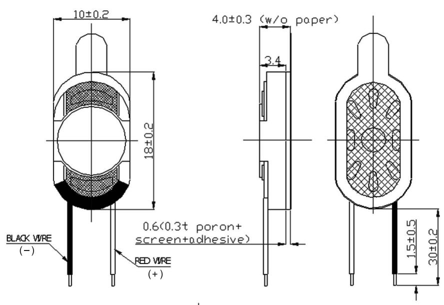
APPLICATIONS 應 用 產 品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

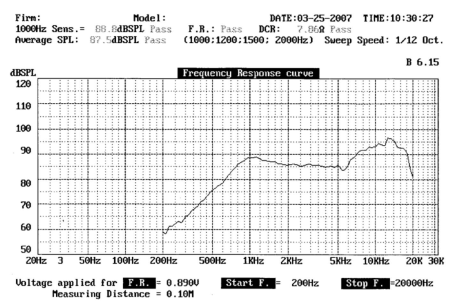
	OBO-18008K-03	OBO-18008K-0501
DIMENSIONS 尺 寸	18.0×13.0×5.8 mm	18.0×10.0×4.0 mm
NOMINAL IMPEDANCE 阻 値	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING 設 定 値	Normal 500mW/Max 1100mW	Normal 500mW/Max 1000mW
LOWEST RESONANT FREQUENCY 最低頻率	900±20%Hz at 1VrmS	950±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	88±3dB /100mW/10cm at 1KHz.	88±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE 頻率範圍	900Hz~10000Hz	950Hz~10000Hz
DISTORTION 失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重 量	1.4gms	1.4gms

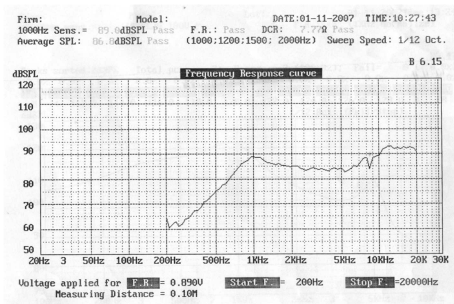
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





OBO
OBO PRO.2 INC.

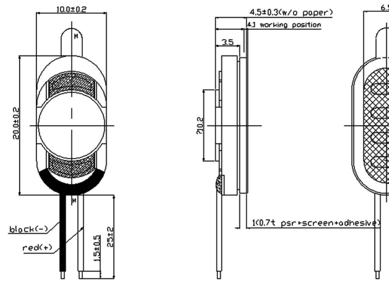
MYLAR SPEAKER 薄膜喇叭

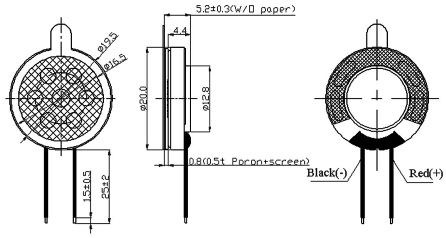
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

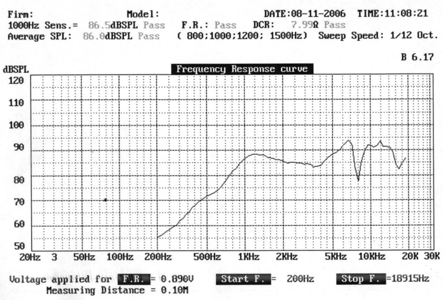
	OBO-20008K-0401	OBO-20008G-0601
DIMENSIONS 尺寸	20.0×10.0×4.5 mm	20.0×5.2 mm
NOMINAL IMPEDANCE 阻值	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING 設定值	Normal 500mW/Max 1000mW	Normal 500mW/Max 1000mW
LOWEST RESONANT FREQUENCY 最低頻率	1000±20%Hz at 1VrmS	600±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	86±3dB /100mW/10cm at 1KHz.	89±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE 頻率範圍	1000Hz~10000Hz	600Hz~10000Hz
DISTORTION 失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重量	1.4gms	2.7gms

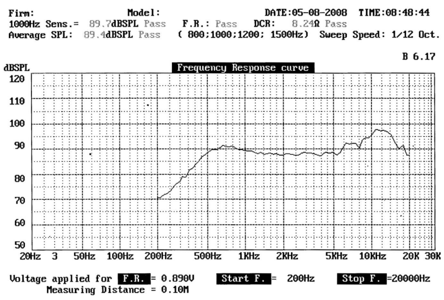
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





薄膜喇叭 Mylar Speaker

OBO PRO.2 INC.

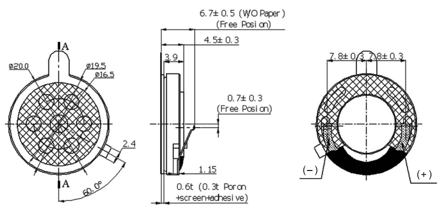
MYLAR SPEAKER 薄膜喇叭

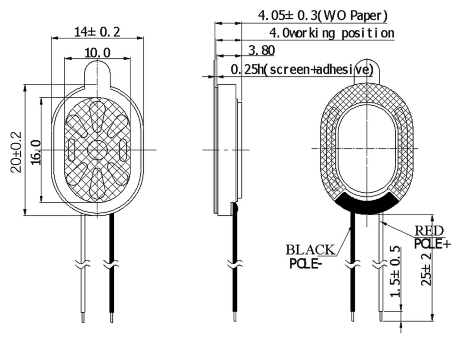
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

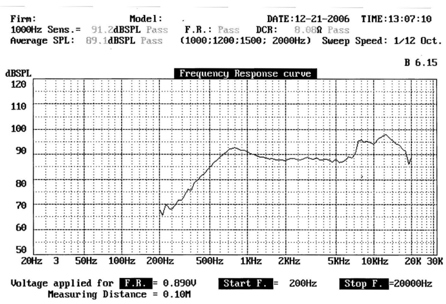
		OBO-20008G-07	OBO-20008K-0501
DIMENSIONS	尺寸	20.0×6.7 mm	20.0×14.0×4.05 mm
NOMINAL IMPEDANCE	阻值	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING	設定值	Normal 700mW/Max 1000mW	Normal 700mW/Max 1000mW
LOWEST RESONANT FREQUENCY	最低頻率	700±20%Hz at 1VrmS	950±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	91±3dB /100mW/10cm at 1KHz.	90±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE	頻率範圍	700Hz~10000Hz	950Hz~10000Hz
DISTORTION	失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE	操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE	儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT	重量	2.2gms	1.6gms

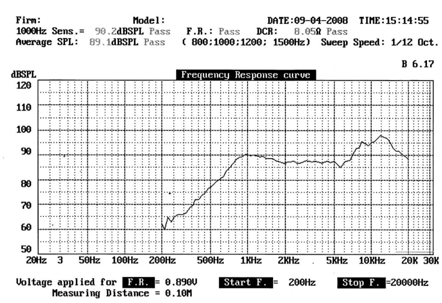
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





OBO
OBO PRO.2 INC.

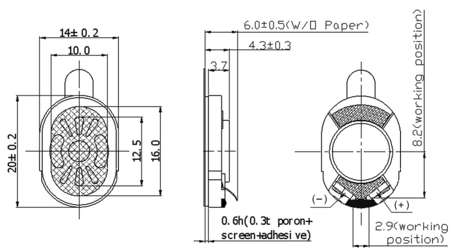
MYLAR SPEAKER 薄膜喇叭

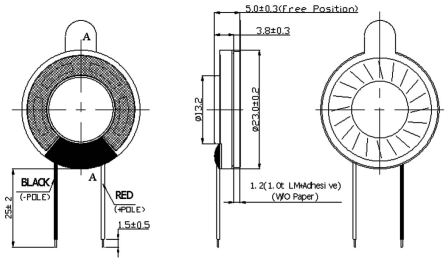
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

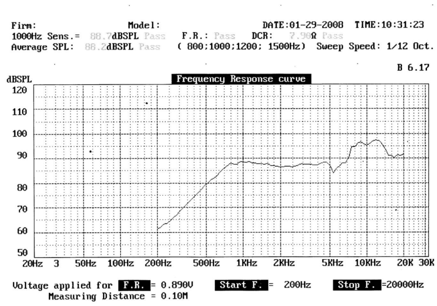
	OBO-20008K-08	OBO-23008G-0601
DIMENSIONS 尺 寸	20.0×14.0×6.0 mm	23.0×5.0 mm
NOMINAL IMPEDANCE 阻 值	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING 設 定 值	Normal 700mW/Max 1000mW	Normal 700mW/Max 1000mW
LOWEST RESONANT FREQUENCY 最低頻率	800±20%Hz at 1VrmS	750±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	88±3dB /100mW/10cm at 1KHz.	92±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE 頻率範圍	800Hz~10000Hz	750Hz~10000Hz
DISTORTION 失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重 量	1.6gms	5gms

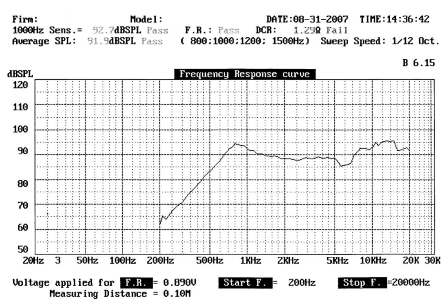
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





OBO
OBO PRO.2 INC.

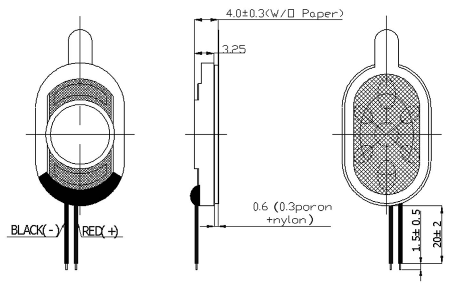
MYLAR SPEAKER 薄 膜 喇 叭

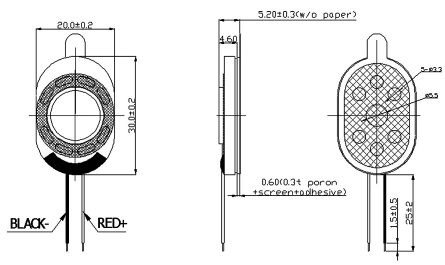
APPLICATIONS 應 用 產 品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

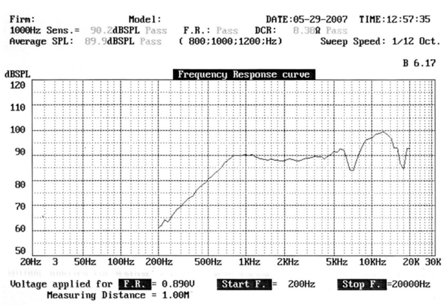
		OBO-24008K-05	OBO-30008K-0401
DIMENSIONS	尺 寸	24.0×15.0×4.0 mm	30.0×20.0×5.2 mm
NOMINAL IMPEDANCE	阻 值	8Ω±15% at 2 KHz, 1Vrms	8Ω±15% at 2 KHz, 1Vrms
POWER RATING	設 定 值	Normal 500mW/Max 1000mW	Normal 700mW/Max 1000mW
LOWEST RESONANT FREQUENCY	最低頻率	850±20%Hz at 1VrmS	700±20%Hz at 1VrmS
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	90±3dB /100mW/10cm at 1KHz.	91±3dB /100mW/10cm at 1KHz.
FREQUENCY RANGE	頻率範圍	850Hz~10000Hz	700Hz~10000Hz
DISTORTION	失真程度	10% Maximum at1000Hz. 100mW	10% Maximum at1000Hz. 100mW
OPERATING TEMP. RANGE	操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE	儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT	重 量	1.5gms	5gms

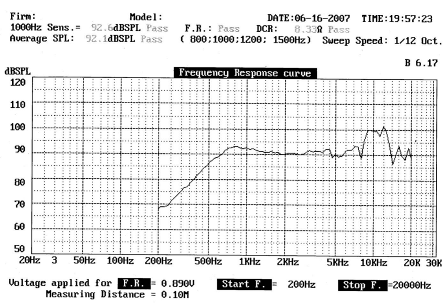
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
(Distance: 0.1m)
頻率響應圖





OBO
OBO PRO.2 INC.

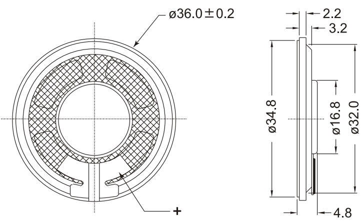
MYLAR SPEAKER 薄膜喇叭

APPLICATIONS 應用產品

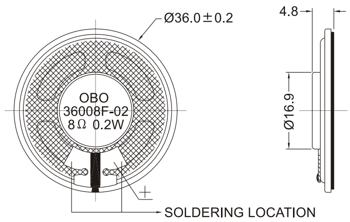
• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

	OBO-36008F-01	OBO-36008F-02
DIMENSIONS 尺寸	36.0mm×4.8mm	36.0mm×4.8mm
NOMINAL IMPEDANCE 阻值	8Ω±15% at 1,000Hz	8Ω±15% at 900Hz
POWER RATING 設定值	Normal 100mW / Max. 200mW	Normal 200mW / Max. 500mW
LOWEST RESONANT FREQUENCY 最低頻率	400Hz±150Hz	550Hz±150Hz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	80±3dB / 100mW / 0.5Meter Average at 0.8, 1.0, 1.2, 1.5KHz	83±3dB / 200mW / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz
FREQUENCY RANGE 頻率範圍	300~6,000Hz Average SPL-10dB	350~6,000Hz Average SPL-10dB
DISTORTION 失真程度	5% Maximum at 1,000Hz. 100mW	5% Maximum at 1,000Hz. 200mW
OPERATING TEMP. RANGE 操作溫度	-25˚C to +50˚C	-25˚C to +50˚C
STORAGE TEMP. RANGE 儲存溫度	-25˚C to +55˚C	-25˚C to +55˚C
WEIGHT 重量	7.5gms	8.5gms

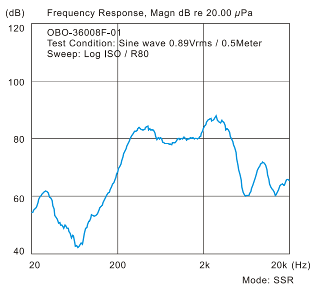
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖

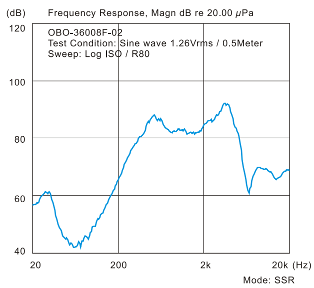


HOUSING MATERIAL : METAL



Frequency Response Curve
(Distance: 0.5m)
頻率響應圖





OBO PRO.2 INC.

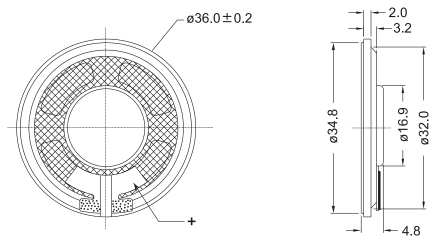
MYLAR SPEAKER 薄膜喇叭

APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

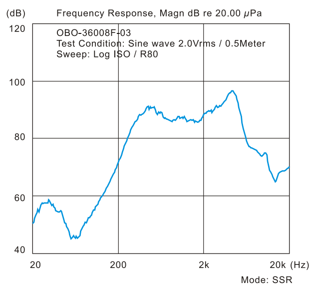
	OBO-36008F-03	OBO-36016F-02
DIMENSIONS 尺寸	36.0mm×4.8mm	36.0mm×4.8mm
NOMINAL IMPEDANCE 阻值	8Ω±15% at 1,200Hz /1.0V	16Ω±15% at 1,000Hz /1.0V
POWER RATING 設定值	Normal 500mW / Max. 1,000mW	Normal 500mW / Max. 1,000mW
LOWEST RESONANT FREQUENCY 最低頻率	530Hz±150Hz	530Hz±150Hz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	86±3dB / 500mW / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz	85±3dB / 500mW / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz
FREQUENCY RANGE 頻率範圍	350~6,800Hz Average SPL-10dB	350~11,000Hz Average SPL-10dB
DISTORTION 失真程度	5% Maximum at 1,000Hz. 500mW	5% Maximum at 1,000Hz. 500mW
OPERATING TEMP. RANGE 操作溫度	-25˚C to +50˚C	-25˚C to +50˚C
STORAGE TEMP. RANGE 儲存溫度	-25˚C to +55˚C	-25˚C to +55˚C
WEIGHT 重量	8.3gms	8.5gms

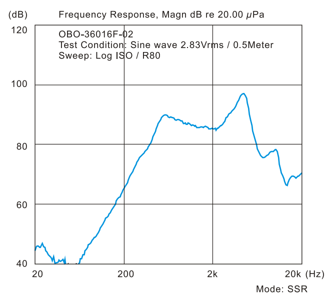
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖



HOUSING MATERIAL:METAL

Frequency Response Curve
(Distance: 0.5m)
頻率響應圖





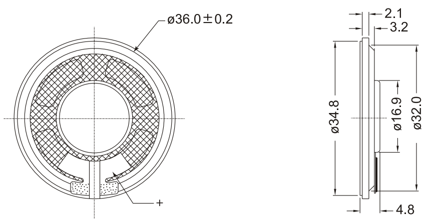
MYLAR SPEAKER 薄膜喇叭

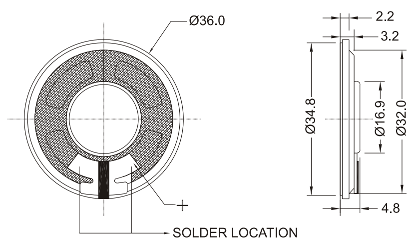
APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

	OBO-36032F-01	OBO-36025F-01
DIMENSIONS 尺寸	36.0mm×4.8mm	36.0mm×4.8mm
NOMINAL IMPEDANCE 阻值	32Ω±15% at 1,000Hz /1V	25Ω±15% at 1,000Hz
POWER RATING 設定值	Normal 100mW / Max. 200mW	Normal 200mW / Max. 500mW
LOWEST RESONANT FREQUENCY 最低頻率	400Hz±150Hz	500Hz±150Hz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	80±3dB / 100mW / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz	83±3dB / 200mW / 0.5Meter Average at 0.8, 1.0, 1.2, 1.5KHz
FREQUENCY RANGE 頻率範圍	300~5,000Hz Average SPL-10dB	320~7,200Hz Average SPL-10dB
DISTORTION 失真程度	5% Maximum at 1,000Hz. 100mW	5% Maximum at 1,000Hz. 200mW
OPERATING TEMP. RANGE 操作溫度	-25˚C to +50˚C	-25˚C to +50˚C
STORAGE TEMP. RANGE 儲存溫度	-25˚C to +55˚C	-25˚C to +55˚C
WEIGHT 重量	8.5gms	8.5gms

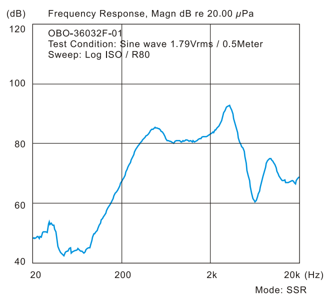
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖

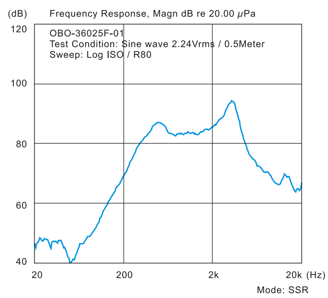




HOUSING MATERIAL : METAL

Frequency Response Curve
(Distance: 0.5m)
頻率響應圖





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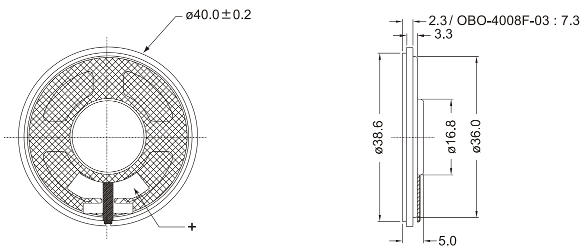
MYLAR SPEAKER 薄膜喇叭

APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

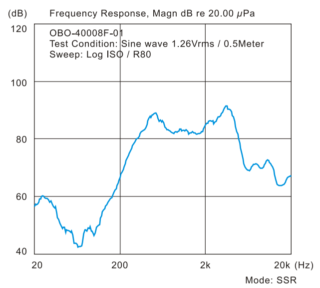
	OBO-40008F-01	OBO-40008F-03
DIMENSIONS 尺　寸	40.0mm×5.0mm	40.0mm×5.0mm
NOMINAL IMPEDANCE 阻　值	8Ω±15% at 800Hz /1V	8Ω±15% at 1,000Hz /1V
POWER RATING 設定值	Normal 200mW / Max. 500mW	Normal 500mW / Max. 1,000mW
LOWEST RESONANT FREQUENCY 最低頻率	500Hz±150Hz	550Hz±150Hz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	80±3dB / 200mW / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz	84±3dB / 500mW / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz
FREQUENCY RANGE 頻率範圍	350~8,000Hz Average SPL-10dB	350~5,800Hz Average SPL-10dB
DISTORTION 失真程度	5% Maximum at 800Hz. 200mW	5% Maximum at 1,200Hz. 500mW
OPERATING TEMP. RANGE 操作溫度	-25˚C to +50˚C	-25˚C to +50˚C
STORAGE TEMP. RANGE 儲存溫度	-25˚C to +55˚C	-25˚C to +55˚C
WEIGHT 重　量	9.2gms	9.45gms

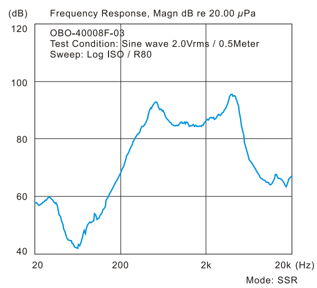
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖



HOUSING MATERIAL : METAL

Frequency Response Curve
(Distance: 0.5m)
頻率響應圖





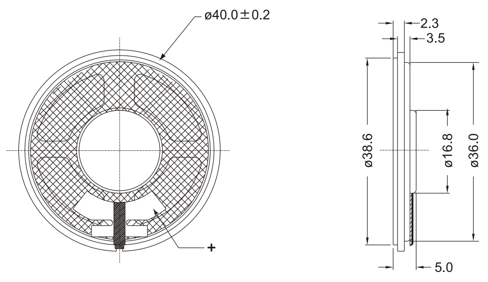
MYLAR SPEAKER 薄膜喇叭

APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

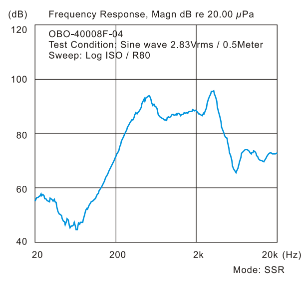
		OBO-40008F-04	OBO-40032F-01
DIMENSIONS	尺 寸	40.0mm×5.0mm	40.0mm×5.0mm
NOMINAL IMPEDANCE	阻 值	8Ω±15% at 1,000Hz /1.0V	32Ω±15% at 1,000Hz
POWER RATING	設 定 值	Normal 1.0W / Max. 2.0W	Normal 200mW / Max. 500mW
LOWEST RESONANT FREQUENCY	最低頻率	550Hz±150Hz	560Hz±150Hz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	87±3dB / 1.0W / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz	80±3dB / 200mW / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz
FREQUENCY RANGE	頻率範圍	350~5,000Hz Average SPL-10dB	320~6,500Hz Average SPL-10dB
DISTORTION	失真程度	5% Maximum at 1,200Hz. 1.0W	5% Maximum at 1,000Hz. 200mW
OPERATING TEMP. RANGE	操作溫度	-25˚C to +50˚C	-25˚C to +50˚C
STORAGE TEMP. RANGE	儲存溫度	-25˚C to +55˚C	-25˚C to +55˚C
WEIGHT	重 量	9.2gms	9.5gms

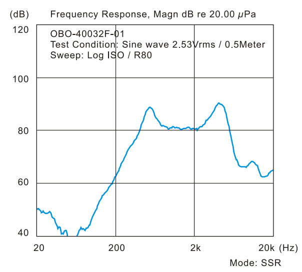
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖



HOUSING MATERIAL: METAL

Frequency Response Curve
(Distance: 0.5m)
頻率響應圖





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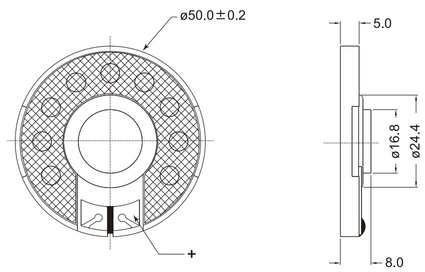
MYLAR SPEAKER 薄膜喇叭

APPLICATIONS 應用產品

• Handy Video Games	掌上型遊樂器
• Computer Peripherals	電腦周邊
• Electric Dictionary	電子字典
• Computer Moderns	數據機
• Communication Equipments	通訊設備

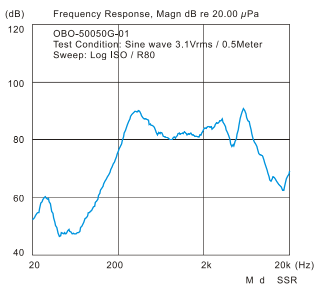
		OBO-50050G-01
DIMENSIONS	尺　寸	50.0mm×8.0mm
NOMINAL IMPEDANCE	阻　值	50Ω±15% at 600Hz /1.0V
POWER RATING	設 定 值	Normal 200mW / Max. 500mW
LOWEST RESONANT FREQUENCY	最低頻率	400Hz±150Hz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	81±3dB / 200mW / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0 KHz
FREQUENCY RANGE	頻率範圍	250~10,000Hz Average SPL-10dB
DISTORTION	失真程度	5% Maximum at 1,000Hz. 200mW
OPERATING TEMP. RANGE	操作溫度	-25˚C to +50˚C
STORAGE TEMP. RANGE	儲存溫度	-25˚C to +55˚C
WEIGHT	重　量	10.5gms

Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖



HOUSING MATERIAL: ABS

Frequency Response Curve
(Distance: 0.5m)
頻率響應圖



OBO
OBO PRO.2 INC.

MYLAR SPEAKER 薄膜喇叭

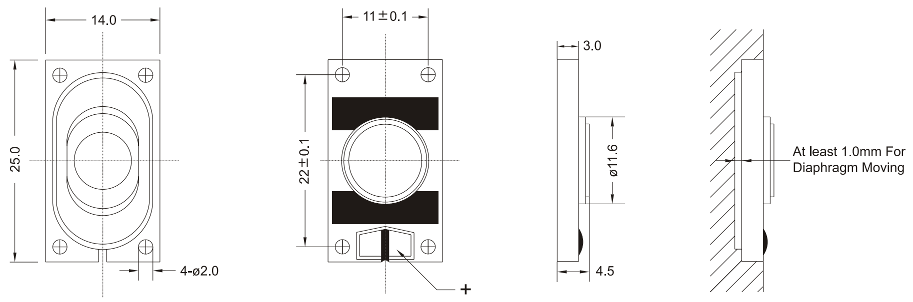
APPLICATIONS 應用產品

• Compact size, rich sound	輕小尺寸，高音值
• Notebook PC / LCD Monitor	應用於筆記型PC及LCD螢幕顯示器
• Multimedia Device	多媒體設備

OBO-25008K-01

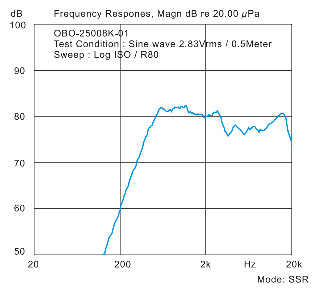
DIMENSIONS	尺　寸	25.0mm×14mm
NOMINAL IMPEDANCE	阻　値	8Ω±15% at 1,800Hz /1.0v
POWER RATING	設定值	Normal 1 W / Max.2W
LOWEST RESONANT FREQUENCY	最低頻率	800Hz±150Hz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	81±3dB / 1W / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz
FREQUENCY RANGE	頻率範圍	F0~20,000Hz Average SPL-10dB
DISTORTION	失真程度	5% Maximum at 1,400Hz. 100mW
OPERATING TEMP. RANGE	操作溫度	-25˚C to +50˚C
STORAGE TEMP. RANGE	儲存溫度	-25˚C to +55˚C
WEIGHT	重　量	1.7gms

Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖

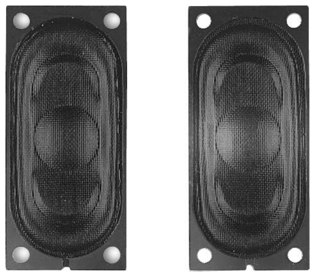


HOUSING MATERIAL : ABS

Frequency Response Curve
(Distance: 0.5m)
頻率響應圖



MYLAR SPEAKER 薄 膜 喇 叭

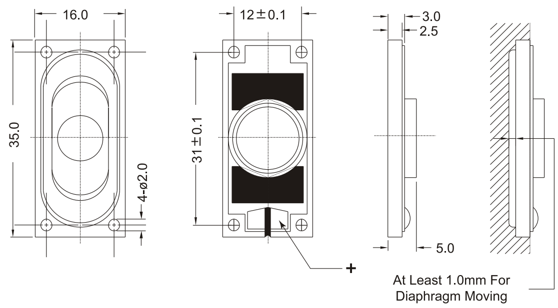


APPLICATIONS 應 用 產 品

• Notebook PC	筆記型PC
• Electric Dictionary	電子字典
• LCD Monitor	LCD螢幕顯示器
• Multimedia Device	多媒體設備

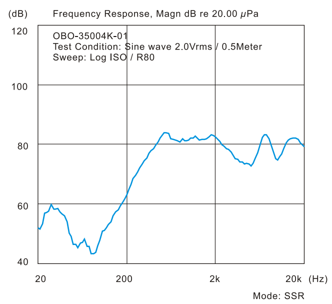
	OBO-35004K-01	OBO-35008K-01
DIMENSIONS 尺 寸	16.0mm×5.0mm	16.0mm×5.0mm
NOMINAL IMPEDANCE 阻 值	4Ω±15% at 1,100Hz	8Ω±15% at 1,200Hz
POWER RATING 設 定 值	Normal 1.0W / Max. 2.0W	Normal 1.0W / Max. 2.0W
LOWEST RESONANT FREQUENCY 最低頻率	600Hz±150Hz	600Hz± 150Hz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	81±3dB / 1.0W / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz	81±3dB / 1.0W / 0.5Meter Average at 1.0, 1.2, 1.5, 2.0KHz
FREQUENCY RANGE 頻率範圍	F0~20,000Hz Average SPL-10dB	450~20,000Hz Average SPL-10dB
DISTORTION 失真程度	5% Maximum at 1,000Hz. 1.0W	5% Maximum at 1,000Hz. 1.0W
OPERATING TEMP. RANGE 操作溫度	-25˚C to +50˚C	-25˚C to +50˚C
STORAGE TEMP. RANGE 儲存溫度	-25˚C to +55˚C	-25˚C to +55˚C
WEIGHT 重 量	2.6gms	2.6gms

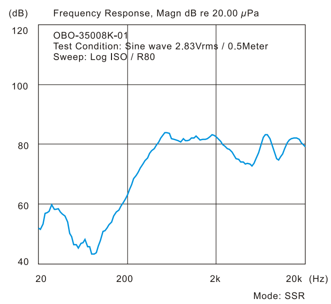
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖



HOUSING MATERIAL: ABS

Frequency Response Curve
(Distance: 0.5m)
頻率響應圖



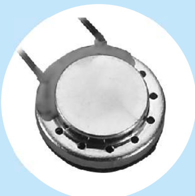
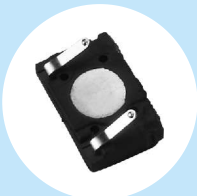


Note

Dynamic Receiver
受 話 器

APPLICATIONS

• GSM / PDA / GPRS phones
• MP3 / Hand Free phones


PART NUMBERING SYSTEM AND PRODUCT INDEX
受 話 器 編 碼 原 則 / 型 號 索 引

PART NUMBERING SYSTEM

OBO-DR 13 032 - 01

- 01: Serial number for various special spec.
- 032: Nominal Impedance, ex : 032=32ohms
- 13: Diameter of Dynamic Recriver
- OBO-DR: Dynamic Receiver type

NOTE : The number of impedance and power rate are able to be change as per specific inquiry.

受 話 器 產 品 編 號 原 則

OBO-DR 13 032 - 01

- 01: 規格流水號
- 032: 電阻值，ex :032=32ohms
- 13: 受話器外徑
- OBO-DR: 動圈式受話器類

注意：電阻值（Ω）及輸出功率（W）可依客戶需求作變更

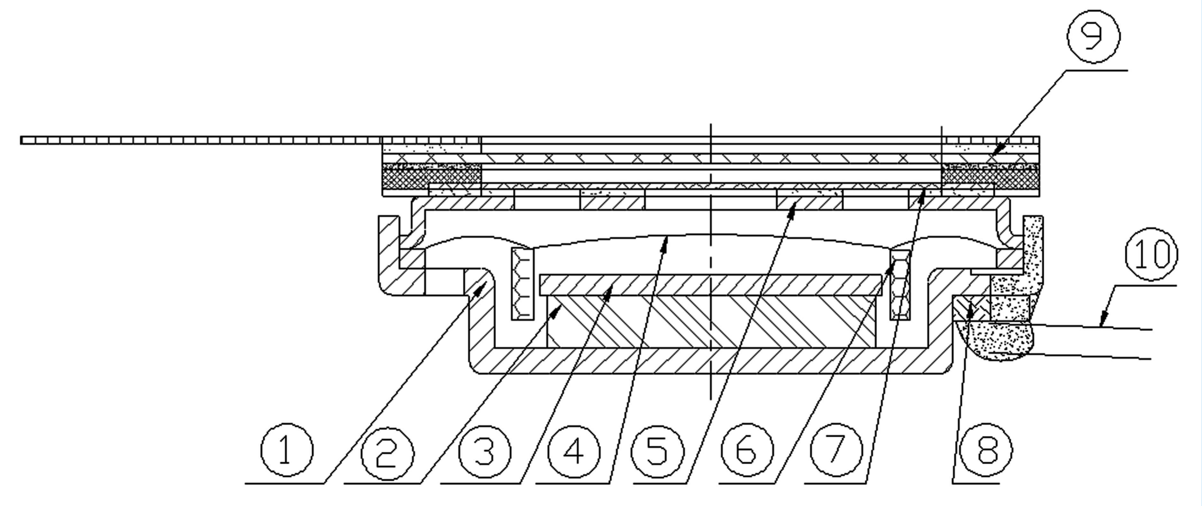
DYNAMIC RECEIVER PRODUCT INDEX

MODEL NO.	Impedance (Ω+/-15%)	Power Rating Normal (Mw)	Power Rating Max.	SPL (+/-3dB)	Dimensions (mm)	Page NO
OBO-DR10032K-02	32	10	20	105	10.0x5.05	108
OBO-DR10032K-0401	32	10	20	105	10.0x5.05	108
OBO-DR10032F-0401	32	10	20	107	10.0	109
OBO-DR11032K-02	32	10	20	105	11.0x7.0	109
OBO-DR12032K-02	32	10	20	108	12.0x6.0	110
OBO-DR12032K-0301	32	10	20	108	12.0x6.0	110
OBO-DR12032G-05	32	30	50	105	12.0x6.0	111
OBO-DR15032K-0301	32	10	20	107	15.0x6.0	111
OBO-DR15032K-04	32	10	20	107	15.0x6.0	112
OBO-DR15032K-05	32	30	50	107	15.0x6.0x3.8	112

Note : The number of impedance and power rate are able to be changed as per specific inquiry.

CONSTRUCTION OF DYNAMIC RECEIVER
受 話 器 結 構

CONSTRUCTION OF DYNAMIC RECEIVER 受 話 器 結 構



NO	DESCRIPTION	料品名稱
1	YOKE	U鐵
2	MAGNET	磁鐵
3	POLE PIECE	華司
4	DIAPHRAGM	振膜
5	FRONT CAP	上蓋
6	VOICE COIL	線圈
7	DAMPER	不織布
8	PCB	PCB板
9	PORON+SCREEN	防塵貼紙
10	LEAD WIRE / PIN	線/PIN 機種

OBO PRO.2 INC.

DYNAMIC RECEIVER

受話器

APPLICATIONS 應用產品

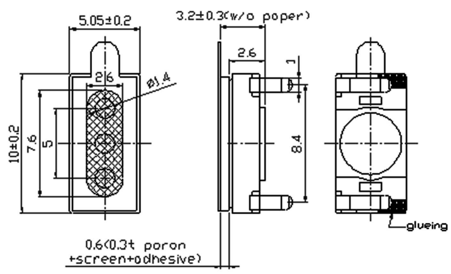
• GSM / Cellular Phone / PDA Phone Applicaion　應用於手機及PDA個人數位手機

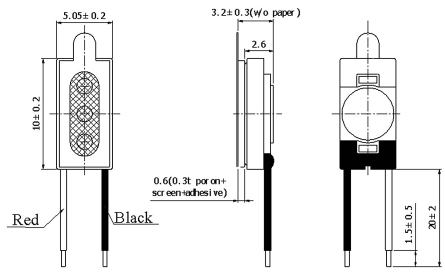
FEATURES 特點

• Compact size, Richsound　輕小尺寸，高音質

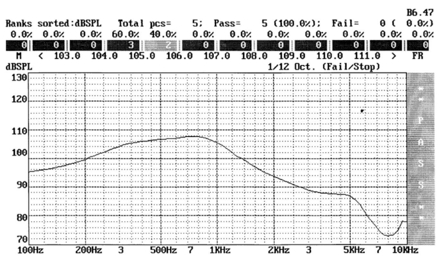
	OBO-DR10032K-02	OBO-DR10032K-0401
DIMENSIONS 尺寸	10.0×5.05mm	10.0×5.05mm
NOMINAL IMPEDANCE 阻值	32Ω±15% at 1 KHz, 1Vrms	32Ω±15% at 1 KHz, 1Vrms
POWER RATING 設定值	Normal 10mW/Max 20mW	Normal 10mW/Max 20mW
LOWEST RESONANT FREQUENCY 最低頻率	300Hz~3.4KHz	300Hz~3.4KHz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	105.0±3dB	105.0±3dB
DISTORTION 失真程度	Not exceed 5% at 300Hz to 3KHz for S.P.L. 105dB	Not exceed 5% at 300Hz to 3KHz for S.P.L. 105dB
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重量	0.5gms	0.5gms

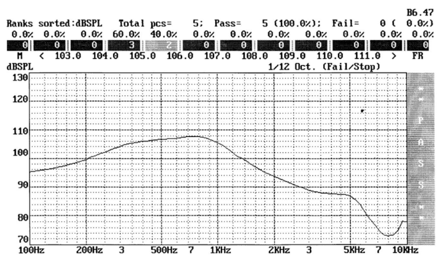
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
頻率響應圖





OBO PRO.2 INC.

DYNAMIC RECEIVER

受 話 器

APPLICATIONS 應 用 產 品

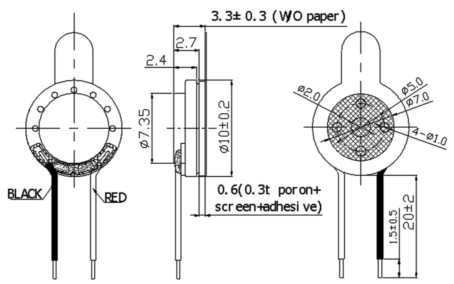
- GSM / Cellular Phone / PDA Phone Applicaion 應用於手機及PDA個人數位手機

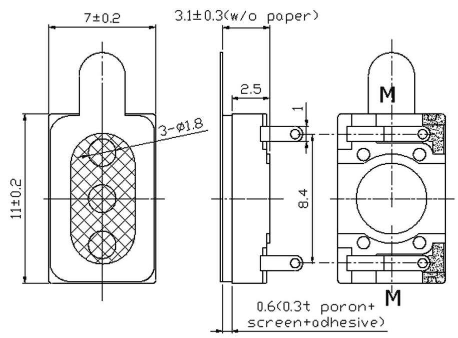
FEATURES 特 點

- Compact size, Richsound 輕小尺寸，高音質

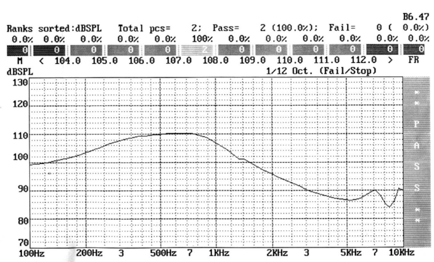
		OBO-DR10032F-0401	OBO-DR11032K-02
DIMENSIONS	尺 寸	10.0mm	11.0×7.0mm
NOMINAL IMPEDANCE	阻 值	32Ω±15% at 1 KHz, 1Vrms	32Ω±15% at 1 KHz, 1Vrms
POWER RATING	設 定 值	Normal 10mW/Max 20mW	Normal 10mW/Max 20mW
LOWEST RESONANT FREQUENCY	最低頻率	300Hz~3.4KHz	300Hz~3.4KHz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	107.0±3dB	105.0±3dB
DISTORTION	失真程度	Not exceed 5% at 300Hz to 3KHz for S.P.L. 105dB	Not exceed 5% at 300Hz to 3KHz for S.P.L. 105dB
OPERATING TEMP. RANGE	操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE	儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT	重 量	0.6gms	0.5gms

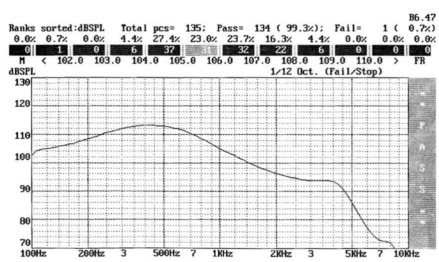
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
頻率響應圖





DYNAMIC RECEIVER

受 話 器

APPLICATIONS 應 用 產 品

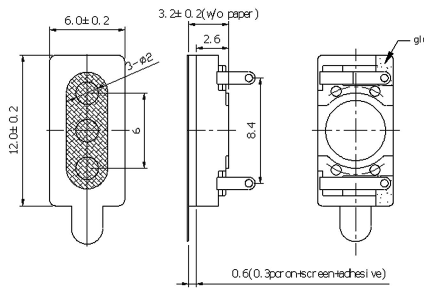
- GSM / Cellular Phone / PDA Phone Applicaion 應用於手機及PDA個人數位手機

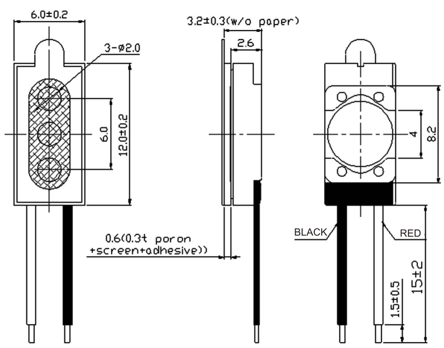
FEATURES 特 點

- Compact size, Richsound 輕小尺寸，高音質

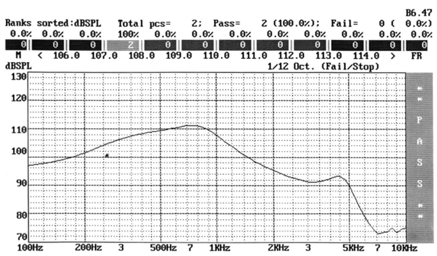
	OBO-DR12032K-02	OBO-DR12032K-0301
DIMENSIONS 尺 寸	12.0×6.0mm	12.0×6.0mm
NOMINAL IMPEDANCE 阻 值	32Ω±15% at 1 KHz, 1Vrms	32Ω±15% at 1 KHz, 1Vrms
POWER RATING 設 定 值	Normal 10mW/Max 20mW	Normal 10mW/Max 20mW
LOWEST RESONANT FREQUENCY 最低頻率	300Hz~3.4KHz	300Hz~3.4KHz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	108.0±3dB	108.0±3dB
DISTORTION 失真程度	Not exceed 5% at 300Hz to 3KHz for S.P.L. 105dB	Not exceed 5% at 300Hz to 3KHz for S.P.L. 105dB
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重 量	0.5gms	0.5gms

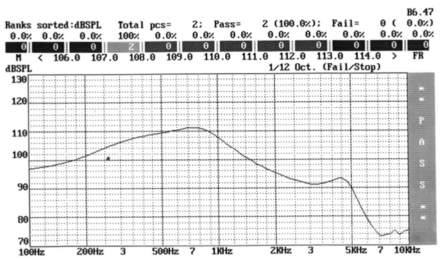
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
頻率響應圖

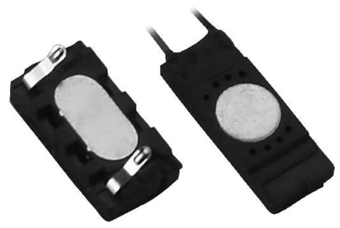




OBO PRO.2 INC.

DYNAMIC RECEIVER

受話器



APPLICATIONS 應用產品

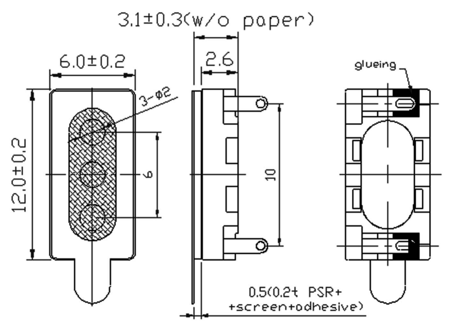
- GSM / Cellular Phone / PDA Phone Applicaion 應用於手機及PDA個人數位手機

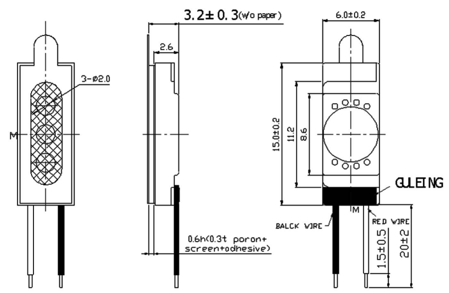
FEATURES 特點

- Compact size, Richsound 輕小尺寸，高音質

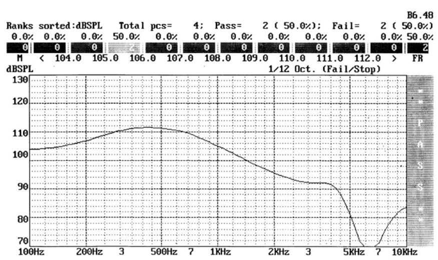
	OBO-DR12032G-05	OBO-DR15032K-0301
DIMENSIONS 尺寸	12.0×6.0mm	15.0×6.0mm
NOMINAL IMPEDANCE 阻值	32Ω±15% at 1 KHz, 1Vrms	32Ω±15% at 1 KHz, 1Vrms
POWER RATING 設定值	Normal 30mW/Max 50mW	Normal 10mW/Max 20mW
LOWEST RESONANT FREQUENCY 最低頻率	300Hz~3.4KHz	300Hz~3.4KHz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.) 輸出音壓	105.0±3dB	107.0±3dB
DISTORTION 失真程度	Not exceed 5% at 300Hz to 3KHz for S.P.L. 105dB	Not exceed 5% at 300Hz to 3KHz for S.P.L. 105dB
OPERATING TEMP. RANGE 操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE 儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT 重量	0.5gms	0.7gms

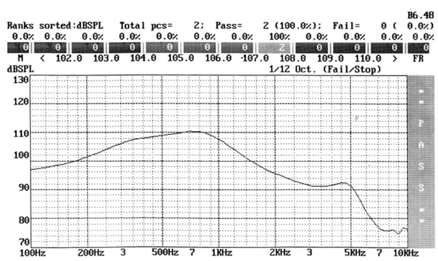
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
頻率響應圖





受話器 Dynamic Receiver

OBO
OBO PRO.2 INC.

DYNAMIC RECEIVER

受話器

APPLICATIONS 應用產品

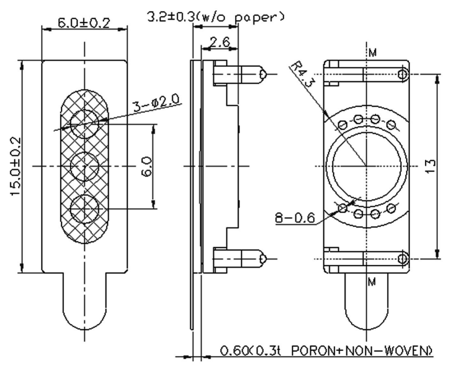
- GSM / Cellular Phone / PDA Phone Applicaion 應用於手機及PDA個人數位手機

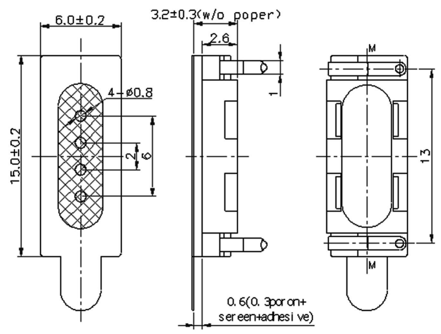
FEATURES 特點

- Compact size, Richsound 輕小尺寸，高音質

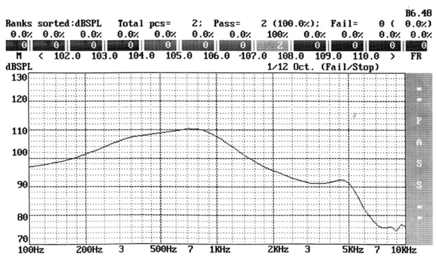
		OBO-DR15032K-04	OBO-DR15032K-05
DIMENSIONS	尺　寸	15.0×6.0mm	15.0×6×3.8mm
NOMINAL IMPEDANCE	阻　值	32Ω±15% at 1 KHz, 1Vrms	32Ω±15% at 1 KHz, 1Vrms
POWER RATING	設 定 值	Normal 10mW/Max 20mW	Normal 30mW/Max 50mW
LOWEST RESONANT FREQUENCY	最低頻率	300Hz~3.4KHz	300Hz~3.4KHz
OUTPUT SOUND PRESSURE LEVEL (S.P.L.)	輸出音壓	107.0±3dB	107.0±3dB
DISTORTION	失真程度	Not exceed 5% at 300Hz to 3KHz for S.P.L. 105dB	Not exceed 5% at 300Hz to 3KHz for S.P.L. 105dB
OPERATING TEMP. RANGE	操作溫度	-20℃ to +70℃	-20℃ to +70℃
STORAGE TEMP. RANGE	儲存溫度	-40℃ to +80℃	-40℃ to +80℃
WEIGHT	重　量	0.6gms	0.45gms

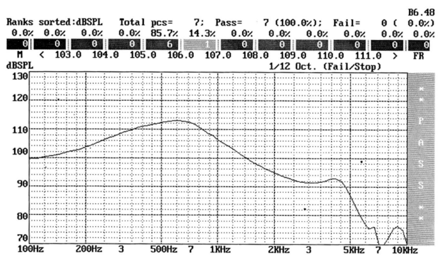
Dimensions
(Unit: ±0.3mm)
輪廓尺寸圖





Frequency Response Curve
頻率響應圖





受話器 Dynamic Receiver