

Driving Efficiency Empowering Industries

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Sanan Semiconductor **2025 Product Brochure**



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Company Profile

Sanan Semiconductor

Sanan Semiconductor is a manufacturer of power semiconductor products and foundry services specializing in SiC and GaN power electronics.

The company is engaged in the research and development, design, manufacture, sales and service of wide band gap semiconductors, and its products and services include SiC MOSFET/SBDs, SiC substrate/epitaxial wafers, automotive-grade SiC power modules, and GaN-on-Si wafer foundry services. The core performance and reliability of Sanan products meet the global industry's highest quality standards, and serve more than 800 customers worldwide in the fields of green energy, automotive, DC charging piles, photovoltaics, energy storage, industrial power supplies, household appliances, consumer electronics, and various other applications. The cumulative total of SiC chips/devices shipped is more than 300 million pieces.

Sanan has one of the few vertically integrated manufacturing service platforms for the whole SiC industry value chain, which can provide services of crystal growth, substrate preparation, epitaxial growth, chip processing, packaging and testing. The comprehensive control of product proliferation and customization, quality and delivery, and its massive production capacity, scale and technology level are unique in the global SiC industry and can ensure Sanan's ability to meet the market demand with short lead times. Sanan has a leading semiconductor R&D and manufacturing team which has developed and industrialized many generations of wide-band gap semiconductor products, and its SiC MOSFET/SBD products have obtained AEC-Q101 qualification.



research and development



design



manufacture



sales



service

Quality Management System Certification



▲ IATF16949



▲ ISO9001



▲ ISO14001



▲ ISO45001



▲ QC080000



▲ ISO27001



▲ ANSI/ESD S 20.20



▲ ISO22301



▲ SA8000

*The company has implemented the VDA 6.3 process audit methodology;

*The company has JEDEC/AEC-Q101/AQG-324 reliability test capabilities.

Global Presence



R&D Center

Changsha, Munich



Sales Departments

China, Japan, USA, UK, Germany



Manufacturing Locations

Changsha, Chongqing



SiC Mega Factory



667,000 m²
(165 Acres)

Land area



2.3 billion USD
(16 billion CNY)

Total investment

- ▶ Phase I Completed, ramping to **300k** wfr/yr(150mm)
- ▶ Phase II to be Completed, full capacity is **360k** wfr/yr(150mm) & 480k wfr/yr(200mm)

SiC Device Fab

- ▶ State-of-the-art tools and metrology
- ▶ CMOS FAB with all SiC process

SiC Substrate

- ▶ Advanced and efficient cutting, grinding, and polishing processes
- ▶ 8-inch wafer production started in 2024

SiC Crystal Growth

- ▶ Self-produced high-purity SiC powder
- ▶ Self-develop PVT

SiC Package Assembly & Test

- ▶ Leading packaging technology
- ▶ Automotive qualification

SiC Epitaxy

- ▶ Excellent thickness/doping
- ▶ uniformity control
- Self-developed low defect growth technology

SiC MOSFET product overview

V_{DS}	650V				750V	900V			
$R_{DS(ON)}$	27m Ω	35m Ω	50m Ω	65m Ω	11m Ω	15m Ω			
V_{DS}	1200V								1700V
$R_{DS(ON)}$	8m Ω	13m Ω	16m Ω	18m Ω	20m Ω	32m Ω	40m Ω	75m Ω	1 Ω

Features: ▶ Easy to drive ▶ High reverse blocking capabilities ▶ AEC-Q101 qualified
▶ Low $R_{DS(on)}$ ▶ Low reverse recovery time

Applications: ▶ Automotive drive ▶ Charging piles ▶ Energy storage
▶ OBC ▶ PV inverter

SiC SBD product overview

V_{RRM}	650V											
I_F	1A	2A	4A	6A	8A	10A	12A	16A	20A	30A	40A	50A
V_{RRM}	1200V											
I_F	1A	2A	3A	5A	10A	15A	20A	27A	30A	40A	50A	60A
V_{RRM}	1700V											
I_F	25A						50A					
V_{RRM}	2000V											
I_F	20A						40A					

Features: ▶ High reliability MPS structure ▶ AEC-Q101 qualified ▶ Low forward V_f
▶ Zero reverse recovery ▶ Thinner wafer platform

Applications: ▶ PV inverter ▶ Server power supply ▶ Charging piles ▶ OBC
▶ Energy storage ▶ Base station power supply ▶ Home appliance ▶ DC/DC

SiC MOSFET product portfolio

V_{DS}	$R_{DS(ON)}$	Bare die	TO247-3L	TO247-4L	TO247-4L Plus	TO247-4LA	TO263-7L	SAPKG-9L
650V	27m Ω	○		○				○
	35m Ω	○		○				○
	50m Ω	●		●			○	○
	65m Ω	○		○				
750V	11m Ω	○		○				
900V	15m Ω	○		○				○
1200V	8m Ω				○			
	13m Ω	○						
	16m Ω	●		●		○		
	18m Ω	●		○		○		
	20m Ω	●		●				
	32m Ω	●		●		○		○
	40m Ω	○		○				
	75m Ω	○	○	●			○	○
1700V	1 Ω	●	●				○	

● MP ○ Samp.

SiC SBD product portfolio

V_{RRM}	I_F	Bare die	TO220-2L	TO220F-2L	TO220N-2L	TO247-2L	TO247-3L	TO252-2L	TO263-2L	TO3PF-3L	DFN8x8-4L	SAPKG	SMBF
650V	1A	●											●
	2A	●						●					
	4A	●	●					●					
	6A	●	●		●			●	●		●		
	8A	●	●		●			●	●		●		
	10A	●	●		●			●	●		●	○	
	12A	●	●		●						●		
	16A	●	●	●		●	●						
	20A	●	●	○		●	●	●	●	●			
	30A	●				●	●						
	40A	●				●	●						
	50A	●				●			●				
1200V	1A	●											●
	2A	●	●					●					
	3A	●						●					
	5A	●	●					●					
	10A	●	●			●	●	●	●				
	15A	●	●			●							
	20A	●	●			●	●		●				
	27A	●				●							
	30A	●				●	●						
	40A	●				●	●						
	50A	●				●						○	
	60A	●				●	●						
1700V	25A	●				●							
	50A	○				○							
2000V	20A	○				○							
	40A	○				○							

● MP ○ Samp.

SiC SBD product list

No.#	Prod PN	Type	V_{RRM}	I_F	Gen	PKG	Grade	Status
1	ADS065J001B3	Bare die	650V	1A	G3	Bare die	Automotive	MP
2	ADS16B3	Device	650V	1A	G3	SMBF	Automotive	MP
3	SDS065J002B3	Bare die	650V	2A	G3	Bare die	Industry	MP
4	SDS065J002D3	Device	650V	2A	G3	TO252-2L	Industry	MP
5	SDS065J004B3	Bare die	650V	4A	G3	Bare die	Industry	MP
6	SDS065J004B4	Bare die	650V	4A	G4	Bare die	Industry	MP
7	SDS065J004C3	Device	650V	4A	G3	TO220-2L	Industry	MP
8	SDS065J004C4	Device	650V	4A	G4	TO220-2L	Industry	MP
9	SDS065J004D3	Device	650V	4A	G3	TO252-2L	Industry	MP
10	SDS065J004D4	Device	650V	4A	G4	TO252-2L	Industry	MP
11	SDS065J006B3	Bare die	650V	6A	G3	Bare die	Industry	MP
12	SDS065J006B4	Bare die	650V	6A	G4	Bare die	Industry	MP
13	SDS065J006C3	Device	650V	6A	G3	TO220-2L	Industry	MP
14	SDS065J006C4	Device	650V	6A	G4	TO220-2L	Industry	MP
15	SDS065J006D3	Device	650V	6A	G3	TO252-2L	Industry	MP
16	SDS065J006D4	Device	650V	6A	G4	TO252-2L	Industry	MP
17	SDS065J006E3	Device	650V	6A	G3	TO263-2L	Industry	MP
18	SDS065J006N4	Device	650V	6A	G4	TO220N-2L	Industry	MP
19	SDS065J006S3	Device	650V	6A	G3	DFN8 x 8-4L	Industry	MP
20	ADS065J008B3	Bare die	650V	8A	G3	Bare die	Automotive	MP
21	SDS065J008B3	Bare die	650V	8A	G3	Bare die	Industry	MP
22	SDS065J008B4	Bare die	650V	8A	G4	Bare die	Industry	MP
23	SDS065J008C3	Device	650V	8A	G3	TO220-2L	Industry	MP
24	SDS065J008D3	Device	650V	8A	G3	TO252-2L	Industry	MP
25	SDS065J008D4	Device	650V	8A	G4	TO252-2L	Industry	MP
26	SDS065J008E3	Device	650V	8A	G3	TO263-2L	Industry	MP
27	SDS065J008N3	Device	650V	8A	G3	TO220N-2L	Industry	MP
28	SDS065J008S3	Device	650V	8A	G3	DFN8 x 8-4L	Industry	MP
29	ADS065J010B3	Bare die	650V	10A	G3	Bare die	Automotive	MP
30	ADS065J010B4	Bare die	650V	10A	G4	Bare die	Automotive	MP
31	SDS065J010B3	Bare die	650V	10A	G3	Bare die	Industry	MP
32	SDS065J010B4	Bare die	650V	10A	G4	Bare die	Industry	MP
33	SDS065J010C3	Device	650V	10A	G3	TO220-2L	Industry	MP
34	SDS065J010C4	Device	650V	10A	G4	TO220-2L	Industry	MP
35	SDS065J010D3	Device	650V	10A	G3	TO252-2L	Industry	MP
36	SDS065J010E3	Device	650V	10A	G3	TO263-2L	Industry	MP
37	SDS065J010N3	Device	650V	10A	G3	TO220N-2L	Industry	MP

No.#	Prod PN	Type	V_{RRM}	I_F	Gen	PKG	Grade	Status
38	SDS065J010N4	Device	650V	10A	G4	TO220N-2L	Industry	Samp.
39	SDS065J010S3	Device	650V	10A	G3	DFN8 x 8-4L	Industry	MP
40	ADS065J010V4	Device	650V	10A	G4	SAPKG	Automotive	Samp.
41	ADS065J012B3	Bare die	650V	12A	G3	Bare die	Automotive	MP
42	SDS065J012B3	Bare die	650V	12A	G3	Bare die	Industry	MP
43	SDS065J012C3	Device	650V	12A	G3	TO220-2L	Industry	MP
44	SDS065J012N3	Device	650V	12A	G3	TO220N-2L	Industry	MP
45	SDS065J012S3	Device	650V	12A	G3	DFN8 x 8-4L	Industry	MP
46	SDS065J016B3	Bare die	650V	16A	G3	Bare die	Industry	MP
47	SDS065J016C3	Device	650V	16A	G3	TO220-2L	Industry	MP
48	SDS065J016F3	Device	650V	16A	G3	TO220F-2L	Industry	MP
49	ADS065J016G3	Device	650V	16A	G3	TO247-3L	Automotive	MP
50	SDS065J016G3	Device	650V	16A	G3	TO247-3L	Industry	MP
51	SDS065J016H3	Device	650V	16A	G3	TO247-2L	Industry	MP
52	ADS065J020B3	Bare die	650V	20A	G3	Bare die	Automotive	MP
53	SDS065J020B3	Bare die	650V	20A	G3	Bare die	Industry	MP
54	SDS065J020B4	Bare die	650V	20A	G4	Bare die	Industry	MP
55	ADS065J020C3	Device	650V	20A	G3	TO220-2L	Automotive	MP
56	SDS065J020C3	Device	650V	20A	G3	TO220-2L	Industry	MP
57	ADS065J020D3	Device	650V	20A	G3	TO252-2L	Automotive	MP
58	SDS065J020D3	Device	650V	20A	G3	TO252-2L	Industry	MP
59	ADS065J020E3	Device	650V	20A	G3	TO263-2L	Automotive	MP
60	SDS065J020F4	Device	650V	20A	G4	TO220F-2L	Industry	Samp.
61	ADS065J020G3	Device	650V	20A	G3	TO247-3L	Automotive	MP
62	SDS065J020G3	Device	650V	20A	G3	TO247-3L	Industry	MP
63	ADS065J020H3	Device	650V	20A	G3	TO247-2L	Automotive	MP
64	SDS065J020H3	Device	650V	20A	G3	TO247-2L	Industry	MP
65	SDS065J020W3	Device	650V	20A	G3	TO3PF-3L	Industry	MP
66	SDS065J020W4	Device	650V	20A	G4	TO-3PF	Industry	Samp.
67	SDS065J030B3	Bare die	650V	30A	G3	Bare die	Industry	MP
68	SDS065J030G3	Device	650V	30A	G3	TO247-3L	Industry	MP
69	SDS065J030H3	Device	650V	30A	G3	TO247-2L	Industry	MP
70	ADS065J040B3	Bare die	650V	40A	G3	Bare die	Automotive	MP
71	SDS065J040B3	Bare die	650V	40A	G3	Bare die	Industry	MP
72	ADS065J040G3	Device	650V	40A	G3	TO247-3L	Automotive	MP
73	SDS065J040G3	Device	650V	40A	G3	TO247-3L	Industry	MP
74	SDS065J040H3	Device	650V	40A	G3	TO247-2L	Industry	MP

SiC SBD product list

No.#	Prod PN	Type	V_{RRM}	I_F	Gen	PKG	Grade	Status
75	SDS065J050B3	Bare die	650V	50A	G3	Bare die	Industry	MP
76	SDS065J050E3	Device	650V	50A	G3	TO263-2L	Industry	MP
77	SDS065J050H3	Device	650V	50A	G3	TO247-2L	Industry	MP
78	ADS120J001B3	Bare die	1200V	1A	G3	Bare die	Automotive	MP
79	ADS12B3	Device	1200V	1A	G3	SMBF	Automotive	MP
80	SDS120J002B3	Bare die	1200V	2A	G3	Bare die	Industry	MP
81	SDS120J002C3	Device	1200V	2A	G3	TO220-2L	Industry	MP
82	SDS120J002D3	Device	1200V	2A	G3	TO252-2L	Industry	MP
83	SDS120J003B3	Bare die	1200V	3A	G3	Bare die	Industry	MP
84	SDS120J003D3	Device	1200V	3A	G3	TO252-2L	Industry	MP
85	ADS120J005B3	Bare die	1200V	5A	G3	Bare die	Automotive	MP
86	SDS120J005B3	Bare die	1200V	5A	G3	Bare die	Industry	MP
87	SDS120J005C3	Device	1200V	5A	G3	TO220-2L	Industry	MP
88	ADS120J005D3	Device	1200V	5A	G3	TO252-2L	Automotive	MP
89	SDS120J005D3	Device	1200V	5A	G3	TO252-2L	Industry	MP
90	SDS120J010B3	Bare die	1200V	10A	G3	Bare die	Industry	MP
91	SDS120J010B5	Bare die	1200V	10A	G5	Bare die	Industry	MP
92	SDS120J010C3	Device	1200V	10A	G3	TO220-2L	Industry	MP
93	SDS120J010C5	Device	1200V	10A	G5	TO220-2L	Industry	MP
94	SDS120J010D3	Device	1200V	10A	G3	TO252-2L	Industry	MP
95	SDS120J010E3	Device	1200V	10A	G3	TO263-2L	Industry	MP
96	SDS120J010G3	Device	1200V	10A	G3	TO247-3L	Industry	MP
97	SDS120J010H3	Device	1200V	10A	G3	TO247-2L	Industry	MP
98	SDS120J015B3	Bare die	1200V	15A	G3	Bare die	Industry	MP
99	SDS120J015B5	Bare die	1200V	15A	G5	Bare die	Industry	MP
100	SDS120J015C3	Device	1200V	15A	G3	TO220-2L	Industry	MP
101	SDS120J015H3	Device	1200V	15A	G3	TO247-2L	Industry	MP
102	SDS120J015H5	Device	1200V	15A	G5	TO247-2L	Industry	MP
103	ADS120J020B3	Bare die	1200V	20A	G3	Bare die	Automotive	MP
104	SDS120J020B3	Bare die	1200V	20A	G3	Bare die	Industry	MP
105	SDS120J020B5	Bare die	1200V	20A	G5	Bare die	Industry	MP
106	ADS120J020C3	Device	1200V	20A	G3	TO220-2L	Automotive	MP
107	SDS120J020C5	Device	1200V	20A	G5	TO220-2L	Industry	Samp.
108	SDS120J020E5	Device	1200V	20A	G5	TO263-2L	Industry	MP
109	SDS120J020G3	Device	1200V	20A	G3	TO247-3L	Industry	MP
110	SDS120J020G5	Device	1200V	20A	G5	TO247-3L	Industry	MP
111	ADS120J020H3	Device	1200V	20A	G3	TO247-2L	Automotive	MP

No.#	Prod PN	Type	V_{RRM}	I_F	Gen	PKG	Grade	Status
112	SDS120J020H3	Device	1200V	20A	G3	TO247-2L	Industry	MP
113	SDS120J020H5	Device	1200V	20A	G5	TO247-2L	Industry	MP
114	SDS120J027B3	Bare die	1200V	27A	G3	Bare die	Industry	MP
115	SDS120J027H3	Device	1200V	27A	G3	TO247-2L	Industry	MP
116	SDS120J030B3	Bare die	1200V	30A	G3	Bare die	Industry	MP
117	SDS120J030B5	Bare die	1200V	30A	G5	Bare die	Industry	MP
118	SDS120J030G3	Device	1200V	30A	G3	TO247-3L	Industry	MP
119	SDS120J030G5	Device	1200V	30A	G5	TO247-3L	Industry	MP
120	SDS120J030H3	Device	1200V	30A	G3	TO247-2L	Industry	MP
121	SDS120J030H5	Device	1200V	30A	G5	TO247-2L	Industry	MP
122	SDS120J040B3	Bare die	1200V	40A	G3	Bare die	Industry	MP
123	SDS120J040B5	Bare die	1200V	40A	G5	Bare die	Industry	MP
124	SDS120J040G3	Device	1200V	40A	G3	TO247-3L	Industry	MP
125	SDS120J040G5	Device	1200V	40A	G5	TO247-3L	Industry	MP
126	SDS120J040H3	Device	1200V	40A	G3	TO247-2L	Industry	MP
127	SDS120J040H5	Device	1200V	40A	G5	TO247-2L	Industry	MP
128	SDS120J040J5	Device	1200V	40A	G5	TO247-2L	Industry	MP
129	SDS120J050B3	Bare die	1200V	50A	G3	Bare die	Industry	MP
130	SDS120J050B5	Bare die	1200V	50A	G5	Bare die	Industry	Samp.
131	SDS120J050H3	Device	1200V	50A	G3	TO247-2L	Industry	MP
132	SDS120J050H5	Device	1200V	50A	G5	TO247-2L	Industry	Samp.
133	ADS120J050V3	Device	1200V	50A	G3	SAPKG	Automotive	Samp.
134	SDS120J060B3	Bare die	1200V	60A	G3	Bare die	Industry	MP
135	SDS120J060B5	Bare die	1200V	60A	G5	Bare die	Industry	Samp.
136	SDS120J060G3	Device	1200V	60A	G3	TO247-3L	Industry	MP
137	SDS120J060H3	Device	1200V	60A	G3	TO247-2L	Industry	MP
138	SDS120J060H5	Device	1200V	60A	G5	TO247-2L	Industry	Samp.
139	SDS120J060J5	Device	1200V	60A	G5	TO247-2L	Industry	Samp.
140	SDS170J025B5	Bare die	1700V	25A	G5	Bare die	Industry	MP
141	SDS170J025H5	Device	1700V	25A	G5	TO247-2L	Industry	MP
142	SDS170J050B5	Bare die	1700V	50A	G5	Bare die	Industry	Samp.
143	SDS170J050H5	Device	1700V	50A	G5	TO247-2L	Industry	Samp.
144	SDS200J020B5	Bare die	2000V	20A	G5	Bare die	Industry	Samp.
145	SDS200J020H5	Device	2000V	20A	G5	TO247-2L	Industry	Samp.
146	SDS200J040B5	Bare die	2000V	40A	G5	Bare die	Industry	Samp.
147	SDS200J040H5	Device	2000V	40A	G5	TO247-2L	Industry	Samp.

SiC MOSFET product list

No.#	Prod PN	Type	V_{DS}	$R_{DS(ON)}$	Gen	PKG	Grade	Status
1	SMS0650027B	Bare die	650V	27m Ω	G1	Bare die	Industry	Samp.
2	SMS0650027M	Device	650V	27m Ω	G1	TO247-4L	Industry	Samp.
3	AMS0650027V	Device	650V	27m Ω	G1	SAPKG-9L	Automotive	Samp.
4	AMS0650035B	Bare die	650V	35m Ω	G1	Bare die	Automotive	Samp.
5	AMS0650035M	Device	650V	35m Ω	G1	TO247-4L	Automotive	Samp.
6	AMS0650035V	Device	650V	35m Ω	G1	SAPKG-9L	Automotive	Samp.
7	AMS0650050B	Bare die	650V	50m Ω	G1	Bare die	Automotive	MP
8	AMS0650050M	Device	650V	50m Ω	G1	TO247-4L	Automotive	MP
9	AMS0650050P	Device	650V	50m Ω	G1	TO263-7L	Automotive	Samp.
10	AMS0650050V	Device	650V	50m Ω	G1	SAPKG-9L	Automotive	Samp.
11	SMS0650065B	Bare die	650V	65m Ω	G1	Bare die	Industry	Samp.
12	SMS0650065M	Device	650V	65m Ω	G1	TO247-4L	Industry	Samp.
13	SMS0750011B	Bare die	750V	11m Ω	G1	Bare die	Industry	Samp.
14	SMS0750011M	Device	750V	11m Ω	G1	TO247-4L	Industry	Samp.
15	AMS0900015B	Bare die	900V	15m Ω	G1	Bare die	Automotive	Samp.
16	AMS0900015M	Device	900V	15m Ω	G1	TO247-4L	Automotive	Samp.
17	AMS0900015V	Device	900V	15m Ω	G1	SAPKG-9L	Automotive	Samp.
18	SMS1200008X	Device	1200V	8m Ω	G1	TO247-4L Plus	Industry	Samp.
19	AMS1200013B3	Bare die	1200V	13m Ω	G3	Bare die	Automotive	Samp.
20	AMS1200016B	Bare die	1200V	16m Ω	G1	Bare die	Automotive	MP
21	SMS1200016M	Device	1200V	16m Ω	G1	TO247-4L	Industry	MP
22	SMS1200016MA	Device	1200V	16m Ω	G1	TO247-4LA	Industry	Samp.
23	AMS1200018B	Bare die	1200V	18m Ω	G1	Bare die	Automotive	MP
24	SMS1200018M	Device	1200V	18m Ω	G1	TO247-4L	Industry	Samp.
25	SMS1200018MA	Device	1200V	18m Ω	G1	TO247-4LA	Industry	Samp.
26	SMS1200020B	Bare die	1200V	20m Ω	G1	Bare die	Industry	MP
27	SMS1200020M	Device	1200V	20m Ω	G1	TO247-4L	Industry	MP
28	AMS1200032B	Bare die	1200V	32m Ω	G1	Bare die	Automotive	Samp.
29	SMS1200032B	Bare die	1200V	32m Ω	G1	Bare die	Industry	MP
30	AMS1200032B2	Bare die	1200V	32m Ω	G2	Bare die	Automotive	Samp.
31	SMS1200032B2	Bare die	1200V	32m Ω	G2	Bare die	Industry	Samp.
32	AMS1200032M	Device	1200V	32m Ω	G1	TO247-4L	Automotive	Samp.
33	SMS1200032M	Device	1200V	32m Ω	G1	TO247-4L	Industry	MP
34	AMS1200032M2	Device	1200V	32m Ω	G2	TO247-4L	Automotive	Samp.
35	SMS1200032M2	Device	1200V	32m Ω	G2	TO247-4L	Industry	Samp.
36	SMS1200032MA	Device	1200V	32m Ω	G1	TO247-4LA	Industry	Samp.
37	AMS1200032V	Device	1200V	32m Ω	G1	SAPKG-9L	Automotive	Samp.

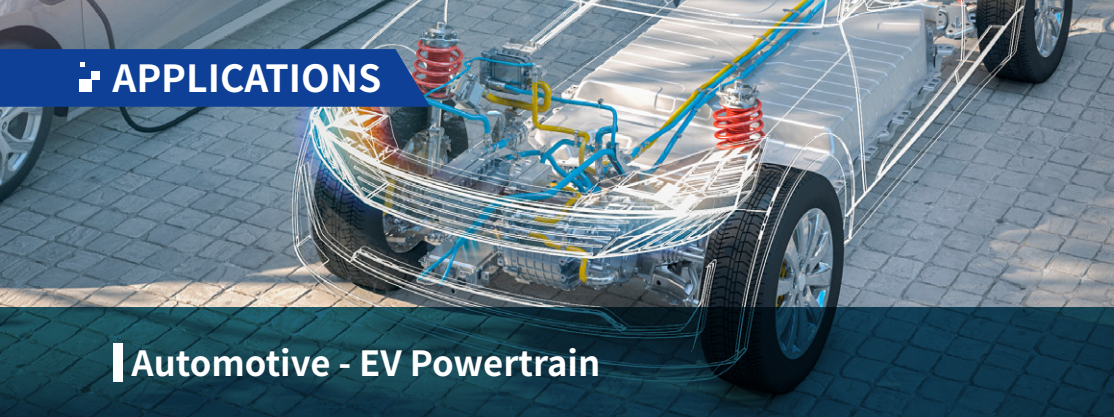
No.#	Prod PN	Type	V_{DS}	$R_{DS(ON)}$	Gen	PKG	Grade	Status
38	AMS1200040B2	Bare die	1200V	40m Ω	G2	Bare die	Automotive	Samp.
39	SMS1200040B2	Bare die	1200V	40m Ω	G2	Bare die	Industry	Samp.
40	AMS1200040M2	Device	1200V	40m Ω	G2	TO247-4L	Automotive	Samp.
41	SMS1200040M2	Device	1200V	40m Ω	G2	TO247-4L	Industry	Samp.
42	AMS1200075B	Bare die	1200V	75m Ω	G1	Bare die	Automotive	MP
43	AMS1200075K	Device	1200V	75m Ω	G1	TO247-3L	Automotive	Samp.
44	AMS1200075M	Device	1200V	75m Ω	G1	TO247-4L	Automotive	MP
45	SMS1200075M	Device	1200V	75m Ω	G1	TO247-4L	Industry	Samp.
46	AMS1200075P	Device	1200V	75m Ω	G1	TO263-7L	Automotive	Samp.
47	AMS1200075V	Device	1200V	75m Ω	G1	SAPKG-9L	Automotive	Samp.
48	SMS1701000B	Bare die	1700V	1000m Ω	G1	Bare die	Industry	MP
49	AMS1701000K	Device	1700V	1000m Ω	G1	TO247-3L	Automotive	Samp.
50	SMS1701000K	Device	1700V	1000m Ω	G1	TO247-3L	Industry	MP
51	SMS1701000P	Device	1700V	1000m Ω	G1	TO263-7L	Industry	Samp.

SiC Module product list

No.#	Prod PN	Type	V_{RRM}	I_F	Gen	PKG	Grade	Status
1	SLS065J100A	Module	650V	100Ax2	G3	SOT-227	Industry	MP
2	SLS120J060A	Module	1200V	60Ax2	G3	SOT-227	Industry	MP
3	SLS120J080A	Module	1200V	80Ax2	G3	SOT-227	Industry	MP
4	SLS120J100A	Module	1200V	100Ax2	G3	SOT-227	Industry	MP

GaN HEMT product list

No.#	Prod PN	Type	V_{DS}	$R_{DS(ON)}$	Gen	PKG	Grade	Status
1	SMG0650030Y	Device	650V	30m Ω	G1	TOLL	Industry	Samp.
2	SMG0650050Y	Device	650V	50m Ω	G1	TOLL	Industry	Samp.
3	SMG0650125B3	Bare die	650V	125m Ω	G3	Bare die	Consumer	Samp.
4	SMG0650125S3	Device	650V	125m Ω	G3	DFN8 x 8-8L	Consumer	Samp.
5	SMG0650170B3	Bare die	650V	170m Ω	G3	Bare die	Consumer	Samp.
6	SMG0650170S3	Device	650V	170m Ω	G3	DFN8 x 8-8L	Consumer	Samp.
7	SMG0650240B3	Bare die	650V	240m Ω	G3	Bare die	Consumer	Samp.
8	SMG0650240S3	Device	650V	240m Ω	G3	DFN5 x 6-8L	Consumer	Samp.



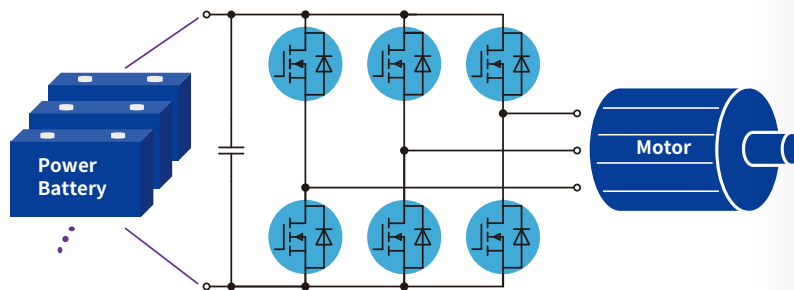
Automotive - EV Powertrain

Recommended Products

SiC MOS 1200V	13mΩ	Bare die	AMS1200013B3
	16mΩ	Bare die	AMS1200016B
	18mΩ	Bare die	AMS1200018B

Topology Diagrams

Three-phase inverter



System Advantages



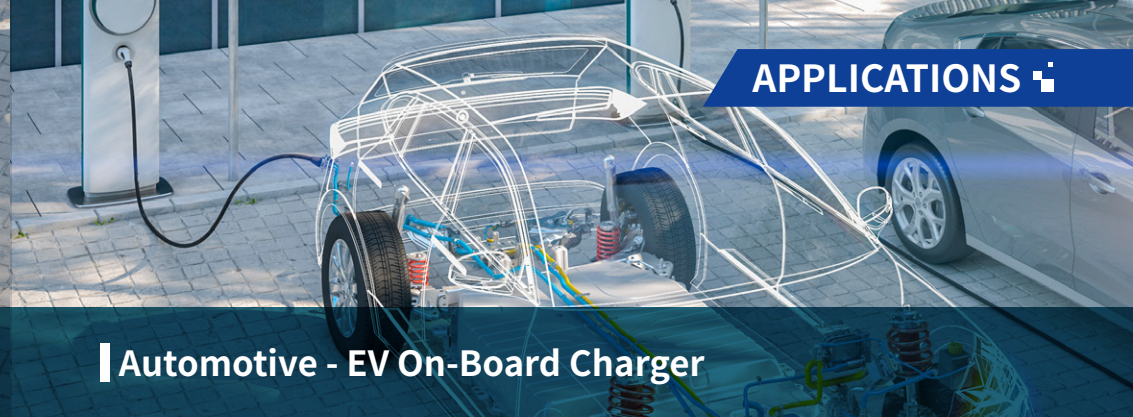
High power density,
peak up to 100kW/L



High efficiency,
switching loss
reduced by
about 70%



Low loss, low vehicle
energy consumption,
comprehensive range
can be increased by
about 4-8%



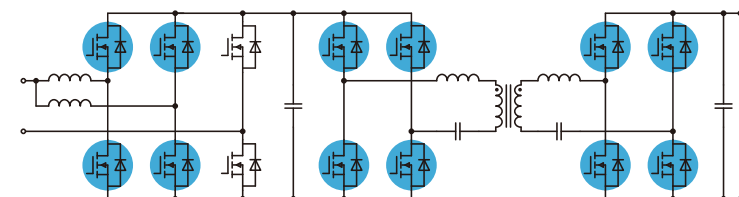
Automotive - EV On-Board Charger

Recommended Products

SiC MOS 1200V	32mΩ	TO247-4L	AMS1200032M
	75mΩ	TO247-3L	AMS1200075K
	75mΩ	TO247-4L	AMS1200075M
	75mΩ	TO263-7L	AMS1200075P
SiC SBD 650V	10A	Bare die	ADS065J010B3
	20A	Bare die	ADS065J020B3
	30A	Bare die	ADS065J030B3
	20A	TO220-2L	ADS065J020C3
	20A	TO247-2L	ADS065J020H3
	16A	TO247-3L	ADS065J016G3
	20A	TO247-3L	ADS065J020G3
	40A	TO247-3L	ADS065J040G3
	20A	TO252-2L	ADS065J020D3
	20A	TO263-2L	ADS065J020E3
SiC SBD 1200V	5A	TO252-2L	ADS120J005D3

Topology Diagrams

Staggered Totem Poles + CLLC



System Advantages



High frequency,
increased power
density



High efficiency,
enables system
integration



Efficient bidirectional
charging and discharging
function (V2X)

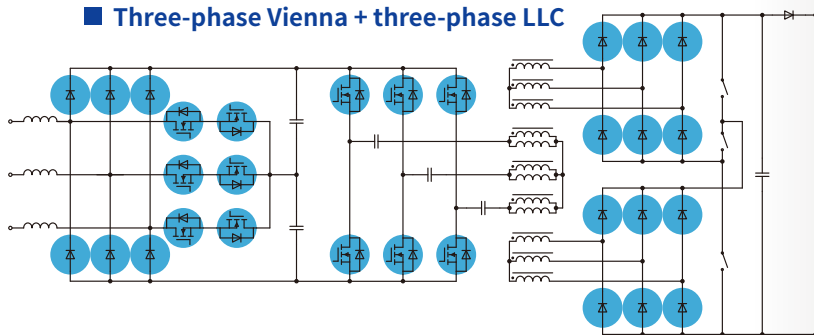
Automotive – Charging Pile

Recommended Products

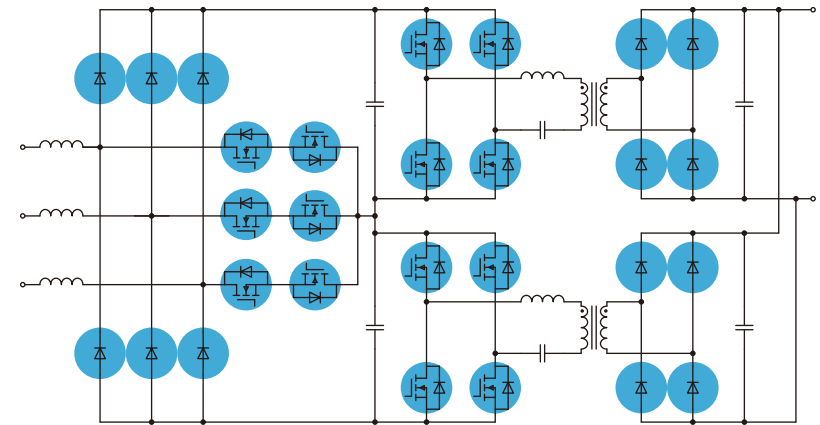
SiC MOS 1200V	20mΩ	TO247-4L	SMS1200020M
	32mΩ	TO247-4L	SMS1200032M
	75mΩ	TO247-4L	SMS1200075M
SiC SBD 650V	10A	TO220-2L	SDS065J010C3
	16A	TO247-3L	SDS065J016G3
	20A	TO247-2L	SDS065J020H3
	20A	TO247-3L	SDS065J020G3
	30A	TO247-2L	SDS065J030H3
	30A	TO247-3L	SDS065J030G3
	40A	TO247-2L	SDS065J040H3
	50A	TO247-2L	SDS065J050H3
SiC SBD 1200V	20A	TO247-2L	SDS120J020H5
	20A	TO247-3L	SDS120J020G5
	30A	TO247-2L	SDS120J030H5
	30A	TO247-3L	SDS120J030G5
	40A	TO247-2L	SDS120J040H5
	40A	TO247-3L	SDS120J040G5
	50A	TO247-2L	SDS120J050H3
	60A	TO247-2L	SDS120J060J5
	60A	TO247-3L	SDS120J060G3

Topology Diagrams

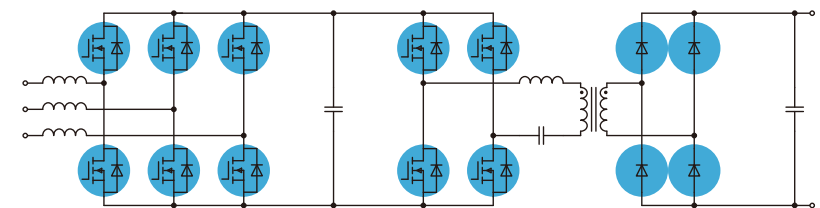
Three-phase Vienna + three-phase LLC



Three-phase Vienna + series LLC



Three-phase bridge PFC



System Advantages



Simple topology and easy control



High efficiency, charging and discharging modes > 98.5%



High power density, same volume power increase 30-50%



Low long-term cost

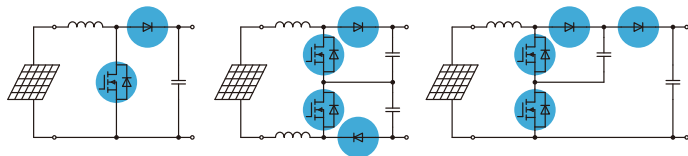
Renewable Energy – PV Inverter

Recommended Products

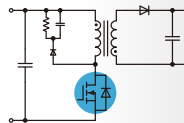
SiC MOS 1200V	20mΩ	TO247-4L	SMS1200020M
	32mΩ	TO247-4L	SMS1200032M
	40mΩ	TO247-4L	SMS1200040M2
	75mΩ	TO247-4L	SMS1200075M
SiC MOS 1700V	1000 mΩ	TO247-3L	SMS1701000K
SiC SBD 1200V	10A	TO247-2L	SDS120J010H3
	20A	TO247-2L	SDS120J020H5
	20A	TO247-3L	SDS120J020G5
	30A	TO247-2L	SDS120J030H5
	30A	TO247-3L	SDS120J030G5
	40A	TO247-2L	SDS120J040H5
SiC SBD 1700V	40A	TO247-3L	SDS120J040G5
	25A	Bare die	SDS170J025B5
SiC SBD 2000V	25A	TO247-2L	SDS170J025H5
	20A	TO247-2L	SDS200J020H5
	40A	TO247-2L	SDS200J040H5

Topology Diagrams

MPPT



Flyback



System Advantages



Low loss, high efficiency



Simplified power circuit topology



High operating junction temperature, high reliability

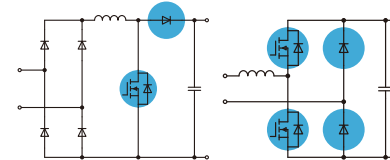
Industrial - Server Power Supply

Recommended Products

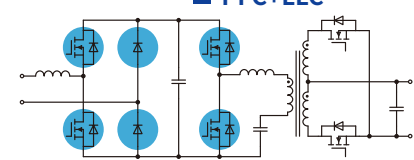
SiC MOS 650V	27mΩ	TO247-4L	SMS0650027M
	35mΩ	TO263-7L	SMS0650035P
	35mΩ	TOLL	SMS0650035Y
	50mΩ	TO263-7L	SMS0650050P
	50mΩ	TOLL	SMS0650050Y
SiC MOS 1200V	20mΩ	TO247-4L	SMS1200020M
	32mΩ	TO247-4L	SMS1200032M
	40mΩ	TO247-4L	SMS1200040M2
	75mΩ	TO247-4L	SMS1200075M
SiC SBD 650V	Numerous specifications 2A/4A/6A/8A/10A 12A/16A/20A 30A/40A/50A	Fully packaged TO220-2L/TO220N-2L TO252-2L/TO263-2L TO247-2L/TO247-3L	Product richness can be found on our website
SiC SBD 1200V	Numerous specifications 2A/5A/10A/15A 20A/27A/30A 40A/50A/60A	Fully packaged TO220-2L/TO220N-2L TO252-2L/TO263-2L TO247-2L/TO247-3L	
GaN HEMT 650V	30mΩ	TOLL	SMG0650030Y
	50mΩ	TOLL	SMG0650050Y

Topology Diagrams

PFC



PFC+LLC



System Advantages



Better high frequency characteristics



Low loss, high efficiency



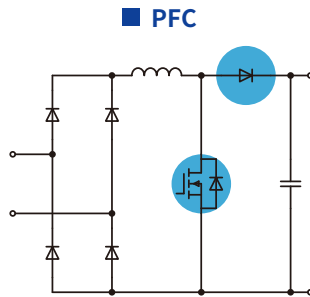
High power density

Home Appliance – Air Conditioner

Recommended Products

SiC SBD 650V	10A	TO220N-2L	SDS065J010N3
	10A	TO220N-2L	SDS065J010N4
	12A	TO220N-2L	SDS065J012N3
	16A	TO220F-2L	SDS065J016F3
	20A	TO3PF-3L	SDS065J020W3
	20A	TO3PF-3L	SDS065J020W4
	20A	TO220F-2L	SDS065J020F4
SiC MOS 650V	27mΩ	TO247-4L	SMS0650027M
	65mΩ	TO247-4L	SMS0650065M

Topology Diagrams



System Advantages



System efficiency increased by 1-3%



Energy loss reduced by about 40%



Switching frequency increased by 100-200%



Inductor size reduced by about 30%



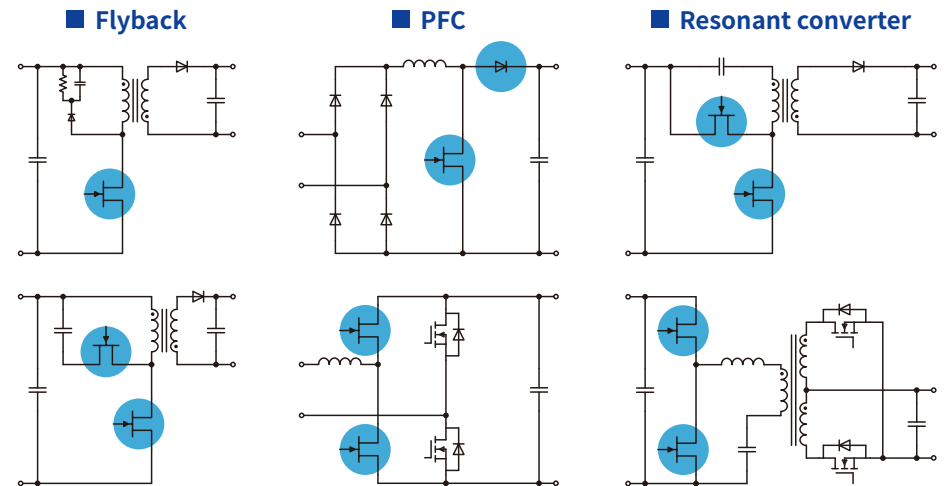
Heat sink size reduced by about 5%

Consumer Electronics – PD Charger

Recommended Products

GaN HEMT 650V	125mΩ	DFN8 x 8-8L	SMG0650125S3
	125mΩ	Bare die	SMG0650125B3
	170mΩ	DFN8 x 8-8L	SMG0650170S3
	170mΩ	Bare die	SMG0650170B3
	240mΩ	DFN8 x 8-8L	SMG0650240S3
	240mΩ	Bare die	SMG0650240B3

Topology Diagrams



System Advantages



Higher switching frequency and lower losses



Smaller size and lighter weight



Higher power density and higher efficiency