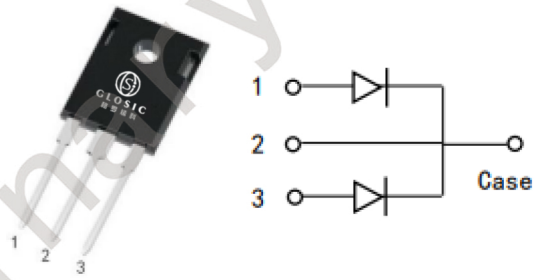
GSD2X40120D

1200V Silicon Carbide Schottky Diode

V_{RRM}	1200V
I_F	40A/80A（TC=146℃）
Q_C	213 nC



Features

- Negligible reverse recovery
- High-speed switching
- Positive Temperature Coefficient
- Temperature-Independent Switching
- Low capacitive charge
- Excellent thermal performance
- RoHS compliant

Benefits

- Higher frequency
- Low heat dissipation requirements
- Reduce size and cost of the system
- High-reliability

Marking	Package
GSD2X40120D	TO-247-3

Applications

- Switch mode power supply
- Solar inverter
- Data Center
- Uninterruptible power supply

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Maximum Ratings （Tc=25℃ unless otherwise noted）

Symbol	Parameter		Value	Unit	Note
V_{RRM}	Repetitisve peak reverse voltage		1200	V	
I_F	Continuous forward current	Tc=25℃	101 / 202	A	Figure 3
		Tc=135℃	49 / 98	A	
		Tc=146℃	40 / 80	A	
I_{FSM}	Non-repetitive forward surge current	Tc=25℃, t_p=10ms,Half sine pulse	229 / 458	A	
		Tc=110℃, t_p=10ms,Half sine pulse	203 / 406	A	
I_{FRM}	Repetitive Peak Forward Surge Current	Tc=25℃, t_p=10ms,Half sine pulse	191 / 382	A	
$\int i^2 dt$	i^2t value	Tc=25℃, t_p=10ms	262 / 1049	A^2S	
		Tc=110℃, t_p=10ms	206 / 824	A^2S	
P_{tot}	Power Dissipation	Tc=25℃	474 / 948	W	Figure 4
		Tc=110℃	205 / 410	W	
		Tc=150℃	79 / 158	W	
T_j, T_{stg}	Operating and Storage Temperature		-55 to +175	℃	

Electrical Characteristics（Tc=25℃ unless otherwise noted）（Per Leg）

Symbol	Parameter	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
V_{DC}	DC blocking voltage		1200	-	-	V	
V_F	Forward voltage	I_F=20A	-	1.23	-	V	Figure 1
		I_F=40A, Tc=25℃	-	1.50	1.70	V	
		I_F=40A, Tc=175℃	-	2.22	-	V	
I_R	Reverse current	V_R=1200V, Tc=25℃	-	9.0	150	uA	Figure 2
		V_R=1200V, Tc=175℃	-	37.0	-	uA	
Q_C	Total capacitive charge	V_R=800V	-	213	-	nC	Figure 6
C	Total capacitance	V_R=1V, f=1MHZ	-	2318	-	pF	Figure 5
		V_R=400V, f=1MHZ	-	194	-	pF	
		V_R=800V, f=1MHZ	-	156	-	pF	
E_C	Capacitance Stored Energy	V_R=800V	-	64	-	uJ	Figure 7

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Thermal Characteristics（Per Leg）

Symbol	Parameter	Value		Unit	Note
		Typ.	Max.		
$R_{th(j-c)}$	Thermal resistance（Junction to case）	0.316	-	℃/W	Figure 8

Electrical Characteristic Curves（Per Leg）

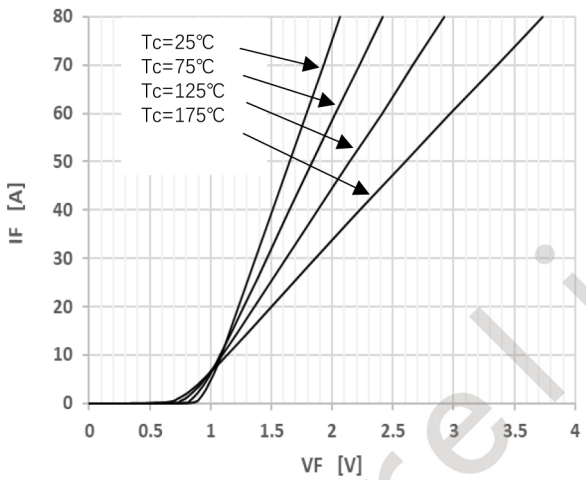

Figure 1 Forward Characteristics

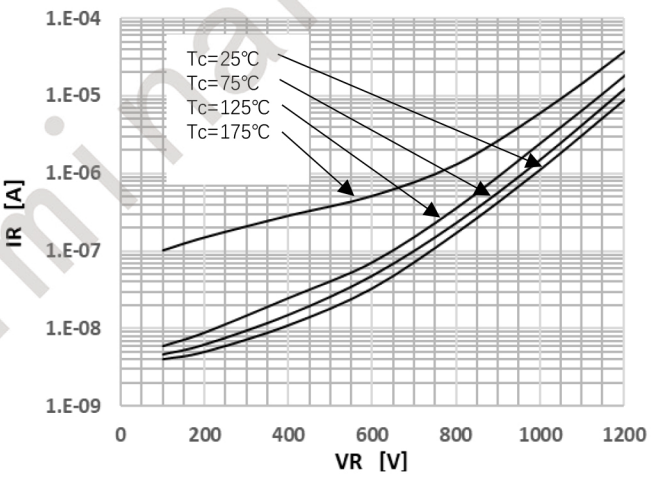

Figure 2 Reverse Characteristics

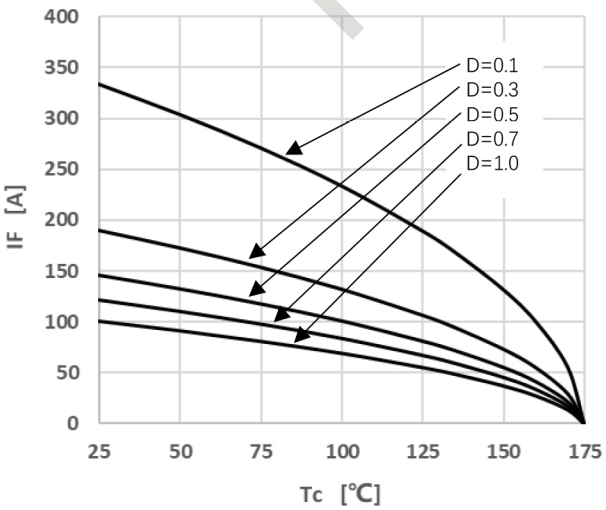

Figure 3 Peak Forward Current Derating

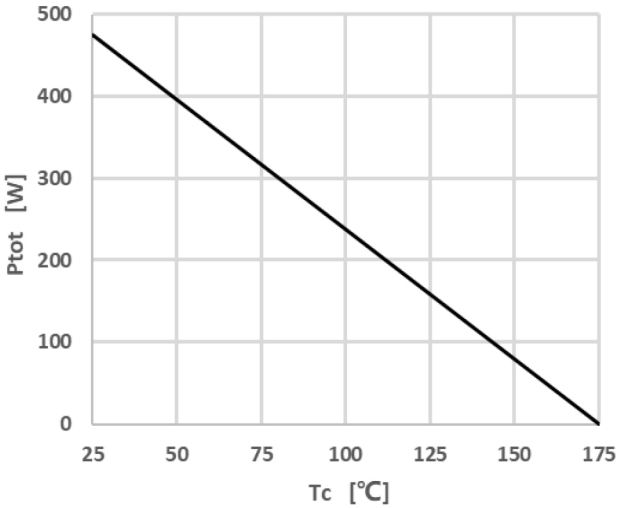

Figure 4 Power Dissipation

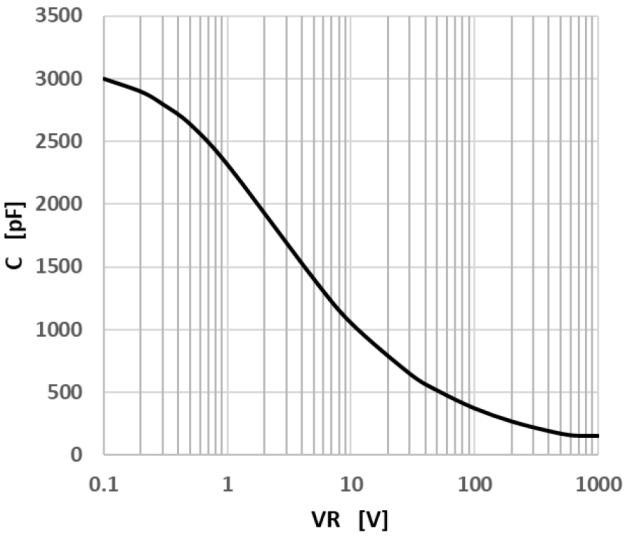

Figure 5 Capacitance vs. Reverse Voltage

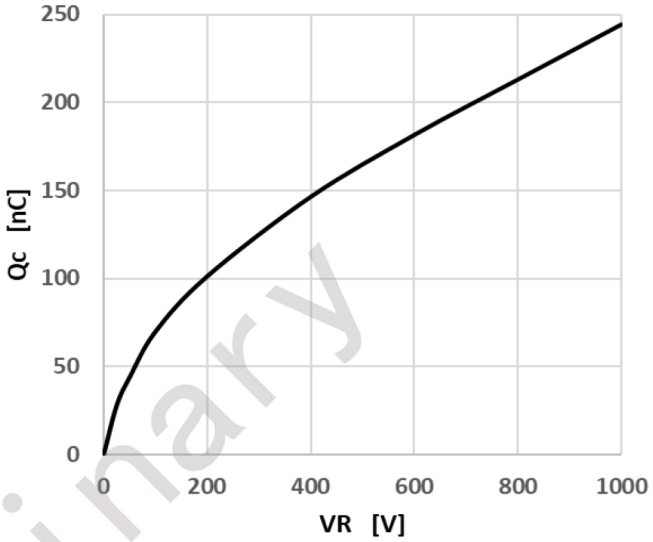

Figure 6 Capacitance Charge vs. Reverse Voltage

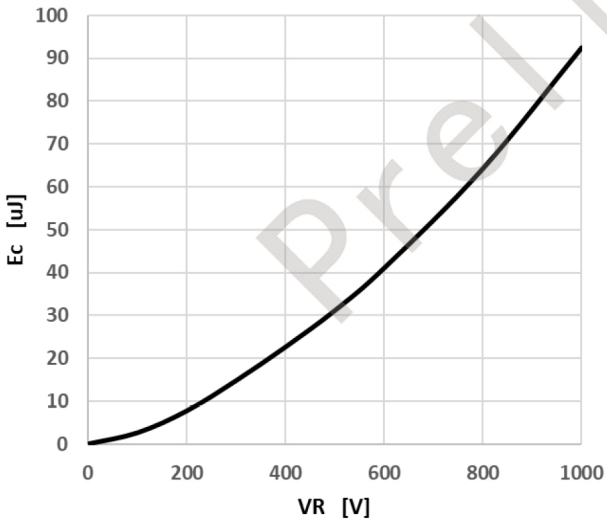

Figure 7 Capacitance Stored Energy

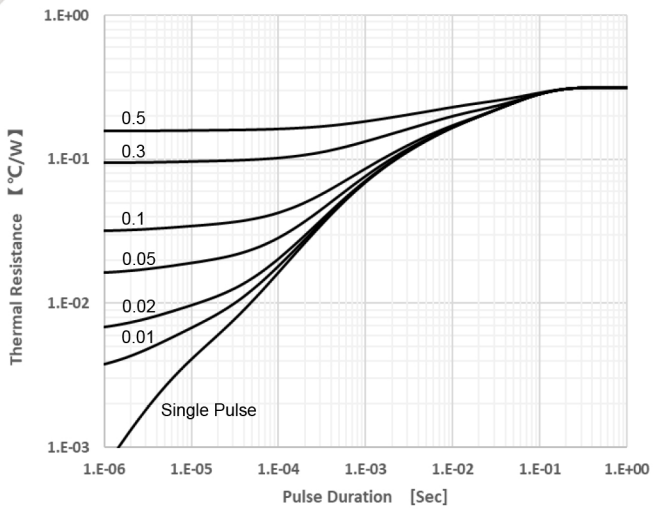

Figure 8 Transient Thermal Impedance

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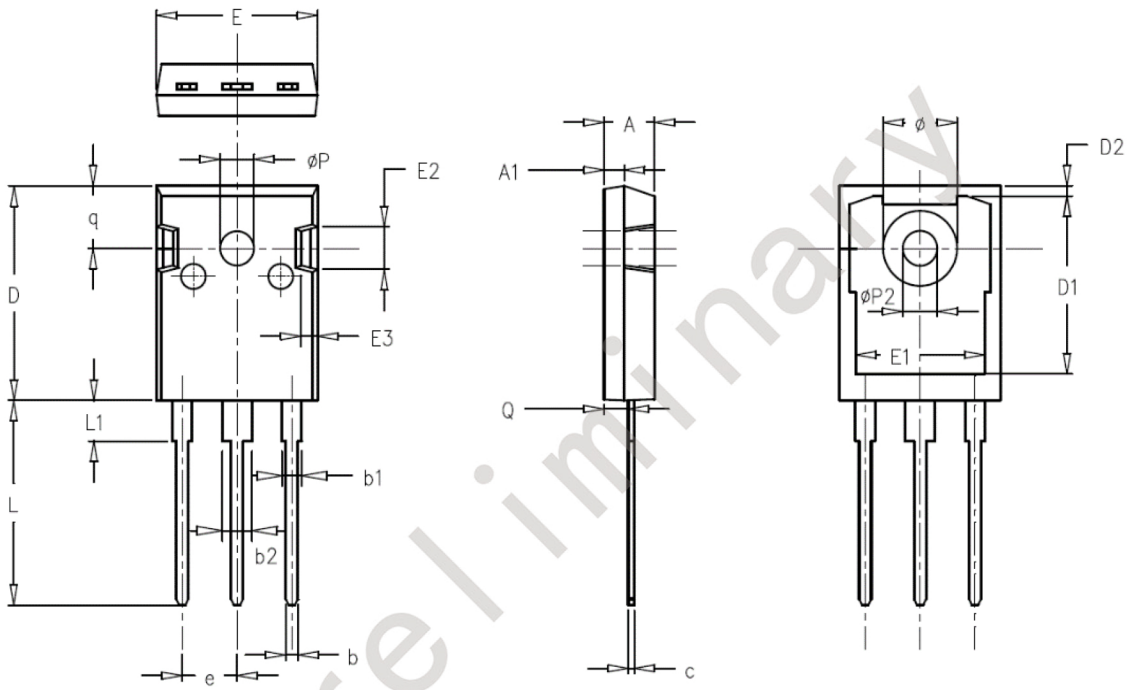
Package Dimensions

To-247-3



SYMBOL	MILLIMETERS			N OTES	SYMBOL	MILLIMETERS			N OTES
	N ormal	MIN.	MAX.			Normal	MIN.	MAX.	
A	4.98	4.68	5.36		øP	3.66	3.45	3.85	
A 1	1.99	1.90	2.10		e	5.44	BSC		
Q	2.41	2.30	2.60		q	6.24	5.99	6.58	
c	0.60	0.48	0.72		øP2	3.45	3.24	3.64	
b	1.20	1.00	1.40		ø	7.14	7.10	7.30	
b1	2.07	1.90	2.30		D1	16.56	16.10	17.10	
b2	3.07	2.90	3.30		D2	0.98	0.80	1.36	
D	21.10	20.80	21.80		E1	13.30	13.00	13.52	
E	15.98	15.38	16.20		E2	5.64	5.10	6.10	
L	20.28	19.50	20.50		E3	2.33	1.90	2.70	
L1	4.01	3.75	4.35						

Announcement

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