

GSD20060H

650V Silicon Carbide Schottky Diode



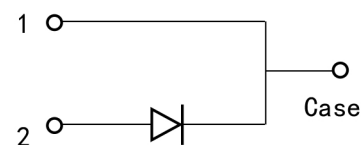
Features

- High surge current capability
- No reverse recovery
- Positive Temperature Coefficient
- Easy to paralleling
- Halogen-free / RoHS compliant

V_{RRM}	650V
I_F	20A ($T_c=148^{\circ}\text{C}$)
Q_C	62nC

Benefits

- High-speed switching
- Low heat dissipation requirements
- Reduce size and cost of the system
- High-reliability
- System efficiency improvement



Applications

- Solar inverter
- Power factor correction
- Data Center
- Switch mode power supply

Marking	Package
GSD20060H	TO-247-2

GSD20060H

650V Silicon Carbide Schottky Diode

Maximum Ratings (Tc=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit	Note	
V_{RRM}	Repetitive peak reverse voltage	650	V		
I_F	Continuous forward current	Tc=25°C	54	A	Figure 3
		Tc=135°C	25	A	
		Tc=148°C	20	A	
I_{FSM}	Non-repetitive forward surge current	Tc=25°C, $t_p=10ms$, Half sine pulse	170	A	
		Tc=110°C, $t_p=10ms$, Half sine pulse	154	A	
I_{FRM}	Repetitive Peak Forward Surge Current	Tc=25°C, $t_p=10ms$, Half sine pulse	159	A	
$\int i^2 dt$	i^2t value	Tc=25°C, $t_p=10ms$	144	A ² S	
		Tc=110°C, $t_p=10ms$	118	A ² S	
P_{tot}	Power Dissipation	Tc=25°C	204	W	Figure 4
		Tc=110°C	88	W	
		Tc=150°C	34	W	
T_j, T_{stg}	Operating and Storage Temperature	-55 to +175	°C		

Electrical Characteristics (Tc=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
V_{DC}	DC blocking voltage		650	-	-	V	
V_F	Forward voltage	$I_F=10A$	-	1.16	-	V	Figure 1
		$I_F=20A, T_c=25^\circ C$	-	1.35	1.6	V	
		$I_F=20A, T_c=175^\circ C$		1.7		V	
I_R	Reverse current	$V_R=650V, T_c=25^\circ C$	-	6	100	uA	Figure 2
		$V_R=650V, T_c=175^\circ C$		15		uA	
Q_C	Total capacitive charge	$V_R=400V$	-	62	-	nC	Figure 6
C	Total capacitance	$V_R=1V, f=1MHZ$	-	906	-	pF	Figure 5
		$V_R=200V, f=1MHZ$	-	122	-	pF	
		$V_R=400V, f=1MHZ$	-	118	-	pF	
E_C	Capacitance Stored Energy	$V_R=400V$	-	10	-	uJ	Figure 7

GSD20060H

650V Silicon Carbide Schottky Diode

Thermal Characteristics

Symbol	Parameter	Value		Unit	Note
		Typ.	Max.		
$R_{th(j-c)}$	Thermal resistance (Junction to case)	0.735	-	$^{\circ}\text{C}/\text{W}$	Figure 8

Electrical Characteristic Curves

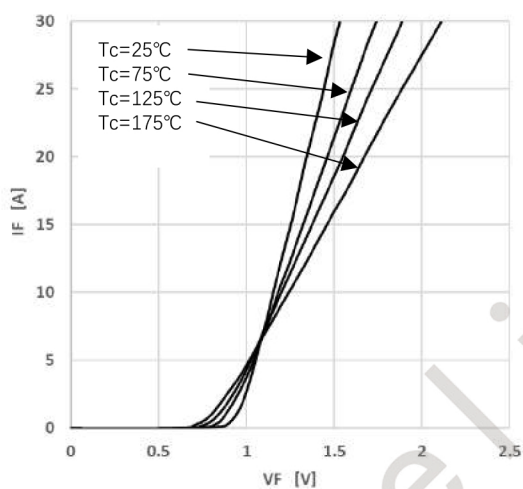


Figure 1 Forward Characteristics

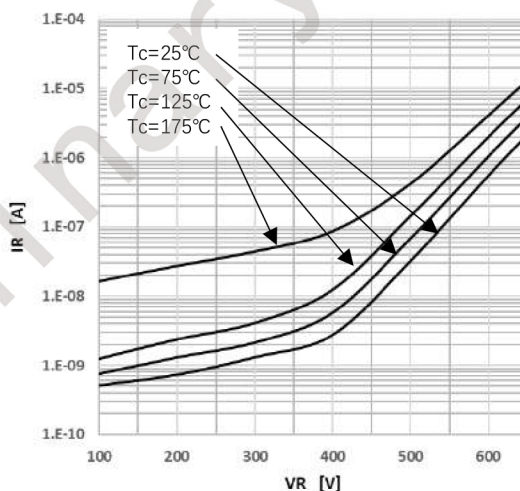


Figure 2 Reverse Characteristics

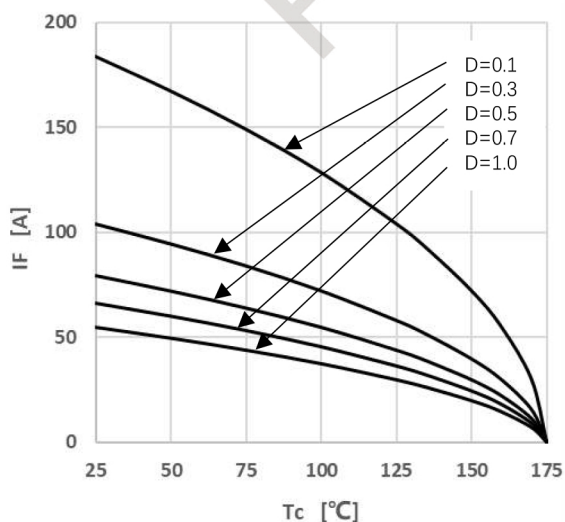


Figure 3 Peak Forward Current Derating

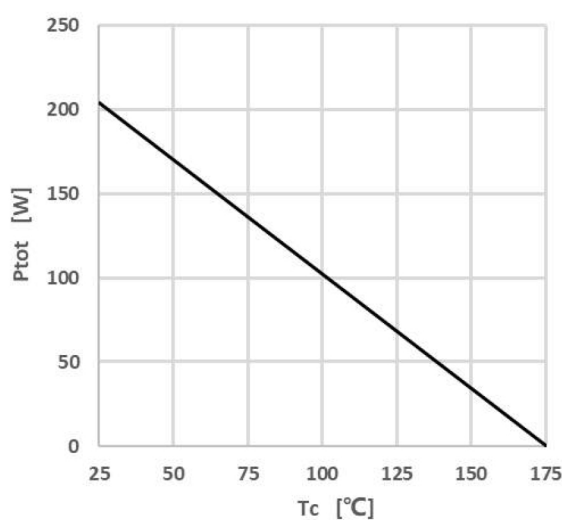


Figure 4 Power Dissipation

GSD20060H

650V Silicon Carbide Schottky Diode

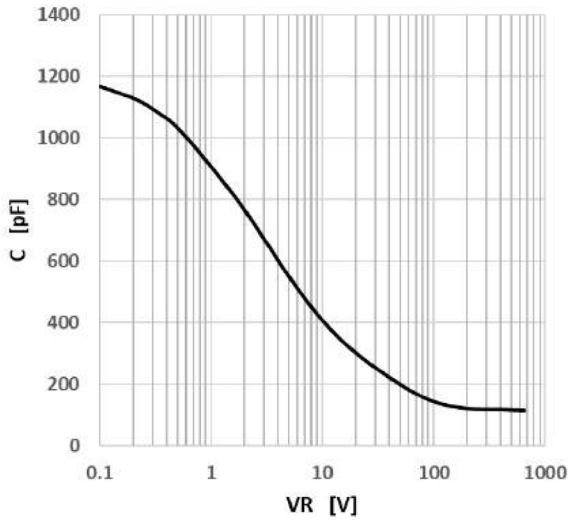


Figure 5 Capacitance vs. Reverse Voltage

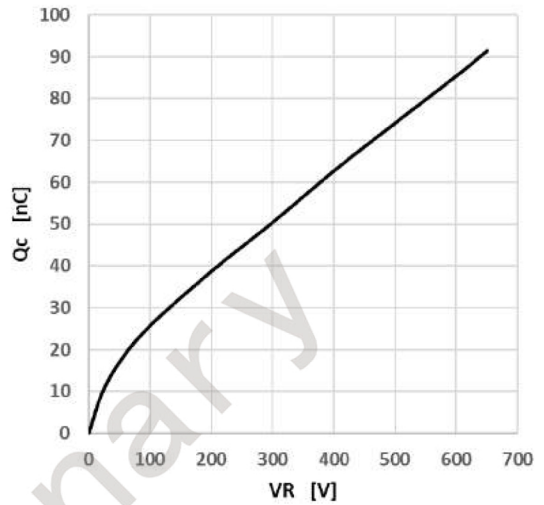


Figure 6 Capacitance Charge vs. Reverse Voltage

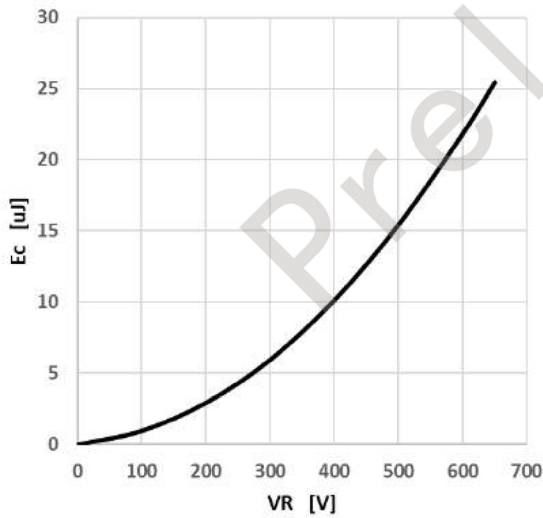


Figure 7 Capacitance Stored Energy

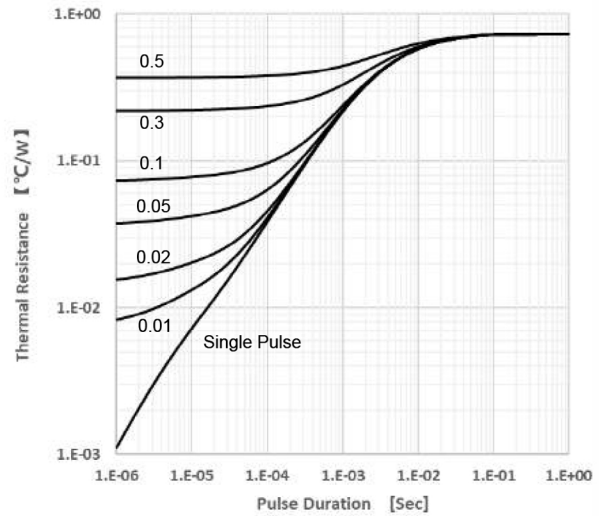


Figure 8 Transient Thermal Impedance

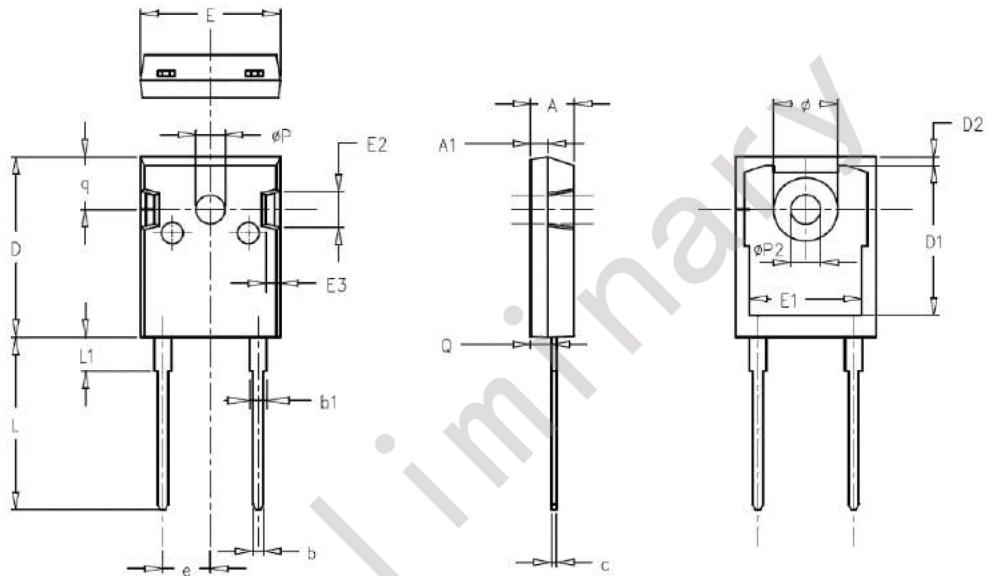


GSD20060H

650V Silicon Carbide Schottky Diode

Package Dimensions

To-247-2



SYMBOL	MILLIMETERS			NOTES	SYMBOL	MILLIMETERS			NOTES
	Normal	MIN.	MAX.			Normal	MIN.	MAX.	
A	4.98	4.68	5.36		ϕP	3.66	3.45	3.85	
A1	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		$\phi P2$	3.45	3.24	3.64	
b	1.20	1.00	1.40		ϕ	7.14	7.10	7.30	
b1	2.07	1.90	2.30		D1	16.56	16.10	17.10	
D	21.10	20.80	21.80		D2	0.98	0.80	1.36	
E	15.98	15.38	16.20		E1	13.30	13.00	13.52	
L	20.28	19.50	20.50		E2	5.64	5.10	6.10	
L1	4.01	3.75	4.35		E3	2.33	1.90	2.70	

GSD20060H

650V Silicon Carbide Schottky Diode

Announcement

Information in this document is believed to be accurate and reliable. However, GLOSIC does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information.

Right to Make Changes

GLOSIC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

The datasheet with “REV.” + “Arabic numerals” is based on engineering data for initial reference purpose only.

The released datasheet would be issued with “REV.” + “alphabet characters”.



www.globalsic.com.cn