

# GSD15120H

## 1200V Silicon Carbide Schottky Diode



### Features

- Negligible reverse recovery
- High-speed switching
- Positive Temperature Coefficient
- Temperature-Independent Switching
- RoHS compliant

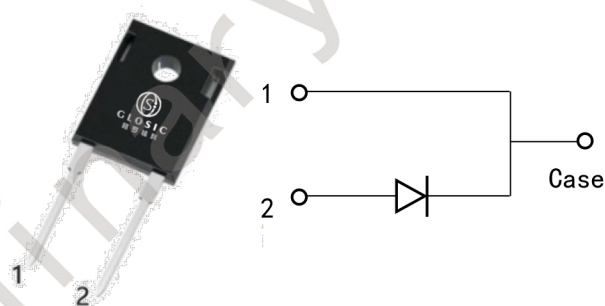
### Benefits

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

### Applications

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

$V_{RRM}$	1200V
$I_F$	16A (TC=158°C)
$Q_C$	95nC



Marking	Package
GSD15120H	TO-247-2

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### Maximum Ratings (T<sub>c</sub>, =25°C unless otherwise noted)

Symbol	Parameter		Value (leg/device)	Unit	Note
V <sub>RRM</sub>	Repetitive peak reverse voltage		1200	V	
I <sub>F</sub>	Continuous forward current	T <sub>c</sub> =25°C	58	A	Figure 3
		T <sub>c</sub> =135°C	28	A	
		T <sub>c</sub> =158°C	16	A	
I <sub>FSM</sub>	Non-repetitive forward surge current	T <sub>c</sub> =25°C, t <sub>p</sub> =10ms, Half sine pulse	102	A	
		T <sub>c</sub> =110°C, t <sub>p</sub> =10ms, Half sine pulse	80	A	
I <sub>FRM</sub>	Repetitive Peak Forward Surge Current	T <sub>c</sub> =25°C, t <sub>p</sub> =10ms, Half sine pulse	88	A	
		T <sub>c</sub> =110°C, t <sub>p</sub> =10ms, Half sine pulse	76	A	
∫i <sup>2</sup> dt	i <sup>2</sup> t value	T <sub>c</sub> =25°C, t <sub>p</sub> =10ms	52	A <sup>2</sup> S	
		T <sub>c</sub> =110°C, t <sub>p</sub> =10ms	32	A <sup>2</sup> S	
P <sub>tot</sub>	Power Dissipation	T <sub>c</sub> =25°C	242	W	Figure 4
		T <sub>c</sub> =110°C	105	W	
		T <sub>c</sub> =150°C	40	W	
T <sub>j</sub> , T <sub>stg</sub>	Operating and Storage Temperature		-55 to +175	°C	

### Electrical Characteristics (T<sub>c</sub>=25°C unless otherwise noted) (Per Leg)

Symbol	Parameter	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
V <sub>DC</sub>	DC blocking voltage		1200	-	-	V	
V <sub>F</sub>	Forward voltage	I <sub>F</sub> =8A	-	1.12	-	V	Figure 1
		I <sub>F</sub> =16A, T <sub>c</sub> =25°C	-	1.35	1.65	V	
		I <sub>F</sub> =16A, T <sub>c</sub> =175°C	-	1.60	-	V	
I <sub>R</sub>	Reverse current	V <sub>R</sub> =1200V, T <sub>c</sub> =25°C	-	5.0	150	uA	Figure 2
		V <sub>R</sub> =1200V, T <sub>c</sub> =175°C	-	160	-	uA	
Q <sub>C</sub>	Total capacitive charge	V <sub>R</sub> =800V	-	95	-	nC	Figure 6
C	Total capacitance	V <sub>R</sub> =1V, f=1MHZ	-	1100	-	pF	Figure 5
		V <sub>R</sub> =400V, f=1MHZ	-	90	-	pF	
		V <sub>R</sub> =800V, f=1MHZ	-	75	-	pF	
E <sub>C</sub>	Capacitance Stored Energy	V <sub>R</sub> =800V	-	30	-	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)	0.62	-	$^{\circ}\text{C}/\text{W}$	

### Electrical Characteristic Curves (Per Leg)

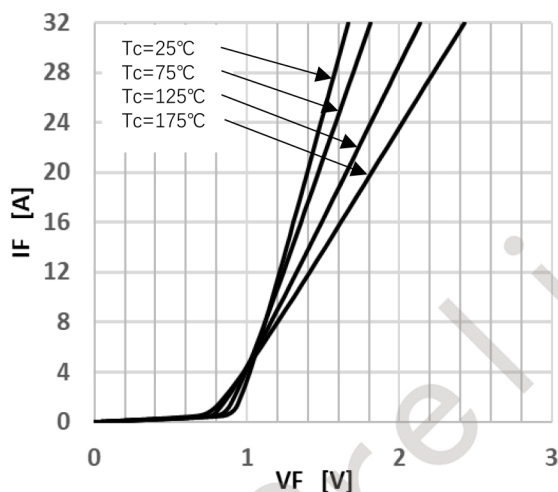


Figure 1 Forward Characteristics

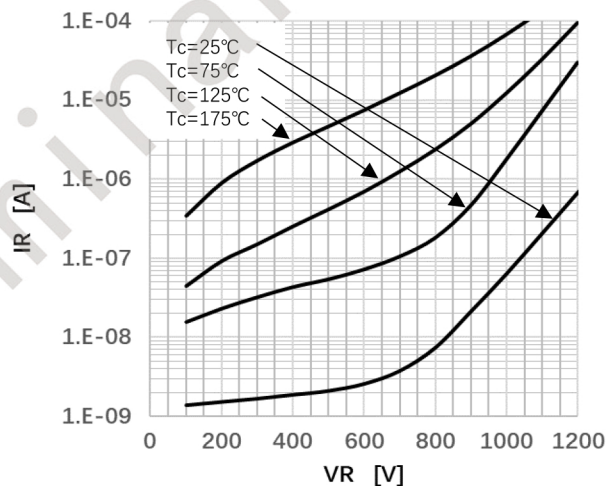


Figure 2 Reverse Characteristics

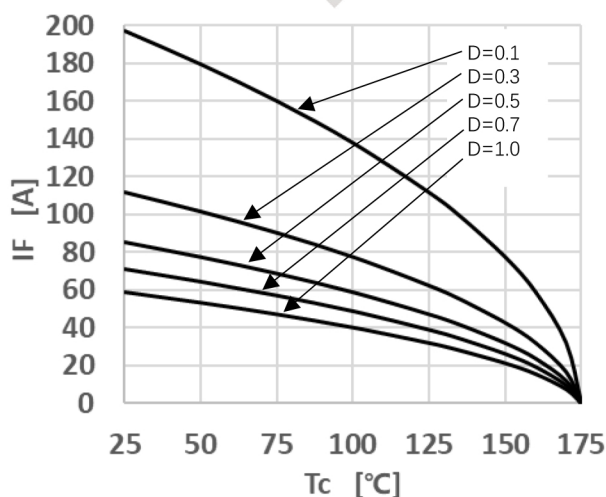


Figure 3 Peak Forward Current Derating

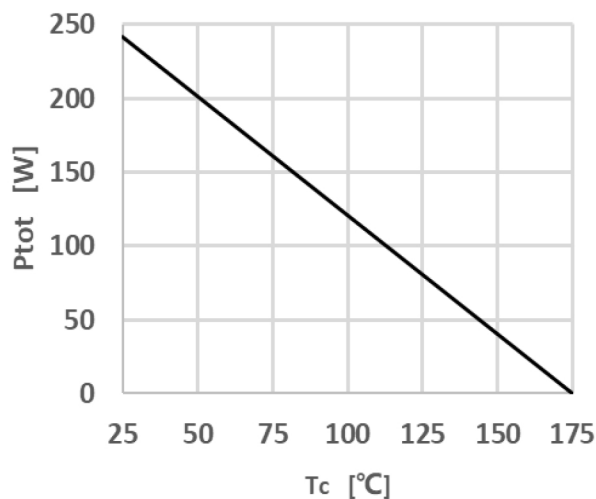


Figure 4 Power Dissipation

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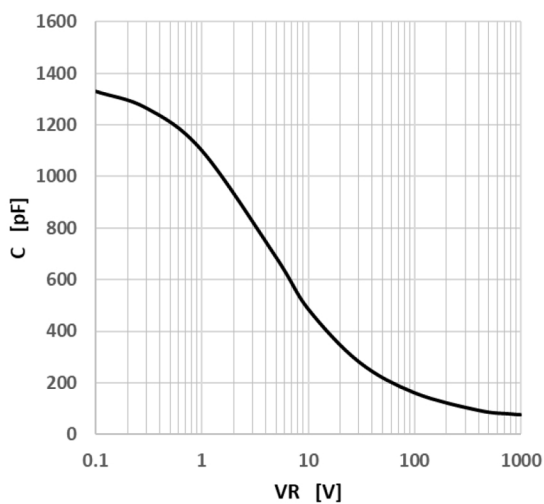


Figure 5 Capacitance vs. Reverse Voltage

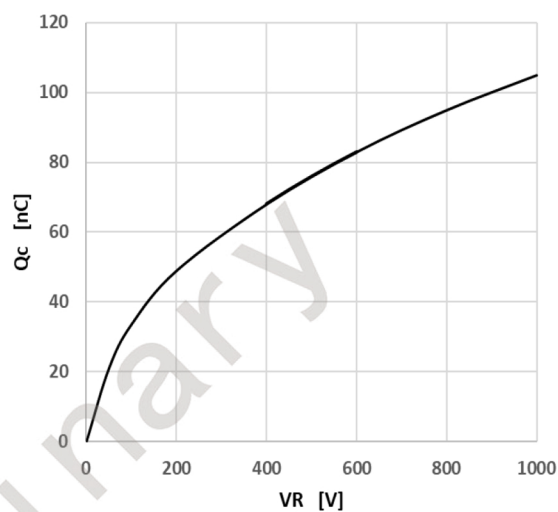


Figure 6 Capacitance Charge vs. Reverse Voltage

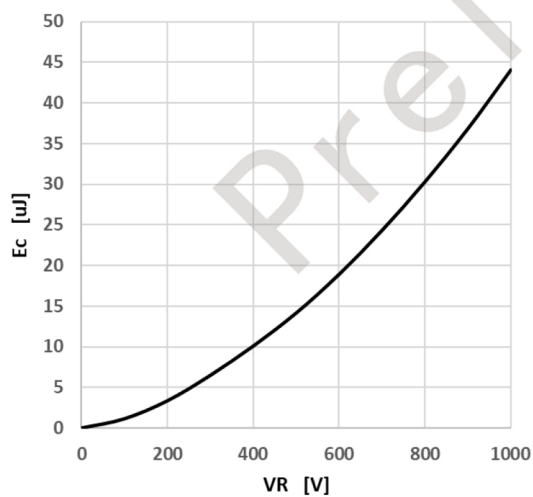


Figure 7 Capacitance Stored Energy

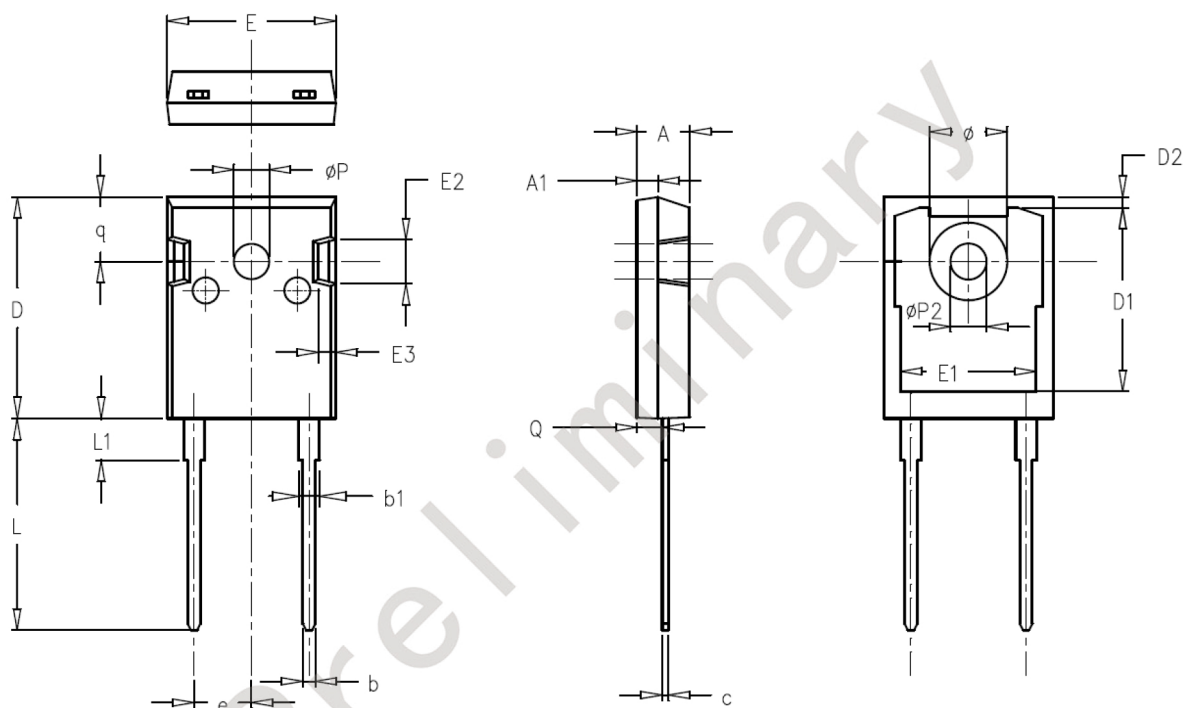


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### Package Dimensions

To-247-2



SYMBOL	MILLIMETERS			NOTES	SYMBOL	MILLIMETERS			NOTES
	Normal	MIN.	MAX.			Normal	MIN.	MAX.	
A	4.98	4.68	5.36		$\phi P$	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		$\phi$	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	

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