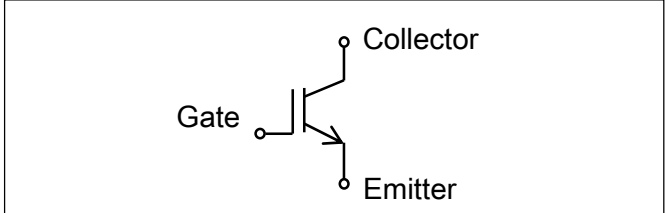


# GSA100AA60



Same package as the product in this photo.

$V_{CES} = 600V$   
 $I_C = 100A$



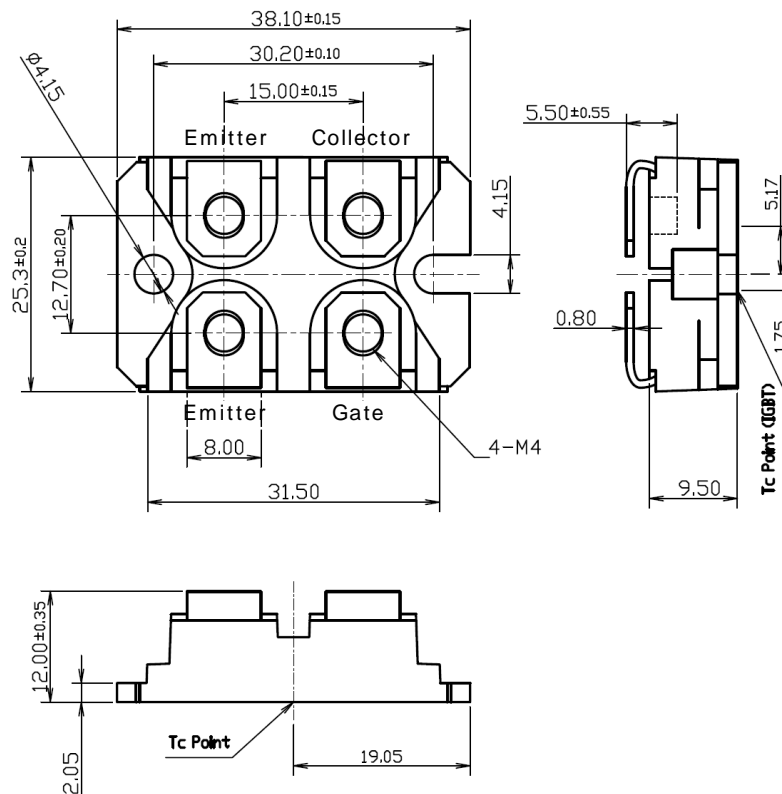
■ IGBT

**Advantages**

- Low  $V_{ce(sat)}$  1.21V Typ 125°C
- 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**

- AC/DC TIG Welder, AC Switch for UPS, Pulse Reverse Rectifier

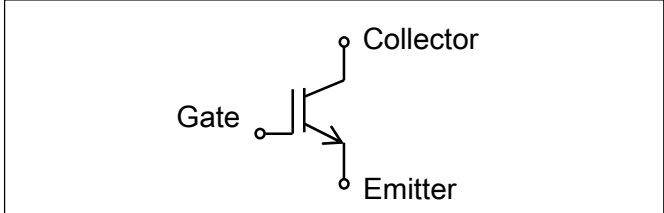


# GSA100AA60



Same package as the product in this photo.

$V_{CES} = 600V$   
 $I_C = 100A$



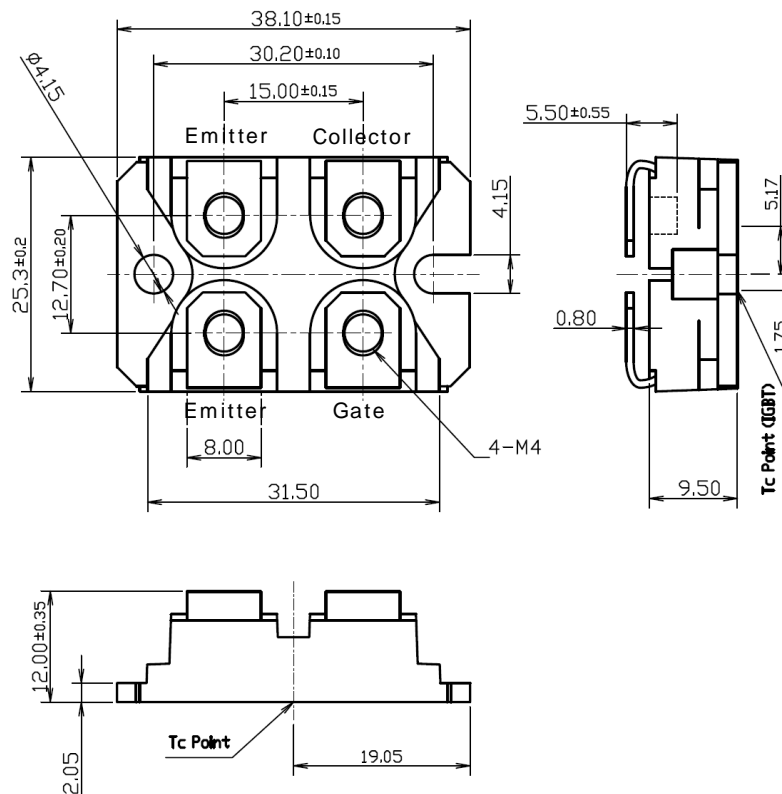
■ IGBT

### Advantages

- 低  $V_{ce(sat)}$  1.21V Typ 125°C
- 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

- AC/DC TIG溶接機, UPS等のバイパスACスイッチ, 表面処理用正逆反転パルス電源



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

Item	Symbol	Unit	Ratings		Conditions
			Min.	Max.	
Collector - Emitter Voltage	$V_{CES}$	V	600		$V_{GE} = 0\text{ V}$
Gate - Emitter Voltage	$V_{GES}$	V	$\pm 20$		$V_{CE} = 0\text{ V}$
Collector Current	$I_C$	A	100		$V_{GE} = 15\text{ V, D.C., } T_C = 113^\circ\text{C}$
Total Power Dissipation	$P_T$	W	500		$T_C = 25^\circ\text{C}$
Junction Temperature	$T_j$	$^\circ\text{C}$	$-40\sim+150$		
Storage Temperature	$T_{stg}$	$^\circ\text{C}$	$-40\sim+125$		
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	$I_{GES}$	$\mu\text{A}$			10	$V_{GE} = \pm 20\text{ V, } V_{CE} = 0\text{ V}$
Collector - Emitter Leakage Current	$I_{CES}$	$\mu\text{A}$			100	$V_{CE} = 600\text{ V, } V_{GE} = 0\text{ V}$
					1000	$V_{CE} = 600\text{ V, } V_{GE} = 0\text{ V, } T_j = 125^\circ\text{C}$
Collector - Emitter Breakdown Voltage	$V_{(BR)CES}$	V	600			$V_{GE} = 0\text{ V, } I_C = 100\ \mu\text{A}$
Gate - Emitter Threshold Voltage	$V_{GE(th)}$	V	5.3	6.0	6.7	$V_{CE} = 10\text{ V, } I_C = 10\text{ mA}$
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	V		1.25	1.50	$I_C = 100\text{ A, } V_{GE} = 15\text{ V}$
				1.21		$I_C = 100\text{ A, } V_{GE} = 15\text{ V, } T_j = 125^\circ\text{C}$
Input Capacitance	$C_{ies}$	nF		6.69		
Output Capacitance	$C_{oes}$	nF		0.90		$V_{CE} = 10\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$
Reverse Transfer Capacitance	$C_{res}$	nF		0.23		

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

Item	Symbol	Unit	Ratings			Conditions
			Min.	Typ.	Max.	
Total Gate Charge	$Q_g$	nC		224		$I_C = 100\text{ A, } V_{GE}/-V_{GE} = +15/0\text{ V}$ $V_{CE} = 300\text{ V}$
Gate - Emitter Charge	$Q_{ge}$	nC		53		
Gate - Collector Charge	$Q_{gc}$	nC		91		
Turn - On Switching Loss	$E_{on}$	mJ		12.5		$I_C = 100\text{ A, } V_{GE}/-V_{GE} = +15/0\text{ V}$ $V_{CE} = 300\text{ V, } R_G = 330\ \Omega$ *1
Turn - Off Switching Loss	$E_{off}$	mJ		31.0		
Total Switching Loss	$E_{tot}$	mJ		43.5		
Turn - On Delay Time	$t_{d(on)}$	ns		880		
Rise Time	$t_r$	ns		380		
Turn - Off Delay Time	$t_{d(off)}$	ns		7800		
Fall Time	$t_f$	ns		980		$I_C = 100\text{ A, } V_{GE}/-V_{GE} = +15/0\text{ V}$ $V_{CE} = 300\text{ V, } R_G = 330\ \Omega, T_j = 125^\circ\text{C}$ *1
Turn - On Switching Loss	$E_{on}$	mJ		14.0		
Turn - Off Switching Loss	$E_{off}$	mJ		48.5		
Total Switching Loss	$E_{tot}$	mJ		62.5		
Turn - On Delay Time	$t_{d(on)}$	ns		820		
Rise Time	$t_r$	ns		400		
Turn - Off Delay Time	$t_{d(off)}$	ns		8800		
Fall Time	$t_f$	ns		1600		

\*1 : Please refer Fig.1 in page 5 about test circuit.

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

Item	Symbol	Unit	Ratings			Conditions
			Min.	Typ.	Max.	
Junction-to-Case Thermal Resistance	$R_{th(j-c)}$	$^\circ\text{C}/\text{W}$			0.25	
Case-to-Heat sink Thermal Resistance	$R_{th(c-f)}$	$^\circ\text{C}/\text{W}$		0.10	0.20	Per module Thermal conductivity = $9 \times 10^{-3} \text{ W}/\text{cm} \cdot ^\circ\text{C}$

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

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

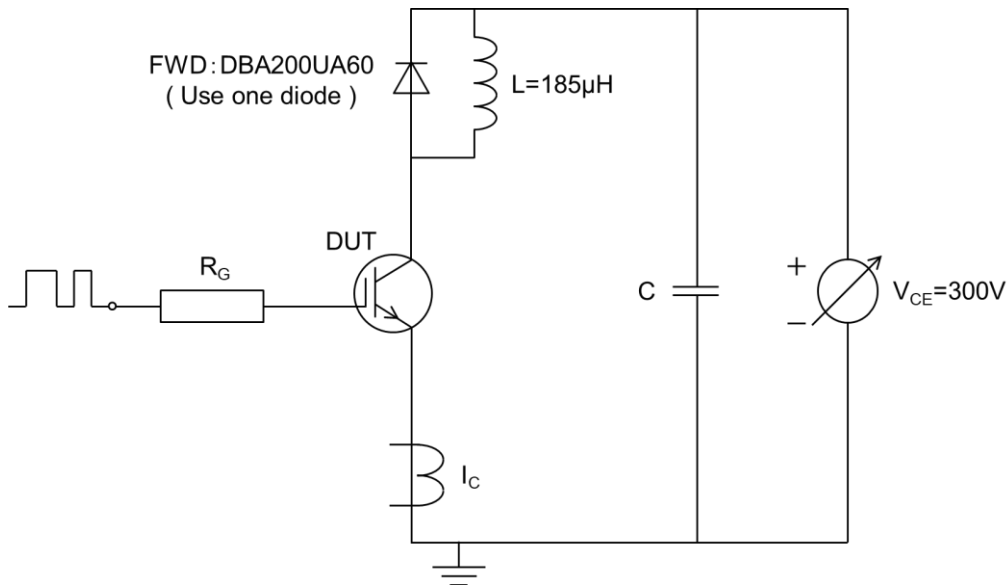


Fig.1 Inductive load switching time test circuit

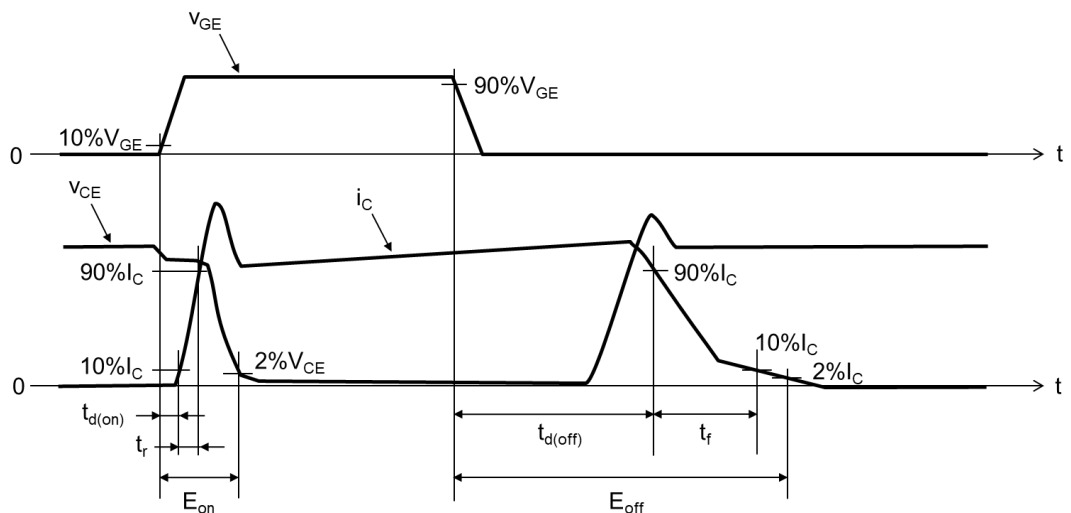
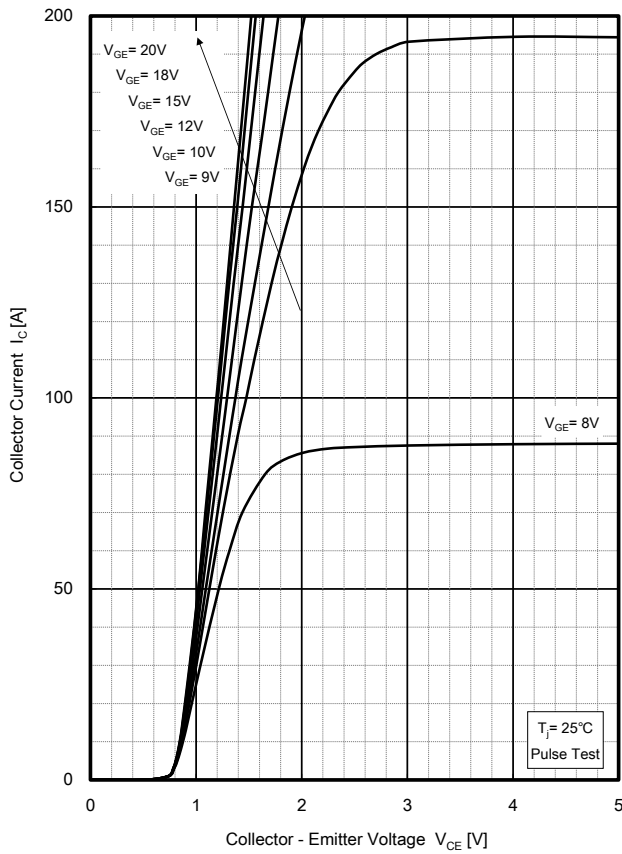
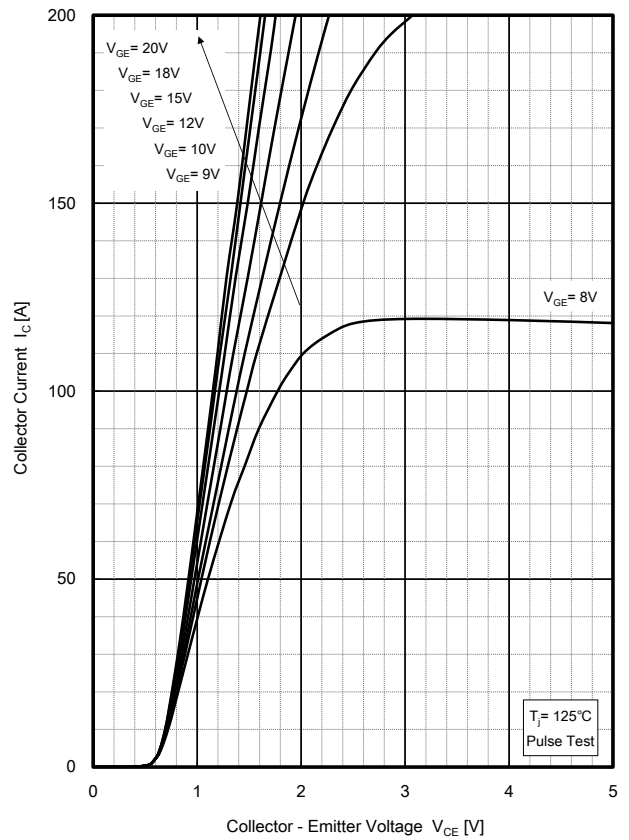


Fig.2 Switching waveform at the time of Inductive load

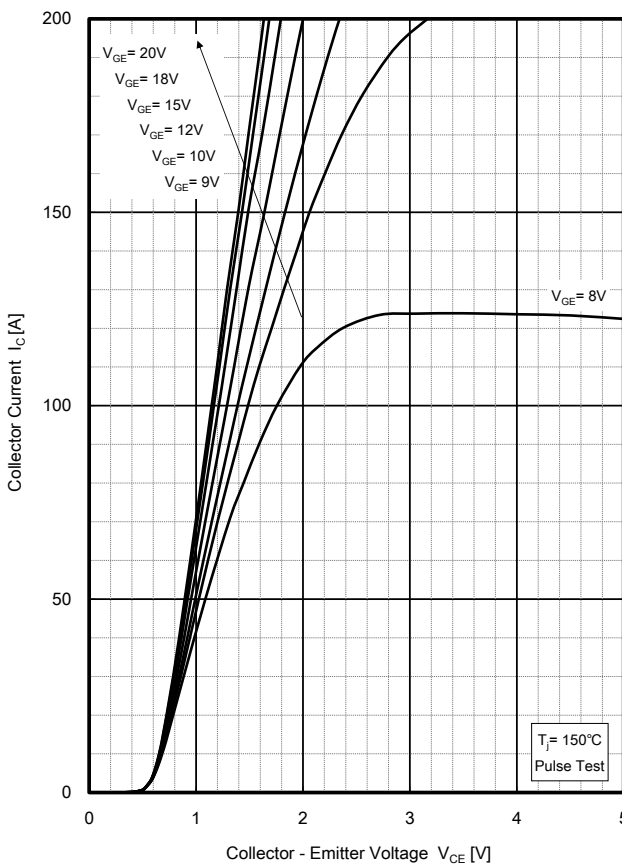
Output Characteristics (Typ.)



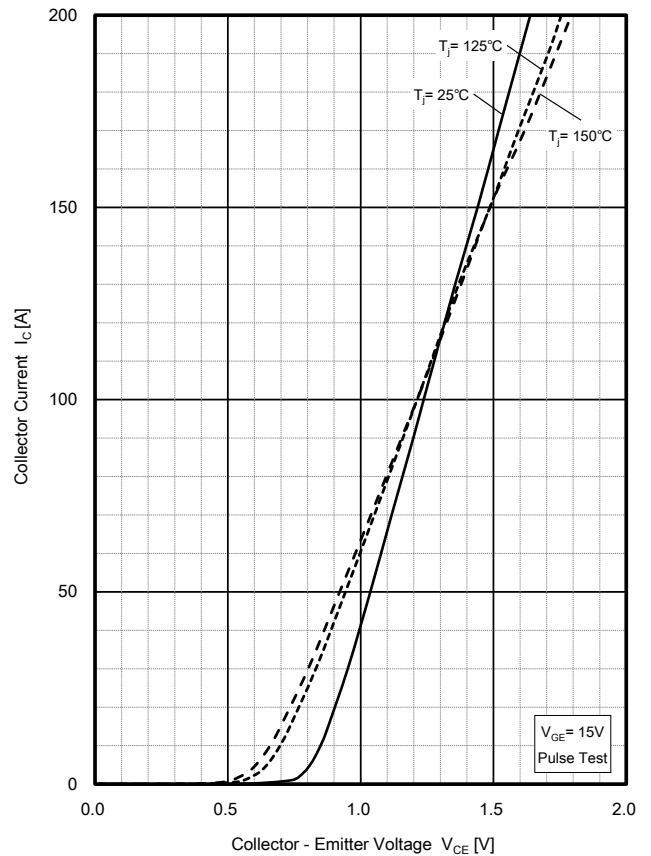
Output Characteristics (Typ.)



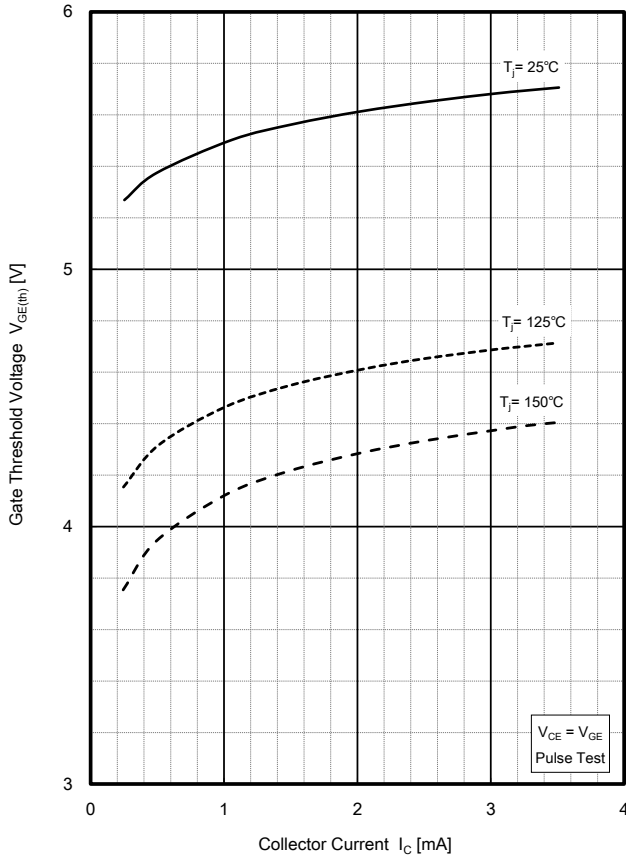
Output Characteristics (Typ.)



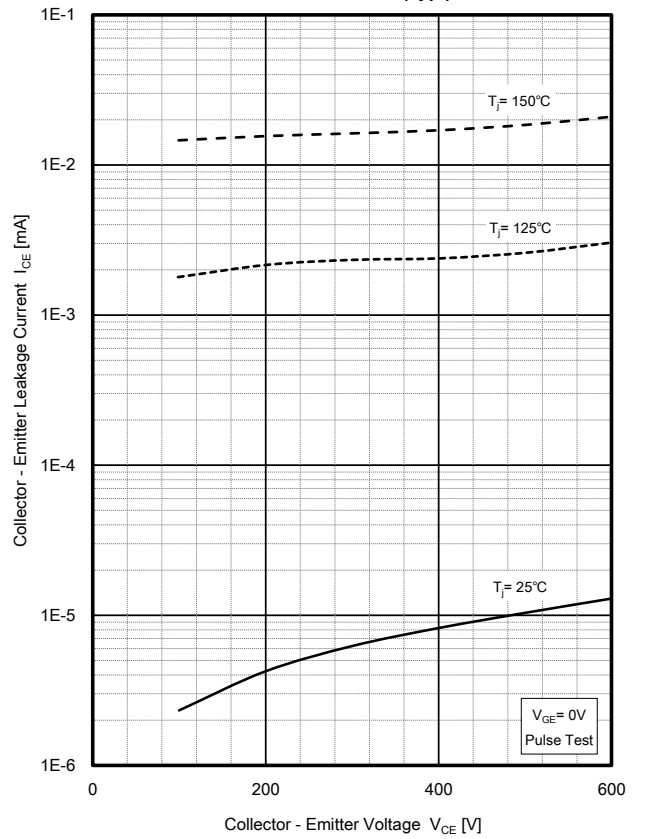
Output Characteristics (Typ.)



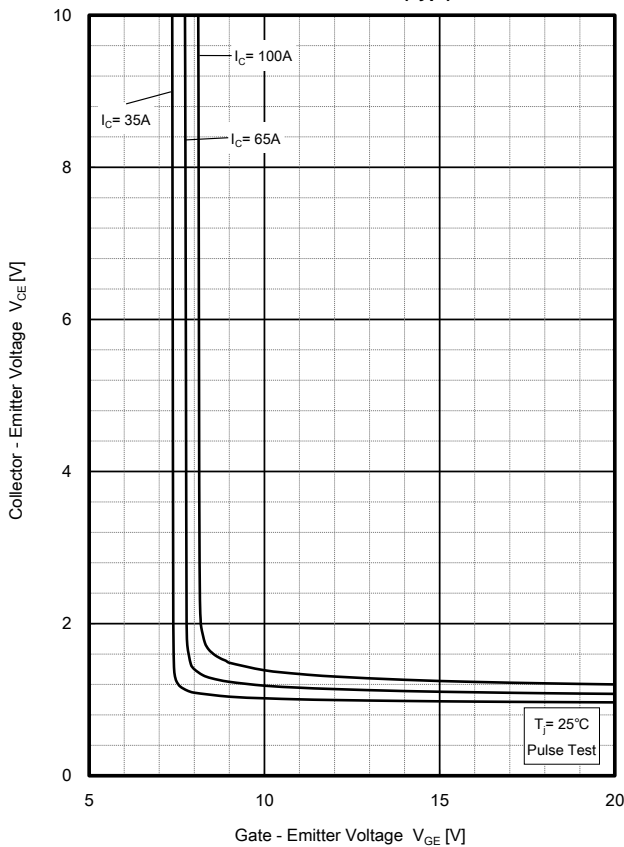
Gate Threshold Voltage Characteristics (Typ.)



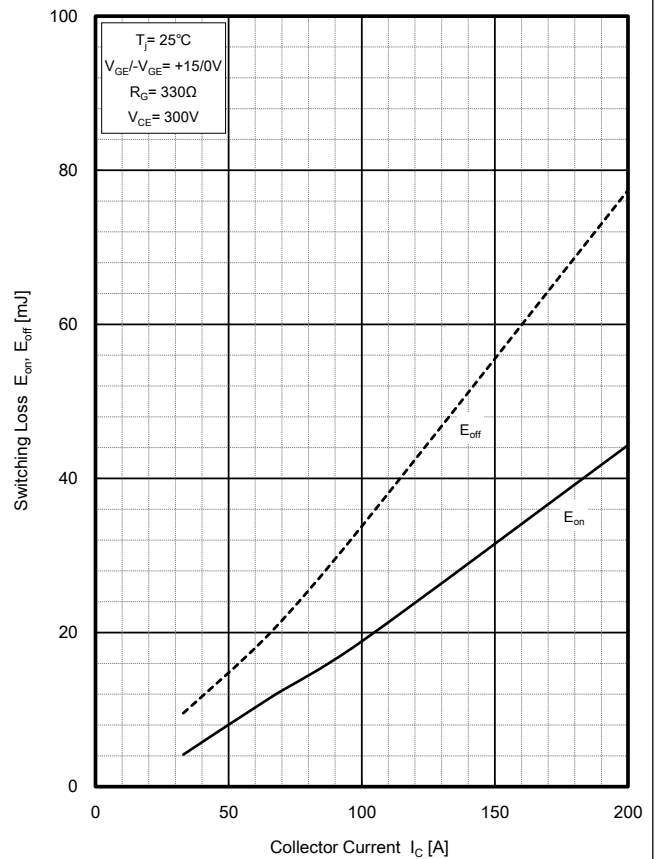
Collector - Emitter Leakage Current Characteristics (Typ.)



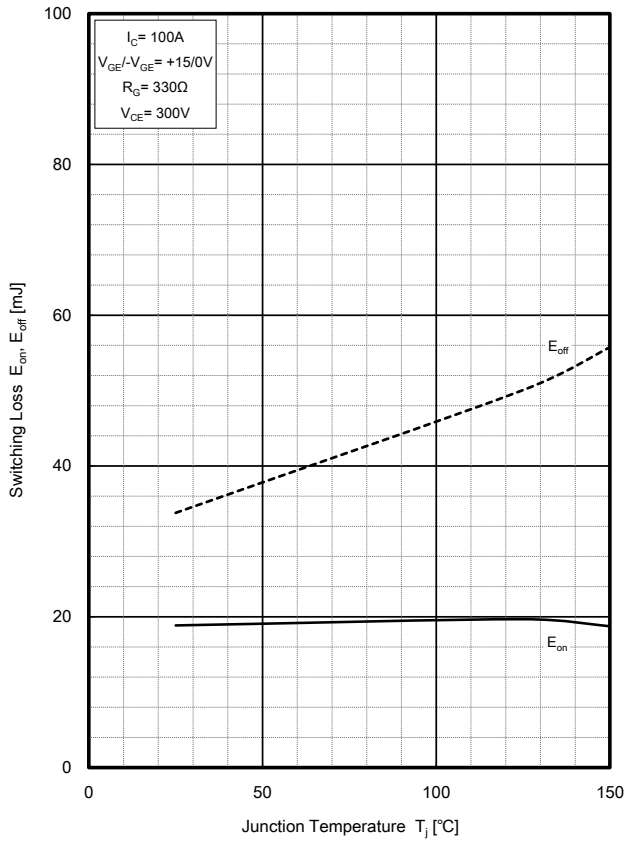
Collector - Emitter Saturation Voltage Characteristics (Typ.)



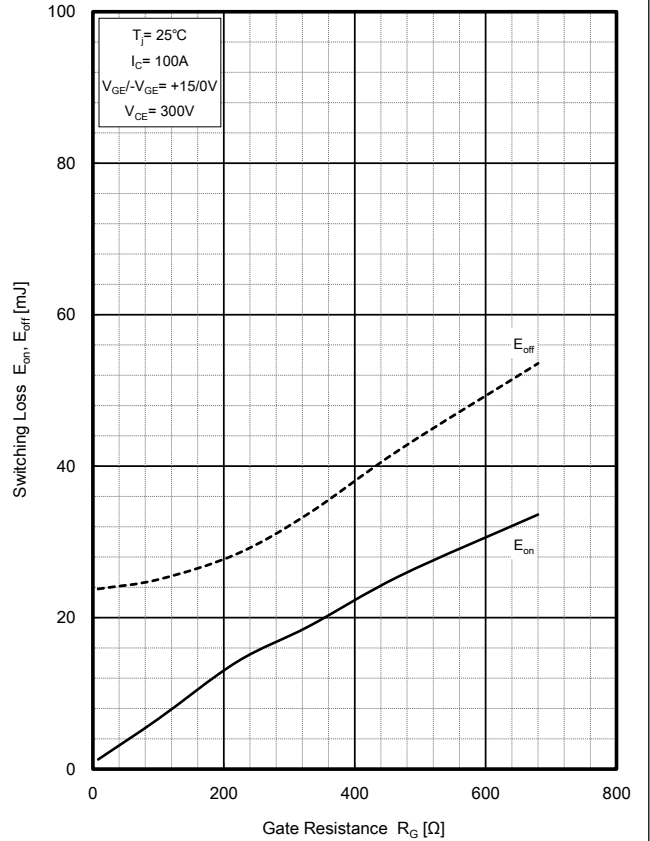
Switching Characteristics (Typ.)



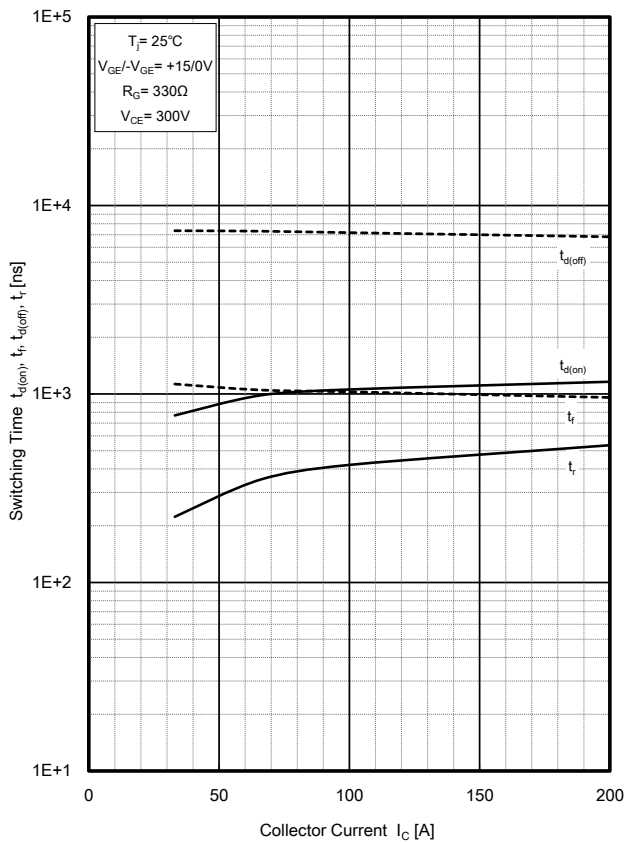
Switching Characteristics (Typ.)



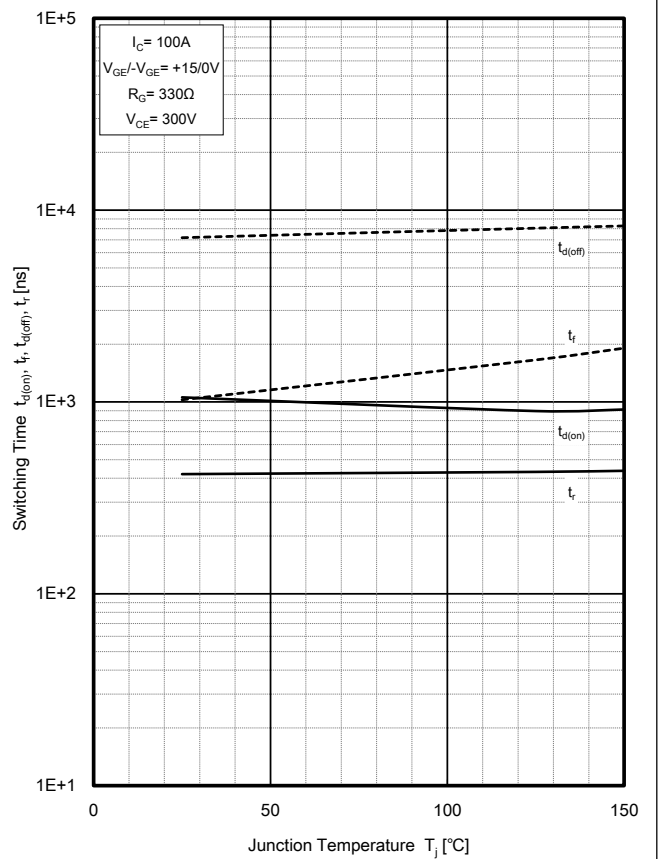
Switching Characteristics (Typ.)



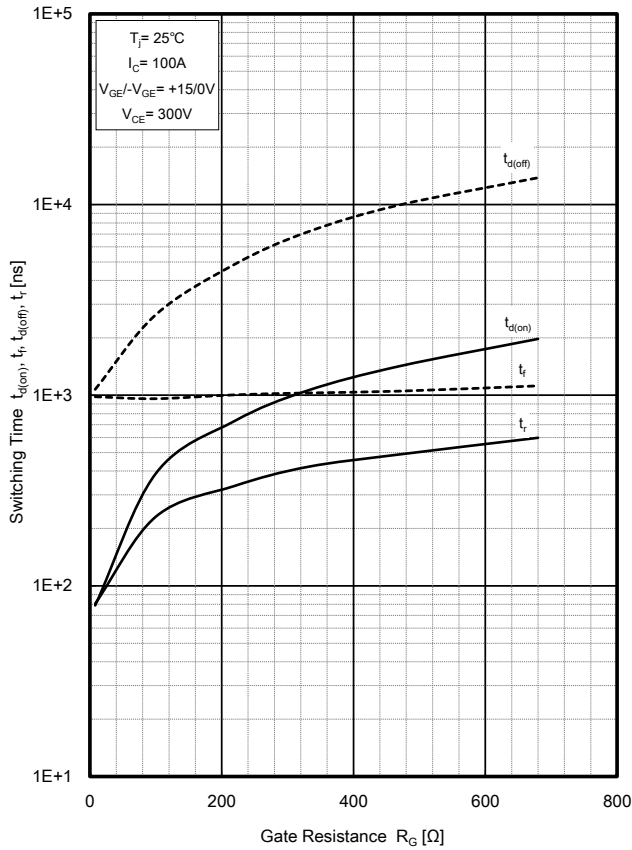
Switching Characteristics (Typ.)



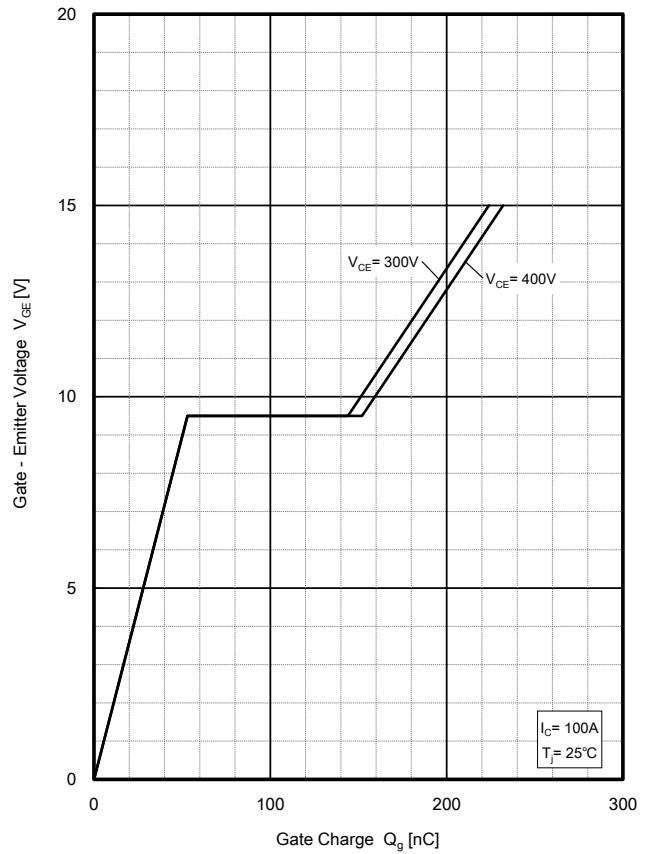
Switching Characteristics (Typ.)



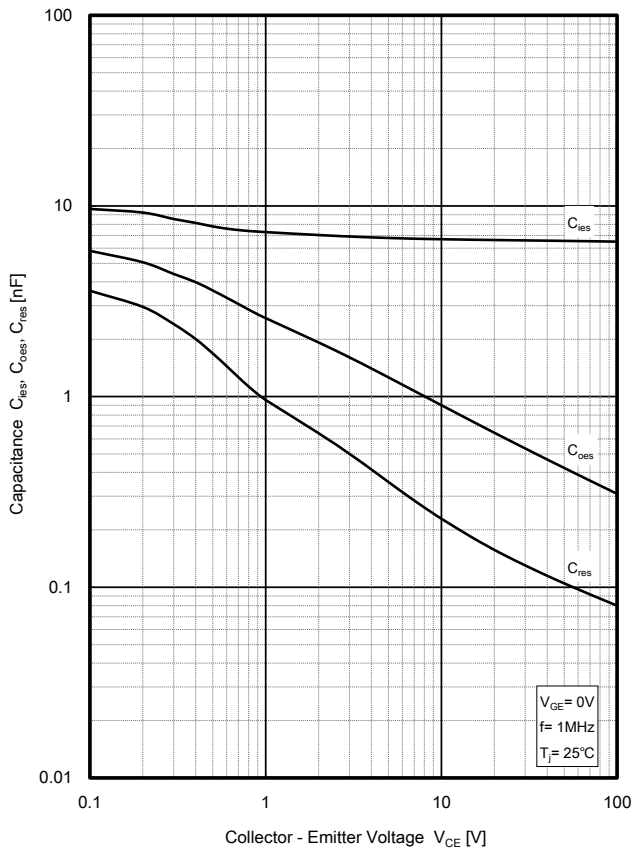
Switching Characteristics (Typ.)



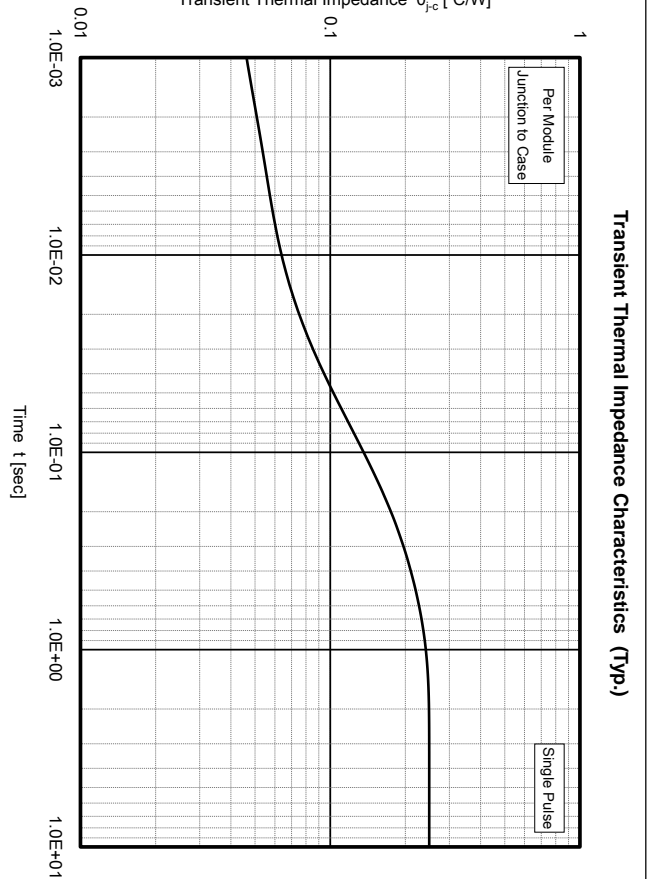
Gate Charge Characteristics (Typ.)



Capacitance Characteristics (Typ.)



Transient Thermal Impedance  $\theta_{JC}$  [ $^\circ\text{C}/\text{W}$ ]





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