

Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

V_{RRM}	1200V
$I_F (T_c = 152.5^\circ\text{C})$	8A
Q_c	38nC

Benefits

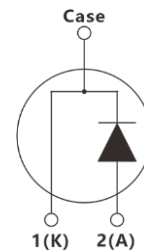
- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

Applications

- SMPS, PFC
- Solar application, UPS, EV/HEV
- Motor drives, Wind turbine, Rail traction



TO-263



Inner Circuit



G = GPT
5 = Gen5
S = SiC Schottky Diode
120 = Voltage Rating 1200V
08 = Current Rating 8A
D = TO-263
DDDDDD = Traceable Code



Maximum Ratings (at $T_J = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	1200	V
Surge Peak Reverse Voltage	V_{RSM}	1200	V
Continuous Forward Current $T_c = 25^\circ\text{C}$ $T_c = 135^\circ\text{C}$ $T_c = 152.5^\circ\text{C}$	I_F	23.9 11.3 8	A
Repetitive Peak Forward Surge Current $T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse	I_{FRM}	40	A
Non-Repetitive Forward Surge Current $T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse	I_{FSM}	96	A
i^2t Value $T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse	$\int i^2 dt$	46.08	A^2s
Power Dissipation $T_c = 25^\circ\text{C}$ $T_c = 110^\circ\text{C}$	P_{tot}	106 46	W
Operating Junction Range	T_J	-55 to +175	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +175	$^\circ\text{C}$

Electrical Characteristics (at $T_J = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
DC Blocking Voltage	V_{DC}		1200	-	-	V
Forward Voltage	V_F	$I_F = 8\text{A}$				V
		$T_J = 25^\circ\text{C}$	-	1.45	1.7	
		$T_J = 175^\circ\text{C}$	-	1.99	2.5	
Reverse Current	I_R	$V_R = 1200\text{V}$				μA
		$T_J = 25^\circ\text{C}$	-	3.5	50	
		$T_J = 175^\circ\text{C}$	-	17	100	
Total Capacitance	C	$f = 1\text{MHz}$				pF
		$V_R = 0\text{V}$	-	595	-	
		$V_R = 400\text{V}$	-	38	-	
		$V_R = 800\text{V}$	-	30	-	
Total Capacitive Charge	Q_C	$V_R = 800\text{V}$ $T_J = 25^\circ\text{C}$	-	38	-	nC
Capacitance Stored Energy	E_C	$V_R = 800\text{V}$	-	20	-	μJ

Thermal Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
Thermal Resistance, junction-case	$R_{th(j-c)}$		-	1.41	-	$^\circ\text{C/W}$

Typical Characteristics Curves

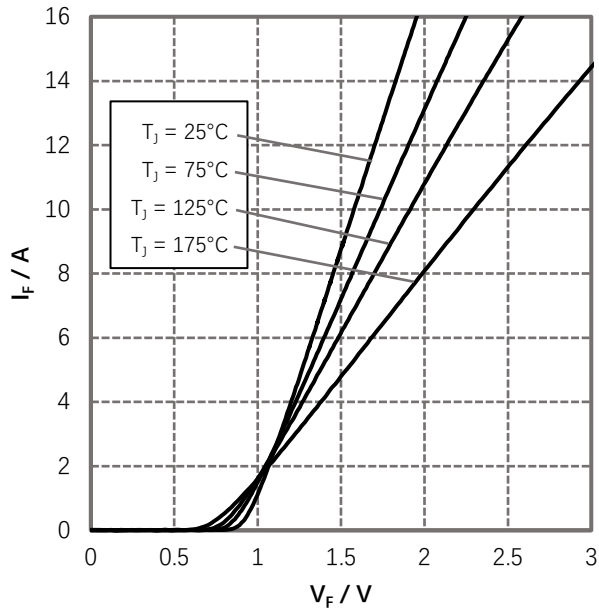


Figure 1. Forward Characteristics

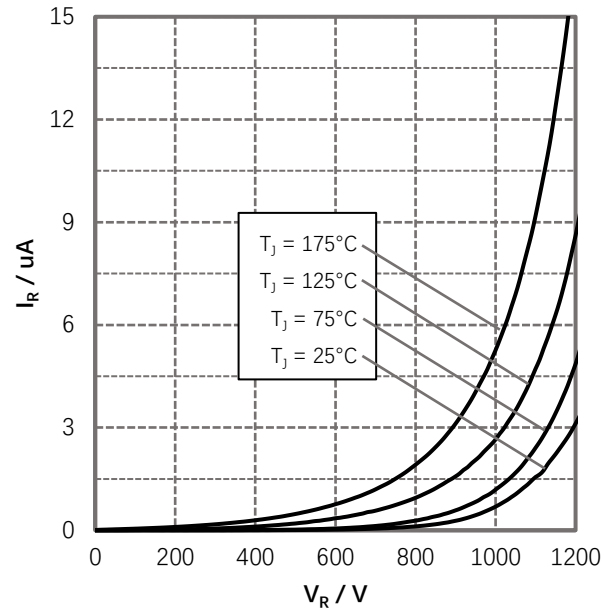


Figure 2. Reverse Characteristics

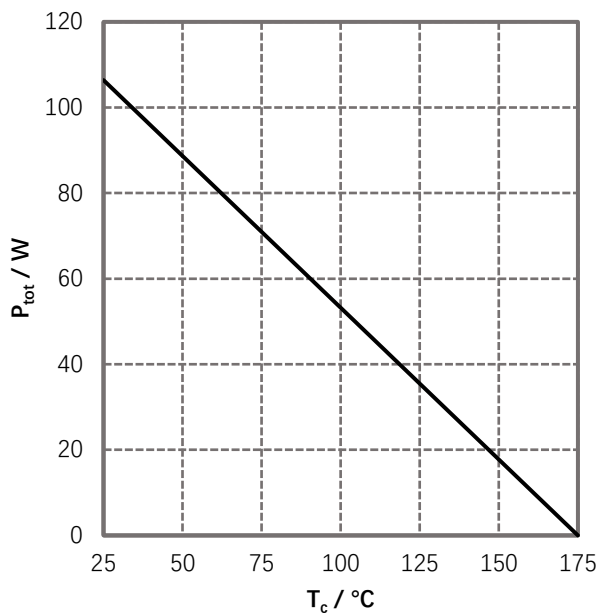


Figure 3. Power Derating

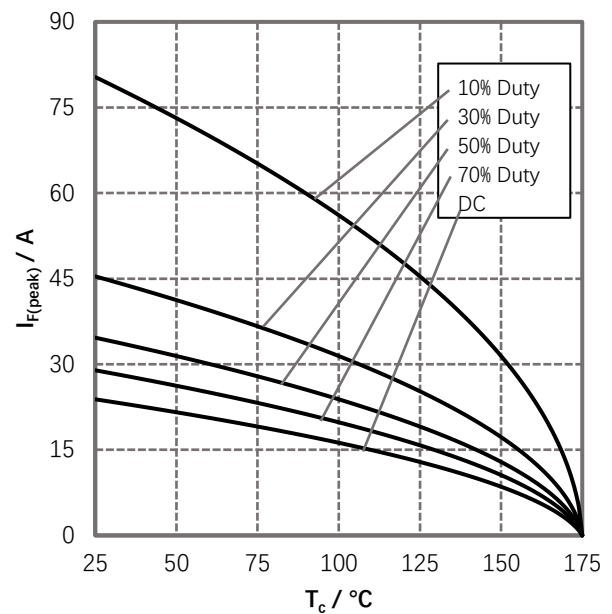


Figure 4. Current Derating

Typical Characteristics Curves

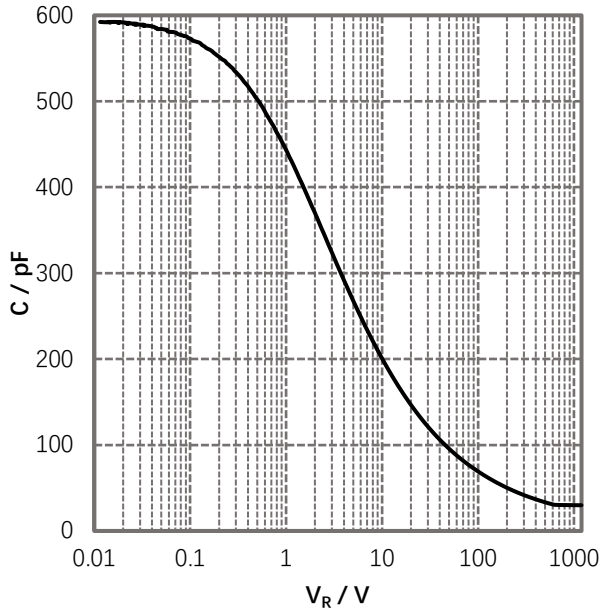


Figure 5. Capacitance vs. Reverse Voltage

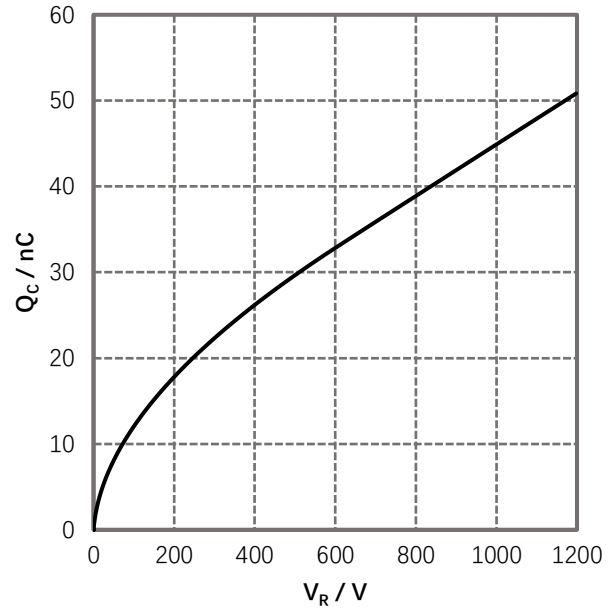


Figure 6. Reverse Charge vs. Reverse Voltage

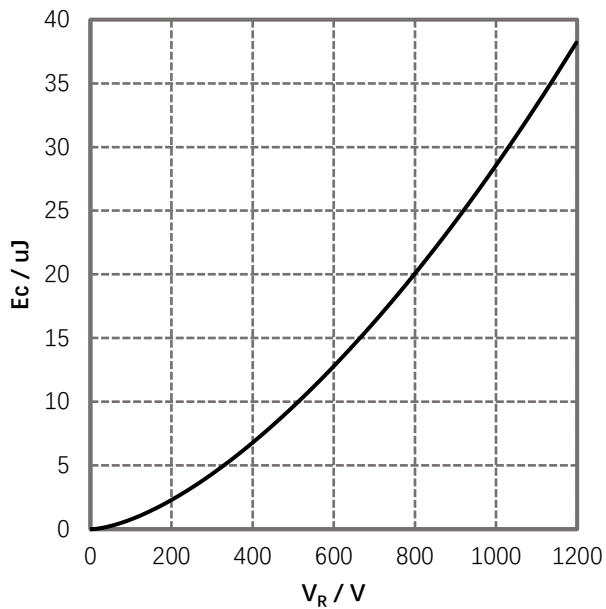


Figure 7. Capacitance Stored Energy

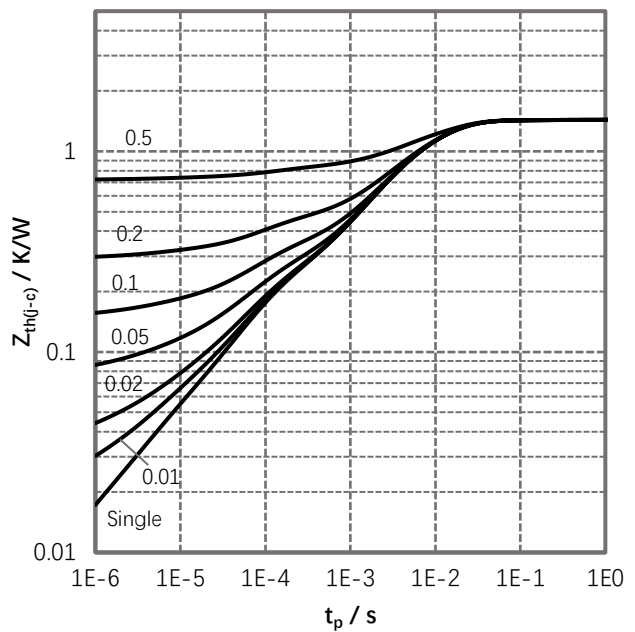
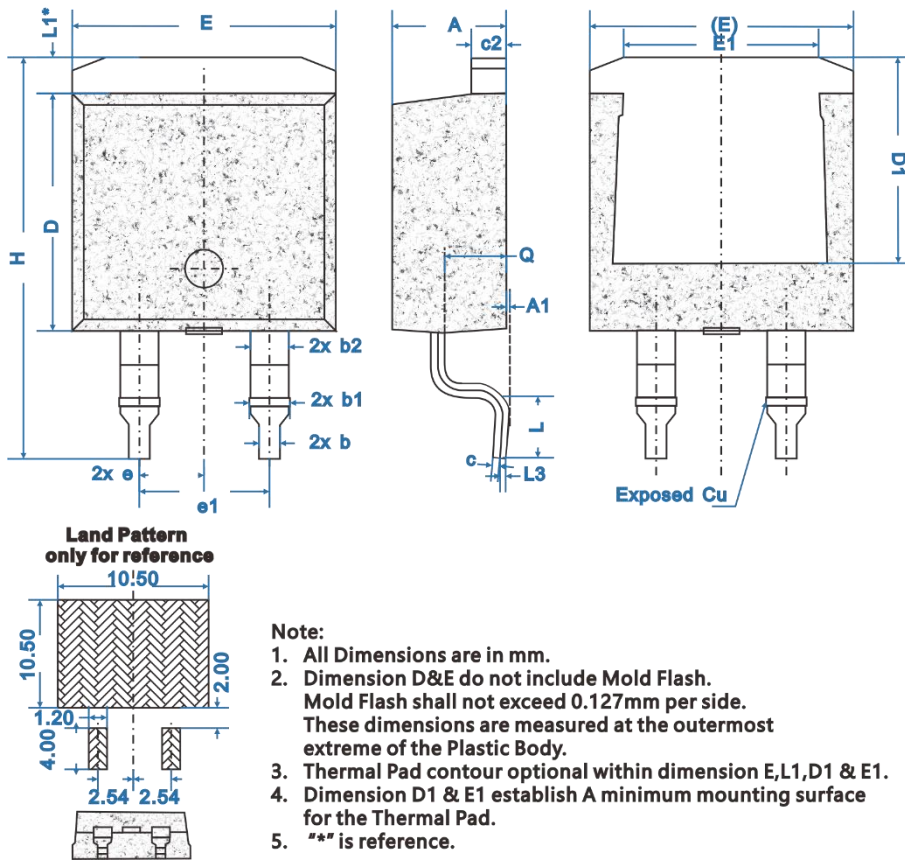


Figure 8. Transient Thermal Impedance

Package Dimensions



Unit: mm

Symbol	Dimensions		
	Min.	NOM.	Max.
A	4.24	4.44	4.64
A1	0.00	0.10	0.25
b	0.70	0.80	0.90
b1	1.20	1.55	1.75
b2	1.20	1.45	1.70
c	0.40	0.50	0.60
c2	1.15	1.27	1.40
D	8.82	8.92	9.02
D1	6.86	7.65	
E	9.96	10.16	10.36
E1	6.86	7.77	7.89
e	2.54 BSC		
e1	5.08 BSC		
H	14.61	15.00	15.88
L	1.78	2.32	2.79
L1	1.36 Ref.		
L3	0.25 BSC		
Q	2.30	2.48	2.70

Ordering Information

Part Number	Marking	Package	Packaging Mode
G5S12008D	G5S12008D	TO-263	800/Reel

Notes

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- The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics.

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