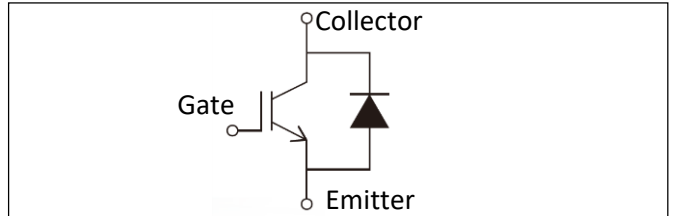


GSA75AA120



Same package as the product in this photo.

$V_{CES} = 1200V$
 $I_C = 75A$



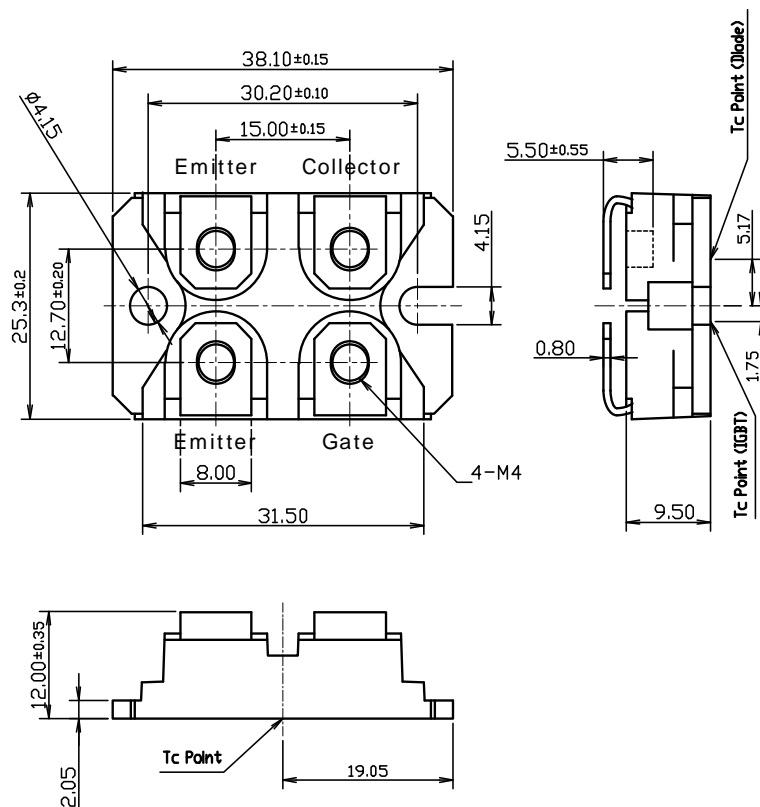
■ IGBT

Advantages

- High Frequency Switching to 40~70kHz
- Compatible package with SOT-227
- Can be small equipment thanks to small package
- Fully isolated package $V_{iso}=2500V$
- EU RoHS compliant
- UL approved File No.E76102

Applications

- Welding power supply, Induction heating power supply, Switching power supply, UPS

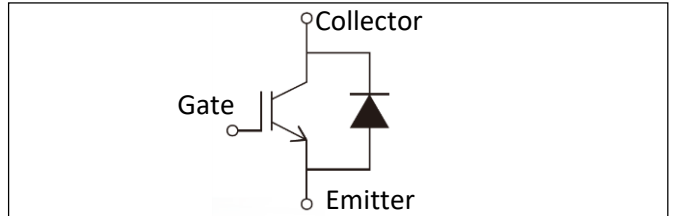


GSA75AA120



Same package as the product in this photo.

$V_{CES} = 1200V$
 $I_C = 75A$



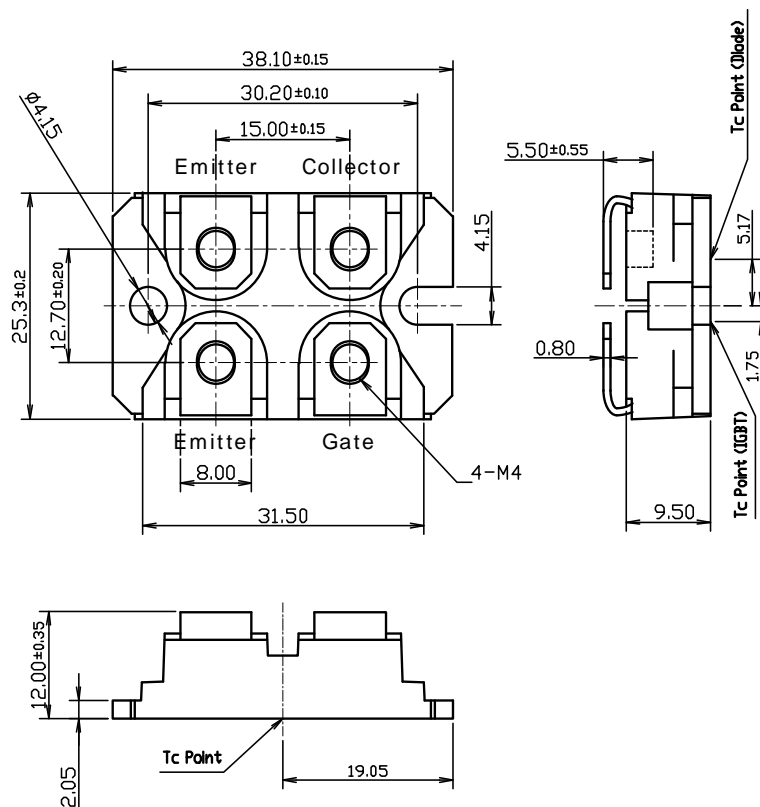
■ IGBT

Advantages

- 高周波スイッチング用途 (40~70kHz)
- SOT-227 標準パッケージ
- 装置の小型化に貢献
- 絶縁耐圧 $V_{ISO}=2500V$
- EU RoHS 対応
- UL approved File No.E76102

Applications

- 溶接機、切断機、誘導加熱用電源、スイッチング電源、無停電電源装置 (UPS)



■ Maximum Ratings ($T_j=25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Unit	Ratings	Conditions
Collector - Emitter voltage	V_{CES}	V	1200	$V_{GE} = 0\text{ V}$
Gate - Emitter Voltage	V_{GES}	V	± 20	$V_{CE} = 0\text{ V}$
Collector Current	DC	I_C	75	$V_{GE} = 15\text{ V}$, DC, $T_C = 69^\circ\text{C}$
	Pulse	I_{CP}	150	$V_{GE} = 15\text{ V}$, Pulse(1ms), $T_C = 150^\circ\text{C}$
Reverse Collector Current	$-I_C$	A	60	$T_C = 67^\circ\text{C}$
Total Power Dissipation	IGBT	P_T	500	$T_C = 25^\circ\text{C}$
	Diode		250	$T_C = 25^\circ\text{C}$
Junction Temperature	T_j	$^\circ\text{C}$	-40~+150	
Storage Temperature	T_{stg}	$^\circ\text{C}$	-40~+125	
Isolation Voltage	V_{ISO}	V	2500	A.C., RMS, 1 minute

■ Electrical Characteristics ($T_j=25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Unit	Ratings			Conditions
			Min.	Typ.	Max.	
Gate - Emitter Leakage Current	I_{GES}	μA			1.0	$V_{GE} = \pm 20\text{ V}$, $V_{CE} = 0\text{ V}$
Collector - Emitter Leakage Current	I_{CES}	μA			100	$V_{CE} = 1200\text{ V}$, $V_{GE} = 0\text{ V}$
				300	2000	$V_{CE} = 1200\text{ V}$, $V_{GE} = 0\text{ V}$, $T_j = 125^\circ\text{C}$
Gate - Emitter Threshold Voltage	$V_{GE(th)}$	V	4.9	5.6	6.3	$V_{CE} = 10\text{ V}$, $I_C = 7.5\text{ mA}$
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	V	2.70	3.30	3.90	$I_C = 75\text{ A}$, $V_{GE} = 15\text{ V}$
				4.20		$I_C = 75\text{ A}$, $V_{GE} = 15\text{ V}$, $T_j = 125^\circ\text{C}$
Emitter - Collector Voltage	V_{ECS}	V	3.50	4.40	5.10	$-I_C = 75\text{ A}$, $V_{GE} = 0\text{ V}$
				2.90		$-I_C = 75\text{ A}$, $V_{GE} = 0\text{ V}$, $T_j = 125^\circ\text{C}$
Input Capacitance	C_{es}	nF		5.50		
Output Capacitance	C_{oes}	nF		0.80	$V_{CE} = 10\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$	
Reverse Transfer Capacitance	C_{res}	nF		0.30		

■ Thermal Characteristics ($T_j=25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Unit	Ratings			Conditions
			Min.	Typ.	Max.	
Thermal Resistance	IGBT - Case	$R_{th(j-c)}$	$^\circ\text{C/W}$			0.25
	FRD - Case					0.50
Case-to-Heat sink Thermal Resistance	$R_{th(c-f)}$	$^\circ\text{C/W}$		0.10		Per module Thermal conductivity (Si grease) $= 9 \times 10^{-3}\text{ W/cm}\cdot^\circ\text{C}$

■ Mechanical Characteristics ($T_j=25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Unit	Ratings	Conditions	
Weight	-	g	30	Typical value	
Mounting Torque	Mounting M4	-	N·m	1.5	Recommended value : 1.0~1.4
	Terminals M4			1.5	Recommended value : 1.0~1.4

■ Switching Characteristics (T_j=25°C unless otherwise specified)

Item	Symbol	Unit	Ratings			Conditions
			Min.	Typ.	Max.	
Total Gate Charge	Q _g	nC		260		I _C = 75 A, V _{GE} /-V _{GE} = +15/0 V V _{CE} = 600 V *1
Gate - Emitter Charge	Q _{ge}	nC		42		
Gate - Collector Charge	Q _{gc}	nC		126		
Turn - On Switching Loss	E _{on}	mJ		2.2		I _C = 75 A, V _{GE} /-V _{GE} = +15/0 V V _{CE} = 600 V, R _G = 4.7 Ω *1
Turn - Off Switching Loss	E _{off}	mJ		2.8		
Total Switching Loss	E _{tot}	mJ		5.0		
Turn - On Delay Time	t _{d(on)}	ns		70		
Rise Time	t _r	ns		45		
Turn - Off Delay Time	t _{d(off)}	ns		220	600	
Fall Time	t _f	ns		55	200	I _C = 75 A, V _{GE} /-V _{GE} = +15/0 V V _{CE} = 600 V, R _G = 4.7 Ω, T _j = 125 °C *1
Turn - On Switching Loss	E _{on}	mJ		3.9		
Turn - Off Switching Loss	E _{off}	mJ		4.6		
Total Switching Loss	E _{tot}	mJ		8.5		
Turn - On Delay Time	t _{d(on)}	ns		70		
Rise Time	t _r	ns		50		
Turn - Off Delay Time	t _{d(off)}	ns		250		-I _C (I _F) = 75 A, V _{CE} (V _R) = 600 V di/dt = 1800 A/μs *1
Fall Time	t _f	ns		75		
Reverse Recovery Time	t _{rr}	ns		75		
Peak Reverse Recovery Current	i _{rr}	A		80		
Reverse Recovery Charge	Q _{rr}	μC		3.2		
Reverse Recovery Time	t _{rr}	ns		125		
Peak Reverse Recovery Current	i _{rr}	A		110		
Reverse Recovery Charge	Q _{rr}	μC		9.0		

*1 : Please refer Fig.1 in test circuit.

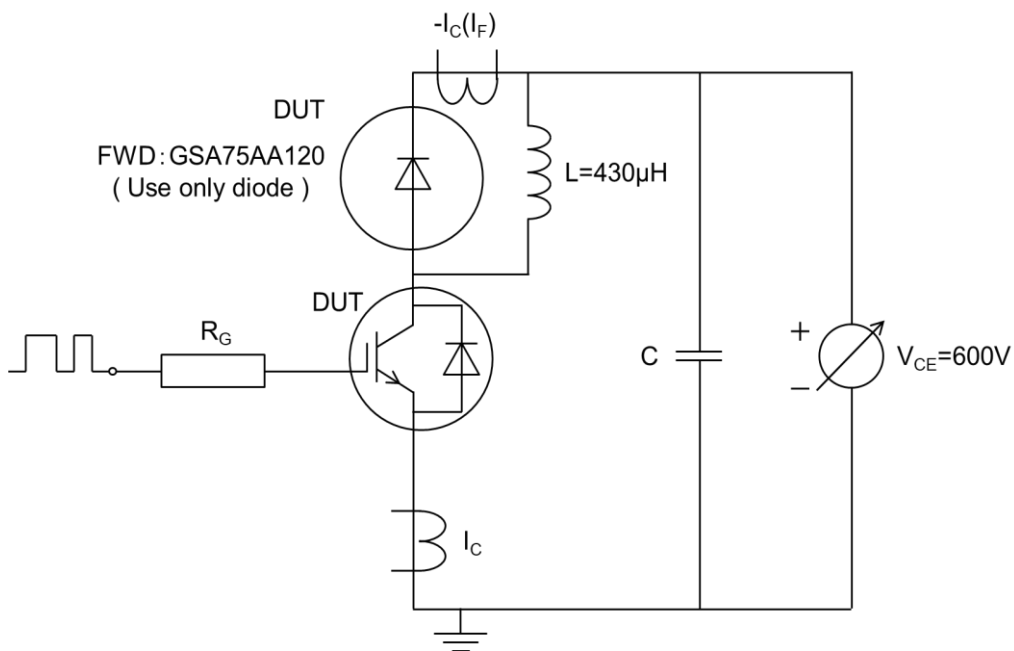


Fig.1 Inductive load switching time test circuit

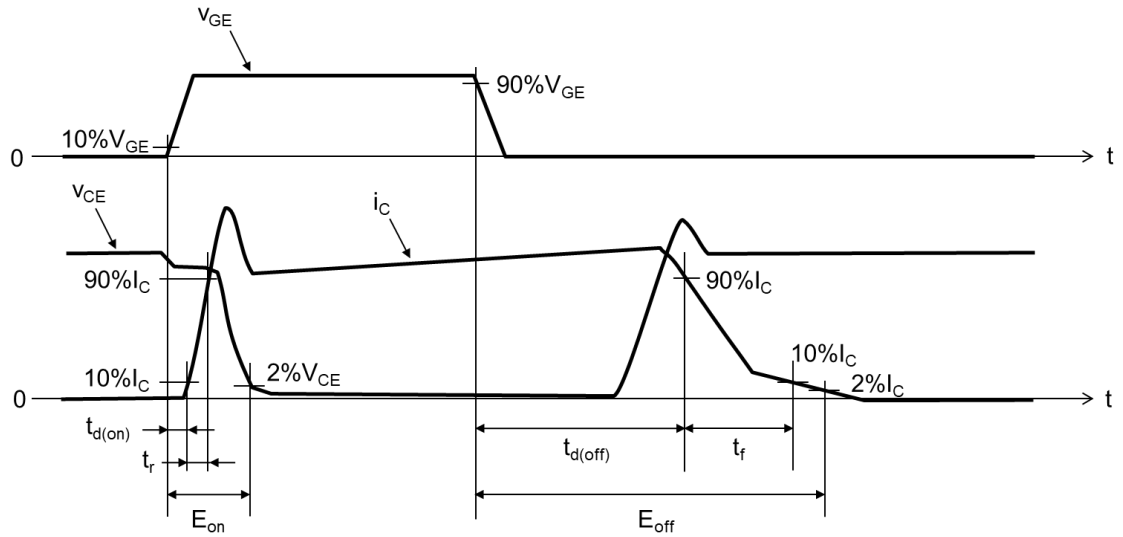


Fig.2 Switching waveform at the time of Inductive load

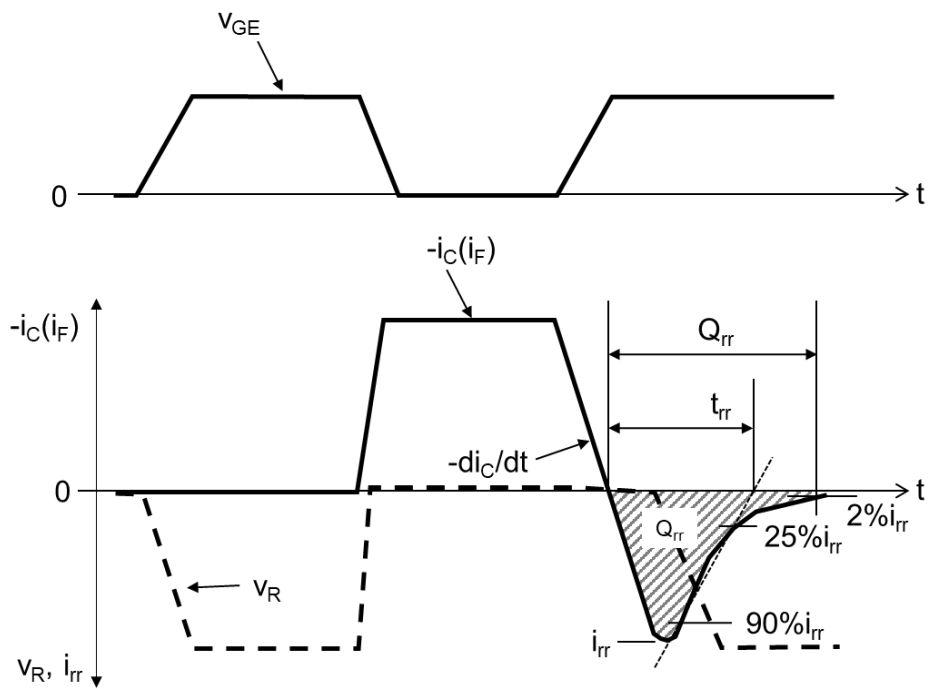
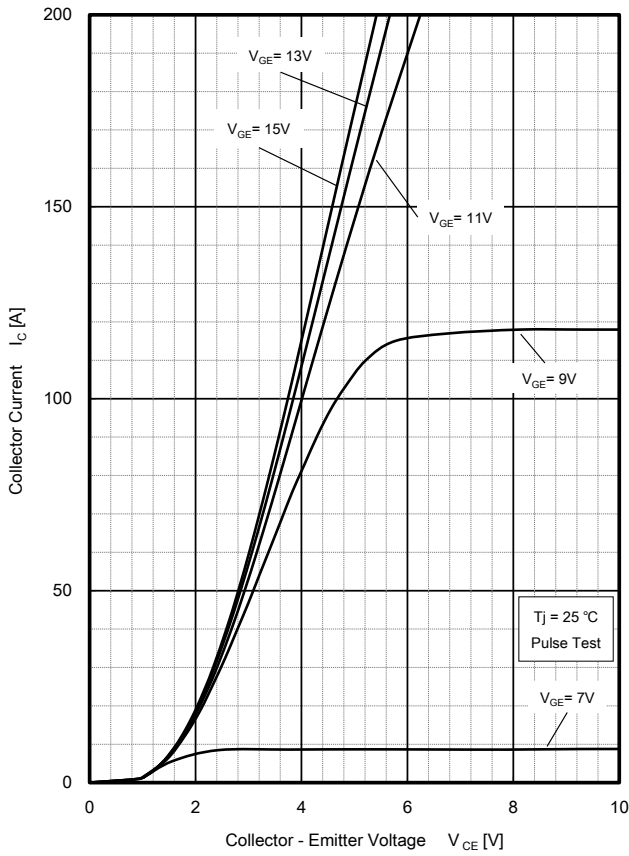
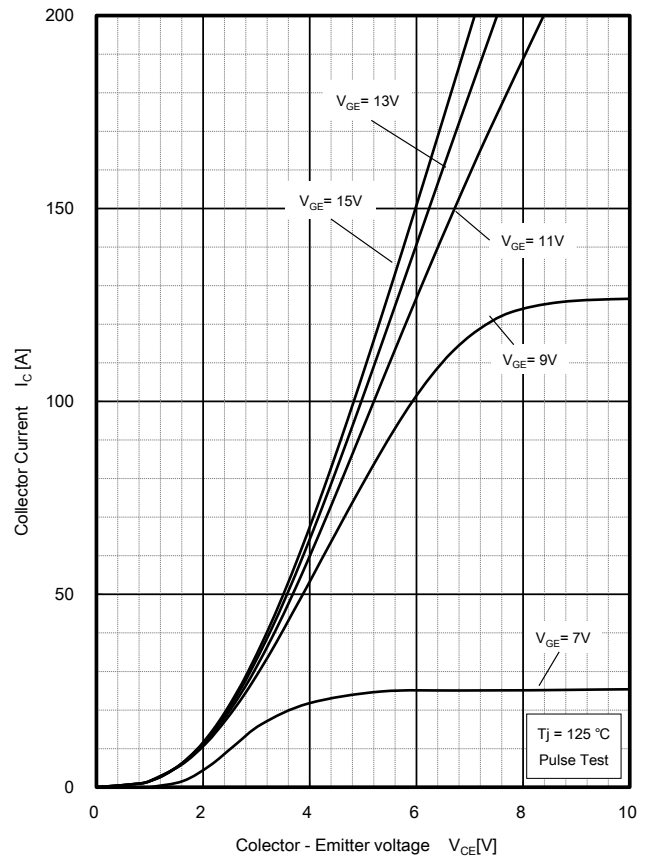


Fig.3 Reverse recovery waveform at the time of Inductive load

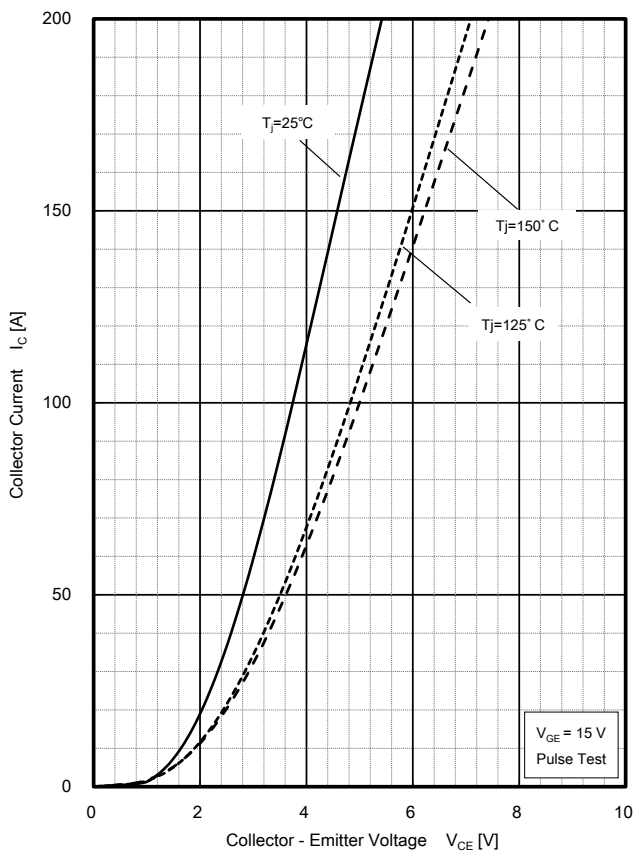
Output Characteristics (Typ.)



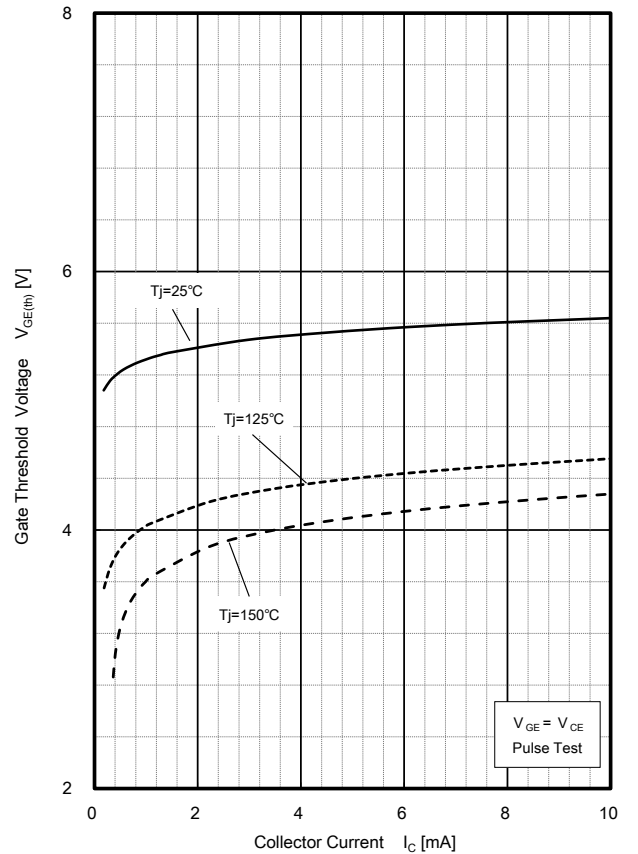
Output Characteristics (Typ.)



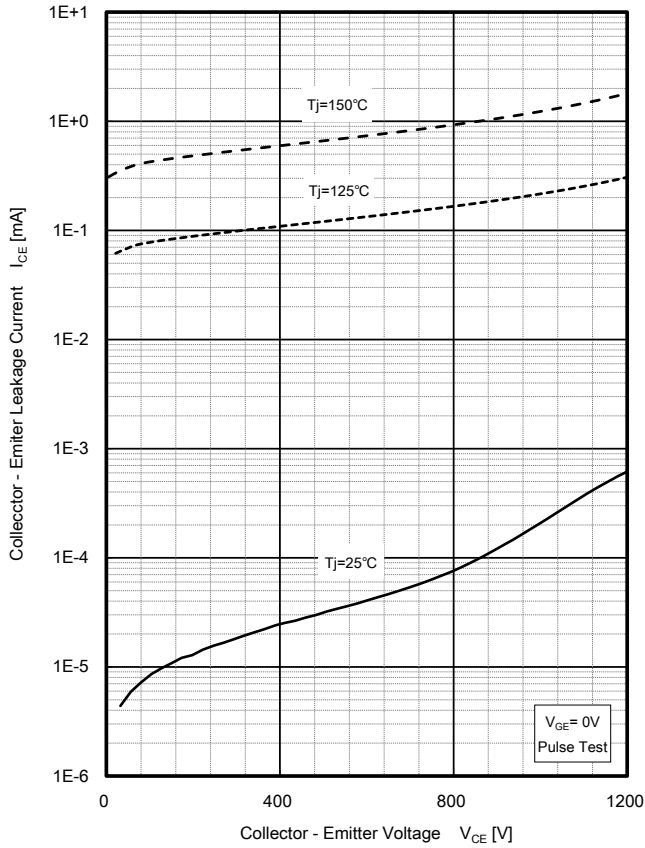
Output Characteristics (Typ.)



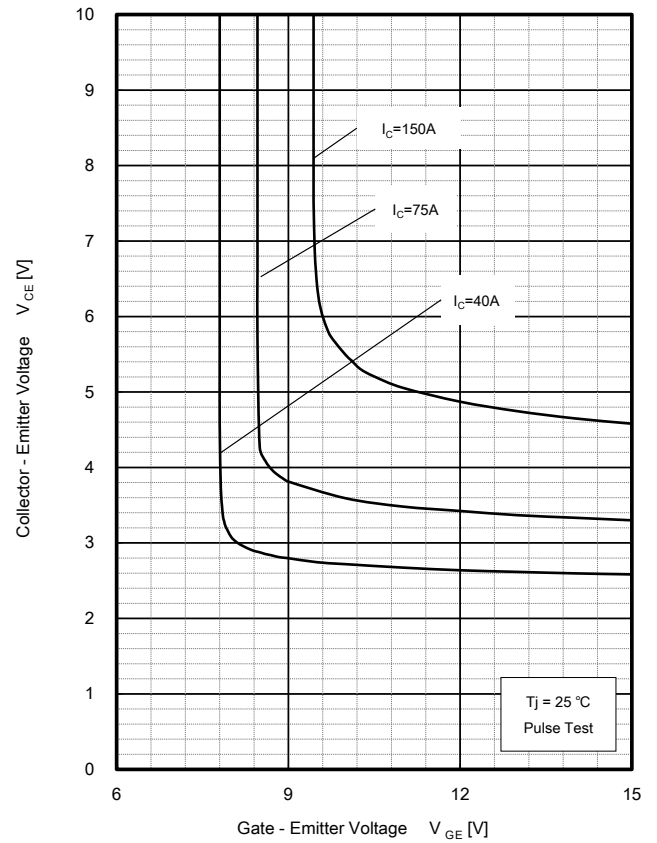
Gate Threshold Voltage Characteristics (Typ.)



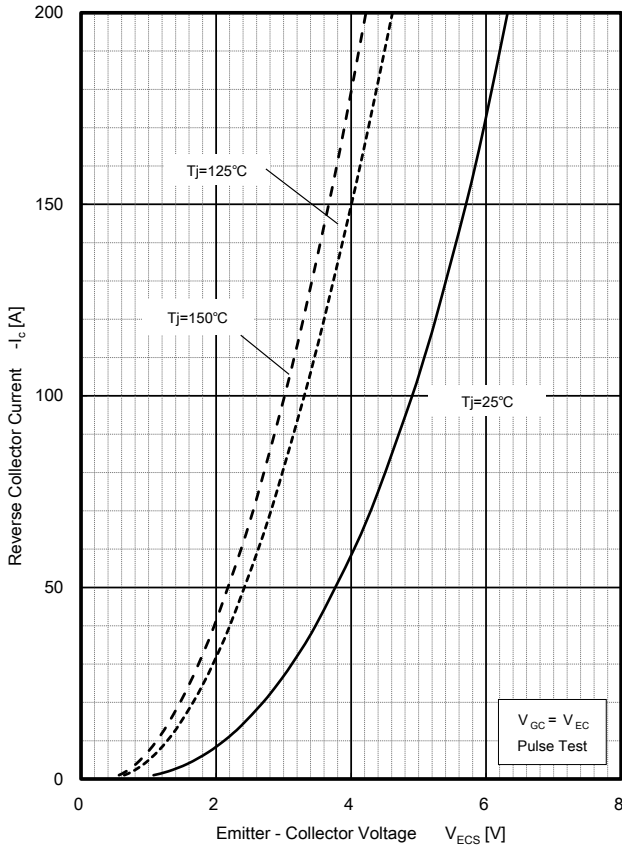
Collector - Emitter Leakage Current Characteristics (typ.)



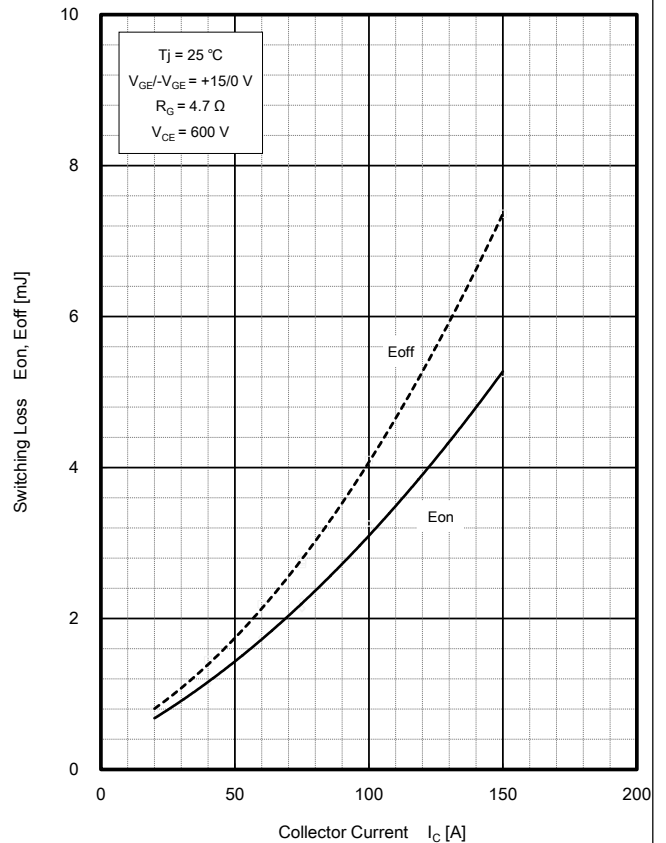
Collector - Emitter Saturation Voltage Characteristics (Typ.)



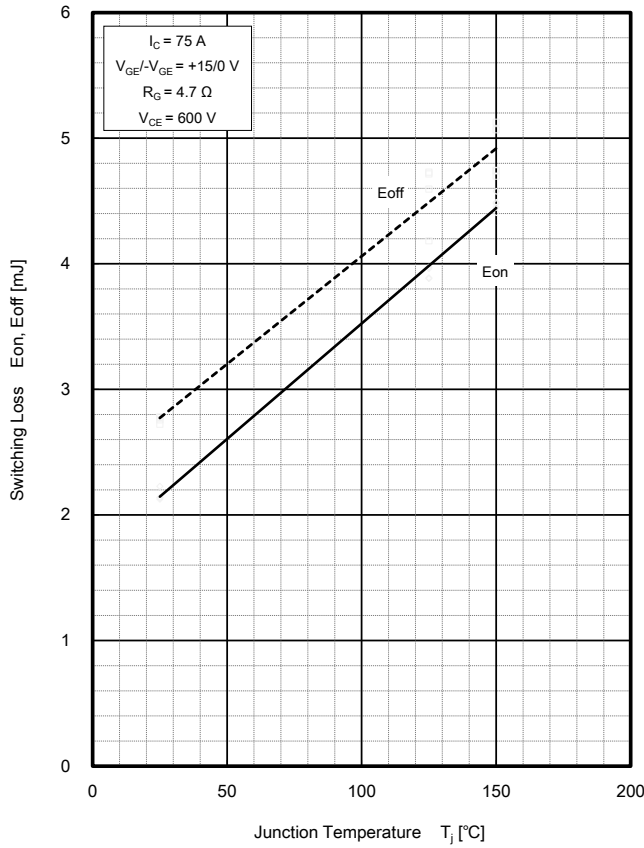
Reverse Collector Current Characteristics (Typ.)



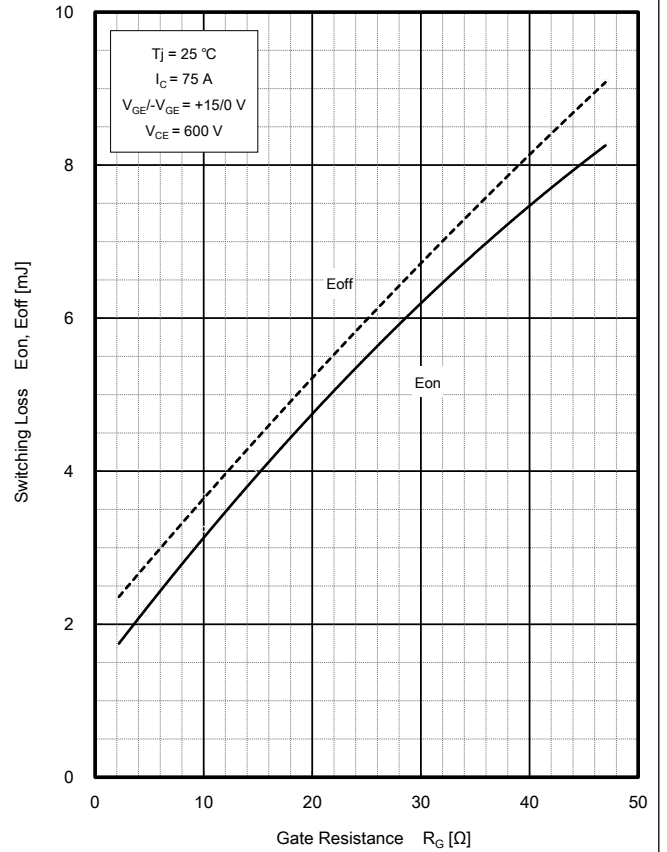
Switching Characteristics (Typ.)



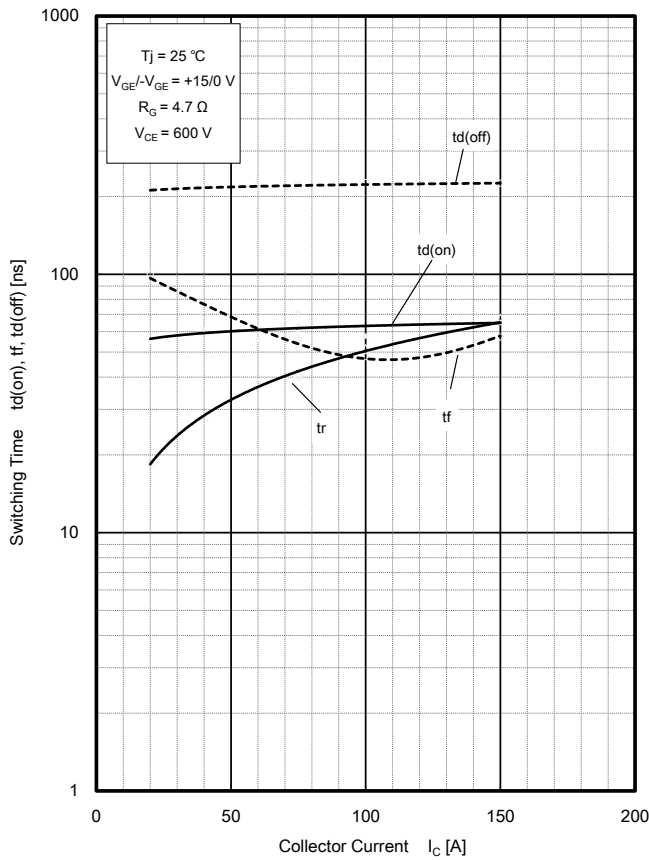
Switching Characteristics (Typ.)



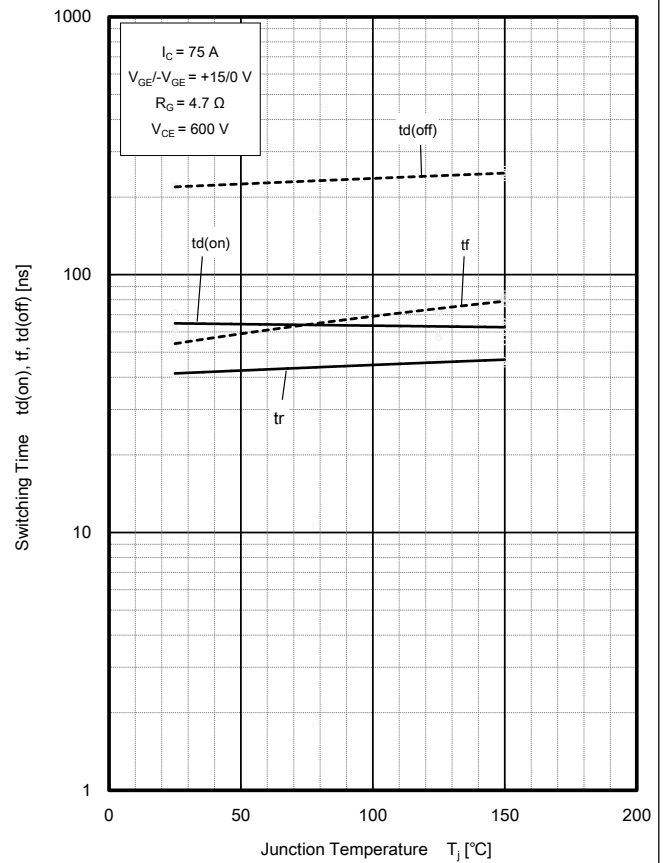
Switching Characteristics (Typ.)



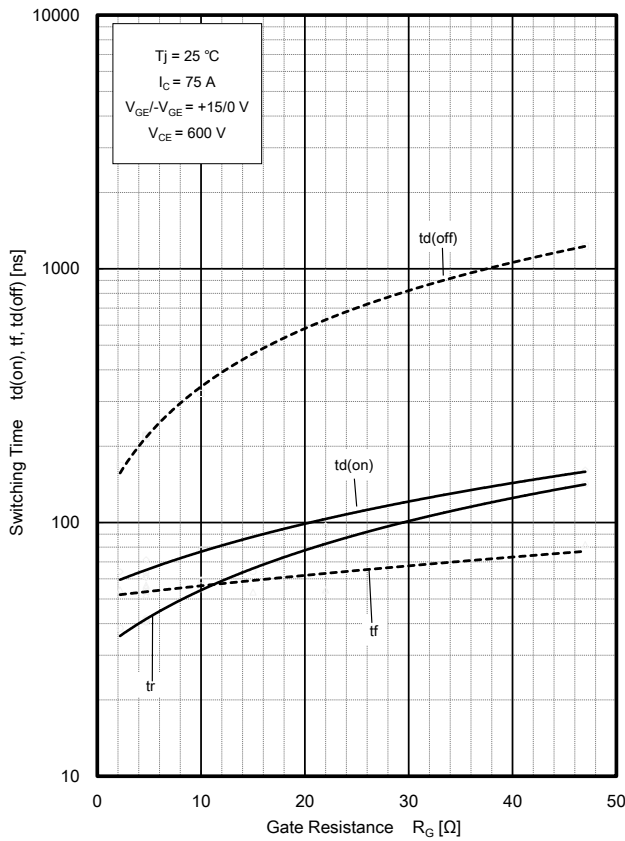
Switching Characteristics (Typ.)



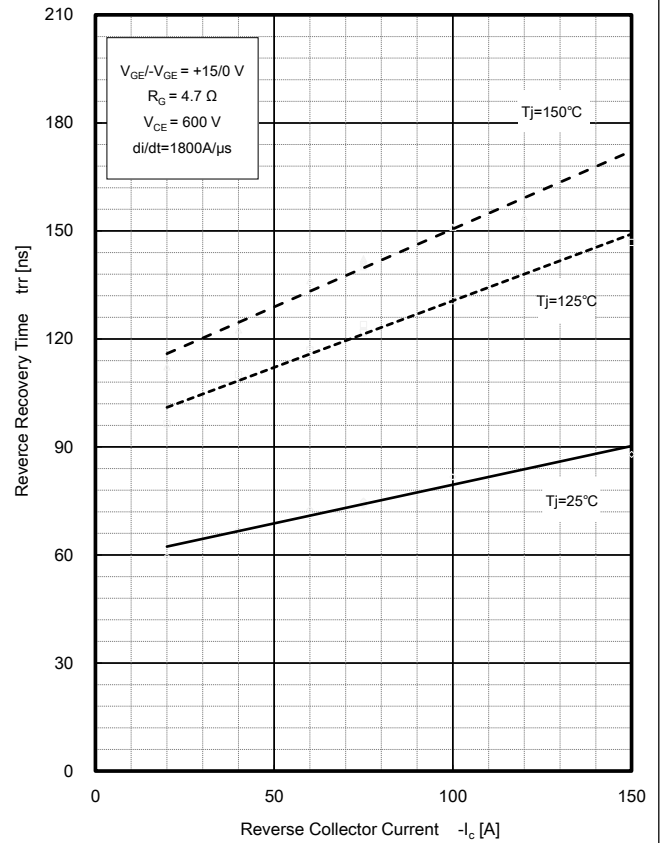
Switching Characteristics (Typ.)



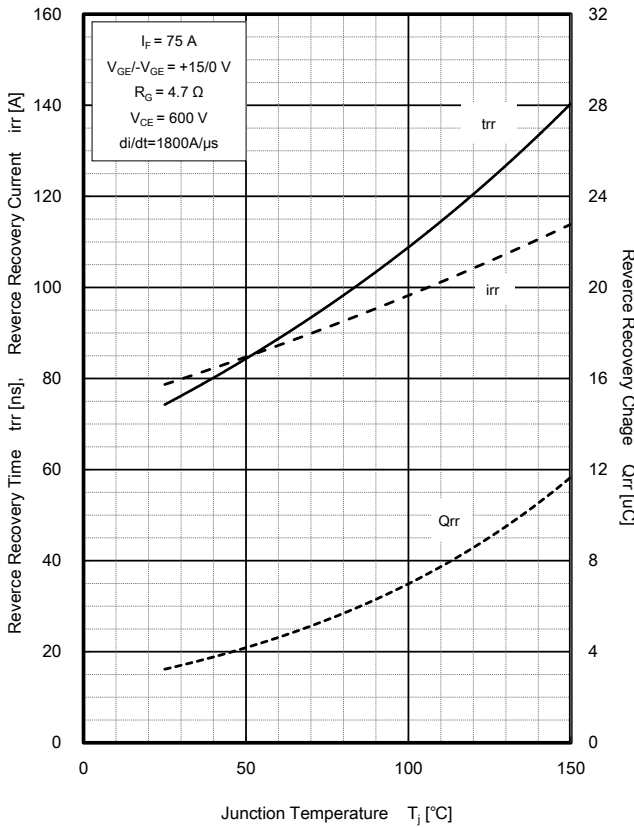
Switching Characteristics (Typ.)



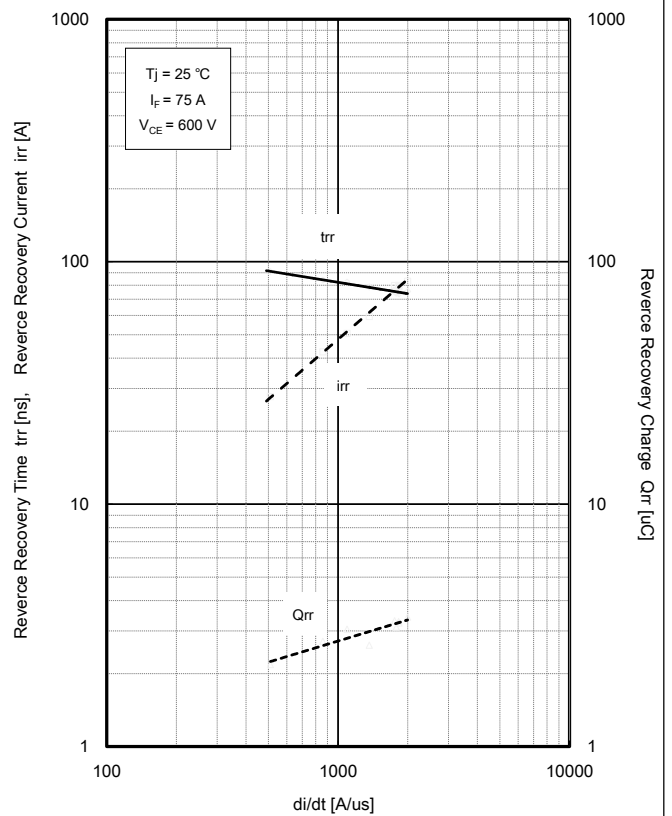
Switching Characteristics (Typ.)



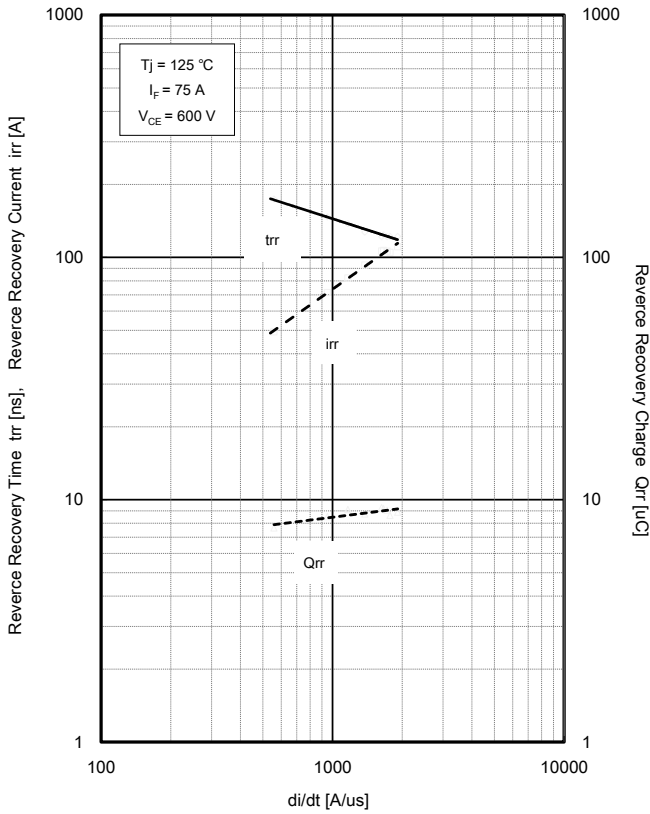
Switching Characteristics (Typ.)



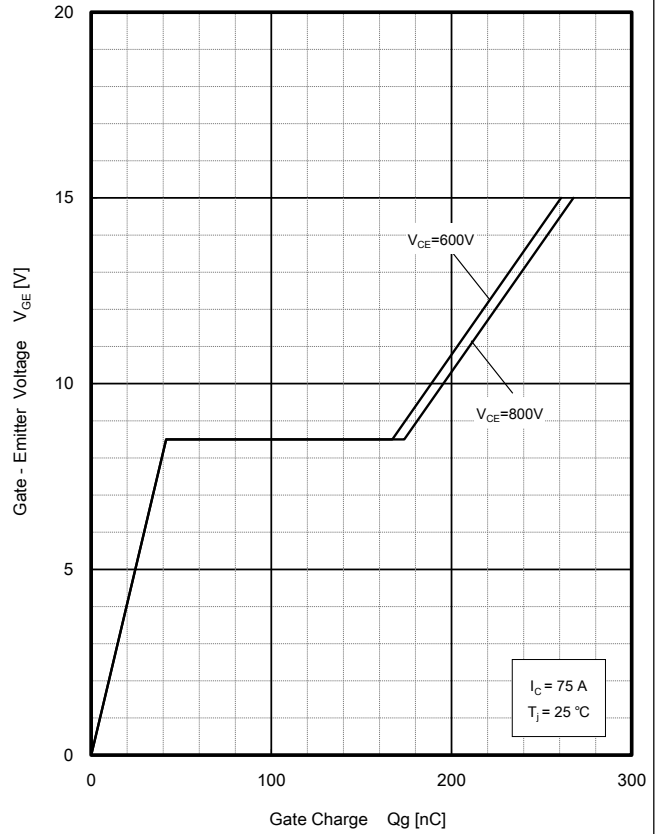
Switching Characteristics (Typ.)



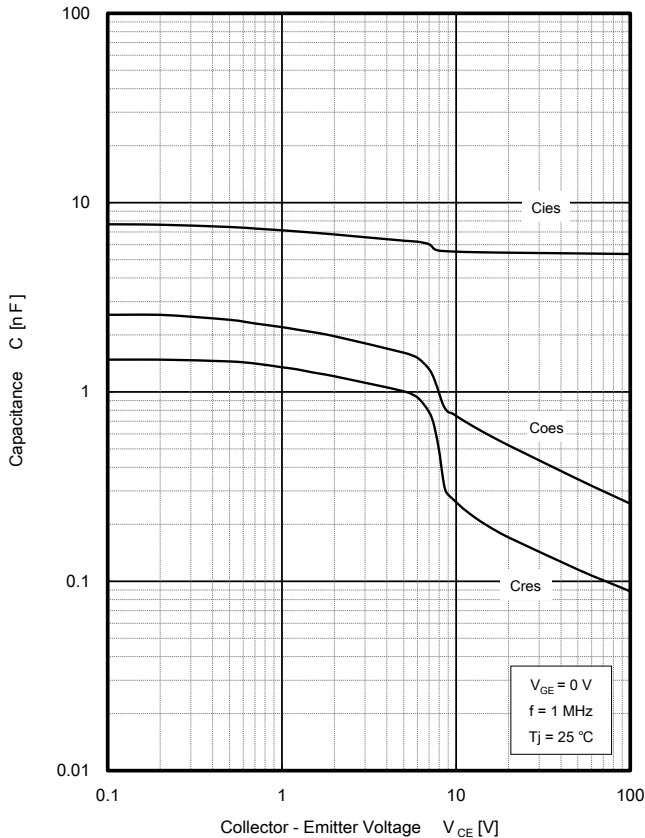
Switching Characteristics (Typ.)



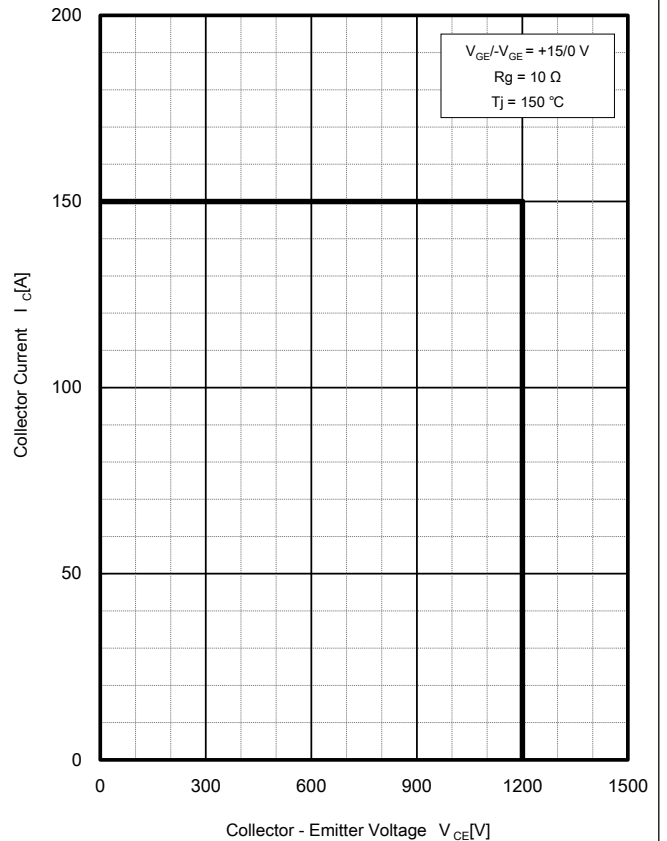
Gate Charge Characteristics (Typ.)



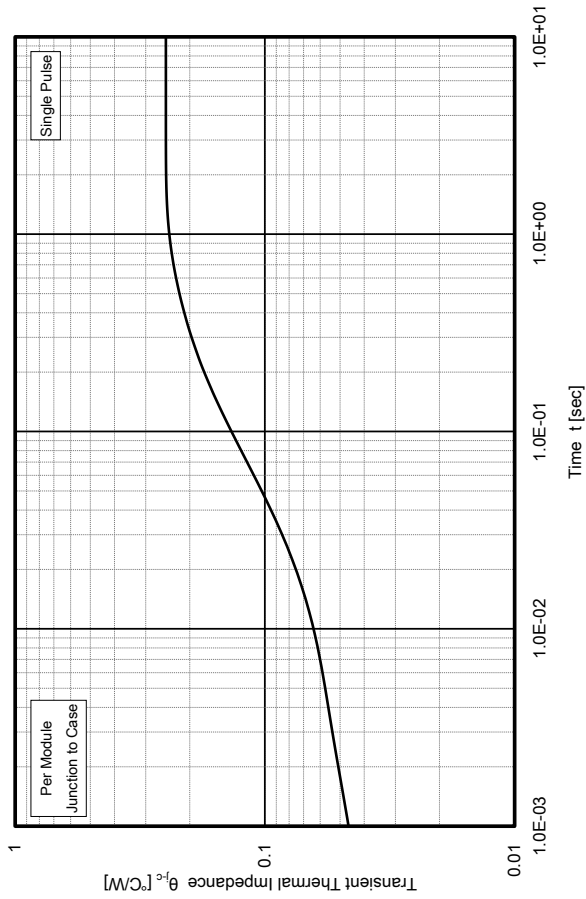
Capacitance Characteristics (Typ.)



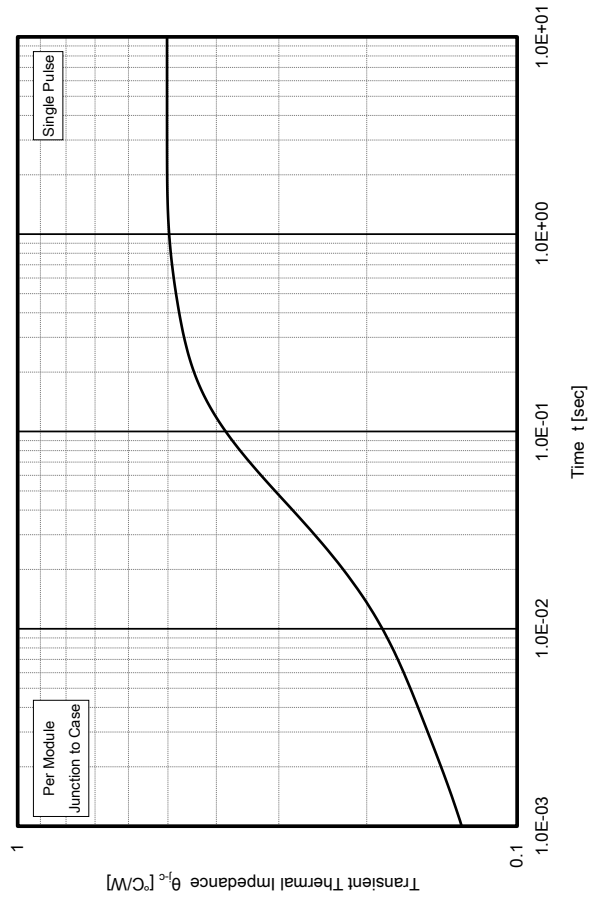
Reverse Bias Safe Operating Area



Transient Thermal Impedance Characteristics (IGBT) (Typ.)



Transient Thermal Impedance Characteristics (FRD) (Typ.)



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