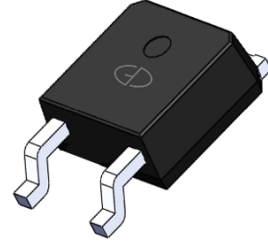


## 6A, 650V Silicon Carbide Schottky Diode

### Features

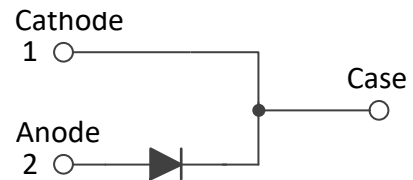
- High-Frequency Operation
- Zero Reverse Recovery Current
- Temperature-Independent Switching
- Extremely Fast Switching
- Plastic package has underwriters Laboratory Flammability Classification 94V-0
- Halogen-free according to IEC 61249-2-21



### Applications

- Boost Diodes in PFC or DC/DC stages
- LED Lighting Power Supplies
- Power Factor Correction

#### TO-252(D-PAK)



### Mechanical Data

- Case: Epoxy, Molded
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 sec
- Shipped 2500 units per reel

### Maximum Ratings & Electrical Characteristics (TA=25°C unless otherwise noted)

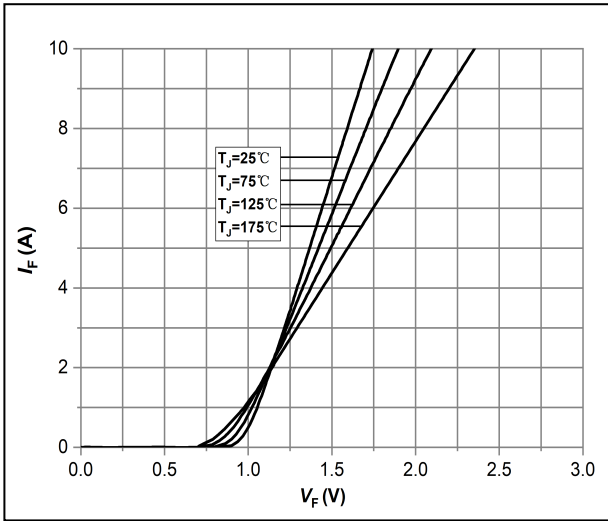
Parameter	Symbol	GS06D065SD	Unit
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	650	V
Working peak reverse voltage	V <sub>RWM</sub>	650	V
Maximum DC blocking voltage	V <sub>DC</sub>	650	V
Maximum average forward rectified current	I <sub>F(AV)</sub>	T <sub>C</sub> =25°C	18
		T <sub>C</sub> =135°C	8
		T <sub>C</sub> =150°C	6
Peak forward surge current, tp=10ms, Half Sine Pulse	I <sub>FSM</sub>	42	A
Power dissipation	P <sub>tot</sub>	T <sub>C</sub> =25°C	65
		T <sub>C</sub> =110°C	28
Operating junction temperature range	T <sub>J</sub>	-55 to +175	°C
Storage temperature range	T <sub>STG</sub>	-55 to +175	°C

<b>Electrical Specifications</b> (T <sub>A</sub> =25°C unless otherwise noted)					
Parameter	Symbol	Test Conditions	Typ	Max	Unit
Forward drop voltage	V <sub>F</sub>	I <sub>F</sub> =6A, T <sub>J</sub> =25°C	1.38	1.65	V
		I <sub>F</sub> =6A, T <sub>J</sub> =175°C	1.80	2.40	
Reverse leakage current @rated V <sub>R</sub>	I <sub>R</sub>	V <sub>R</sub> =650V, T <sub>J</sub> =25°C	5	50	μA
		V <sub>R</sub> =650V, T <sub>J</sub> =175°C	15	200	
Total capacitive charge	Q <sub>C</sub>	V <sub>R</sub> =400V, I <sub>F</sub> =6A, T <sub>J</sub> =25°C	22	-	nC
Total capacitance	C	V <sub>R</sub> =400V, T <sub>J</sub> =25°C, f=1MHz	33	-	pF

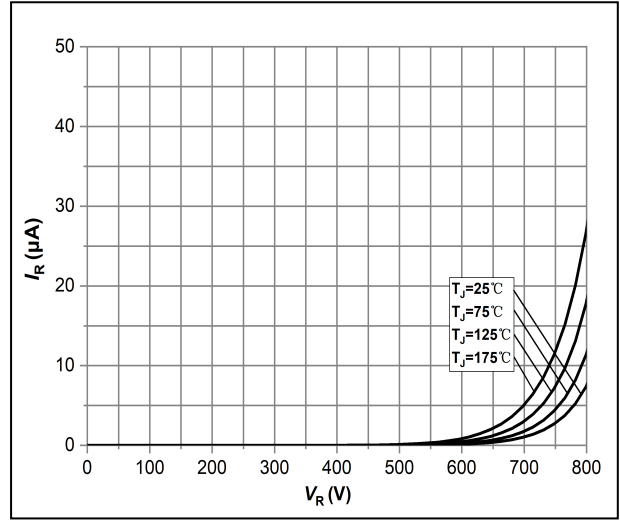
<b>Thermal-Mechanical Specifications</b> (T <sub>A</sub> =25°C unless otherwise noted)				
Parameter	Symbol	Typ	Max	Unit
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	2.30	-	°C /W

## Ratings and Characteristics Curves

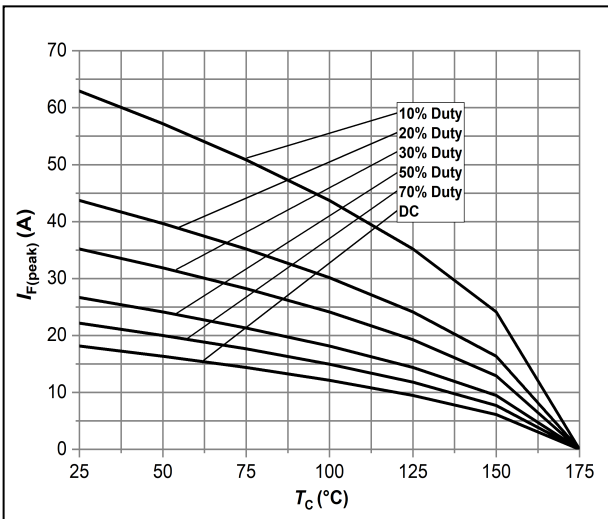
( $T_A = 25^\circ\text{C}$  unless otherwise noted)



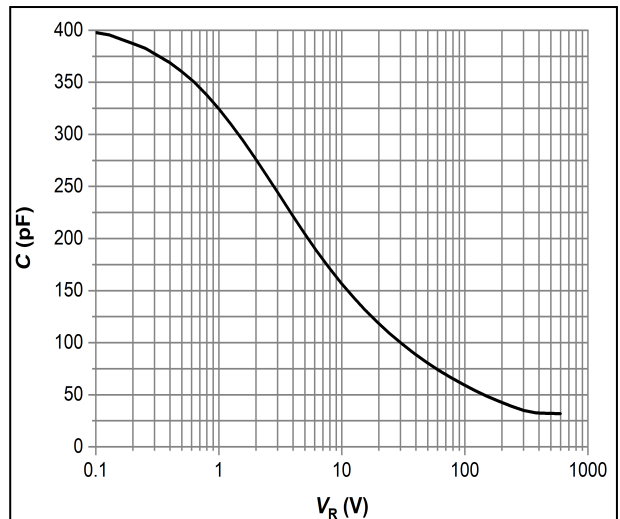
**Fig.1 -Forward Characteristics**



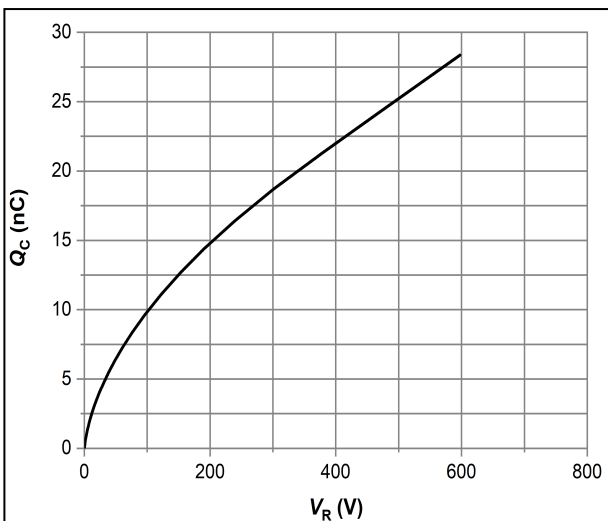
**Fig.2 -Reverse Characteristics**



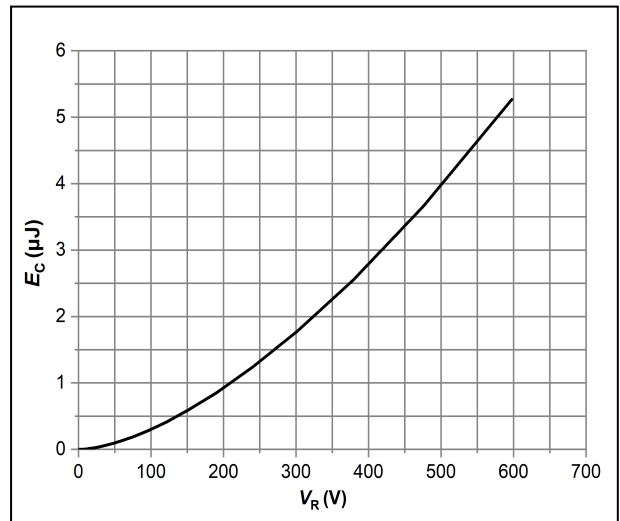
**Fig.3 -Current Derating**



**Fig.4 -Capacitance vs. Reverse Voltage**



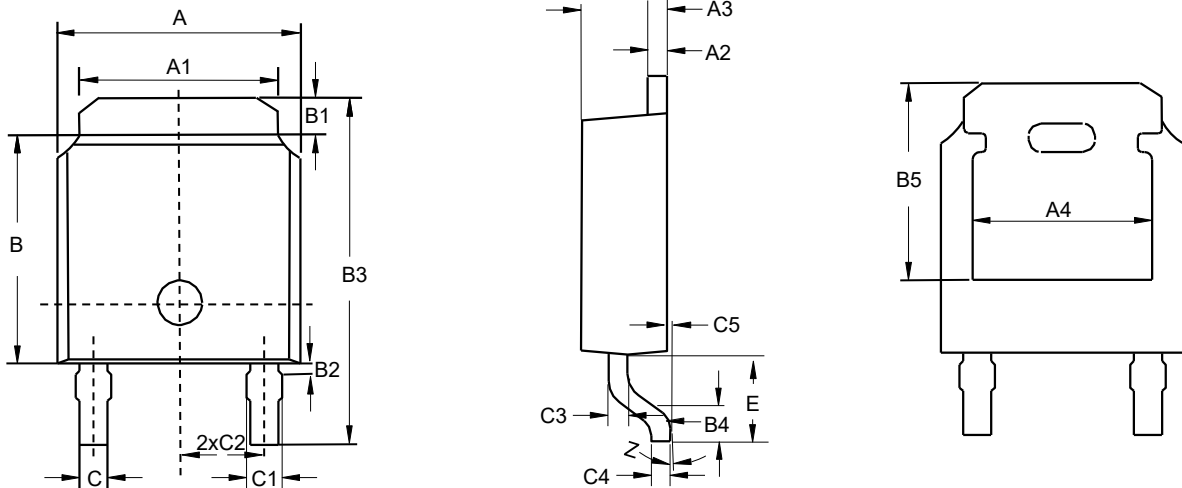
**Fig.5 -Total Capacitance Charge vs. Reverse Voltage**



**Fig.6 -Typical Capacitance Stored Energy**

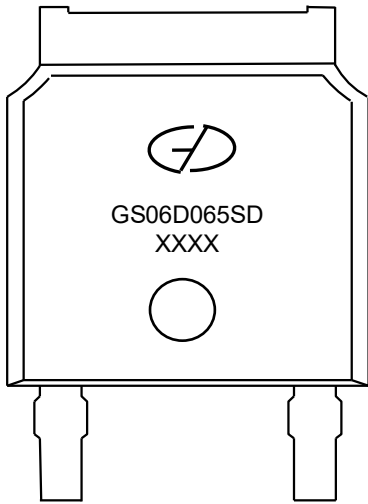
**Package Outline Dimensions** (Unit: millimeters)


**TO-252 (D-PAK)**



TO-252							
	Min.	Nom.	Max.		Min.	Nom.	Max.
A	6.40	6.60	6.731	B5	5.21	--	--
A1	5.21	5.34	5.46	C	0.64	0.76	0.88
A2	0.46	0.50	0.58	C1	0.77	0.84	1.14
A3	2.20	2.30	2.38	C2	2.886BSC		
A4	4.40	--	--	C3	0.46	0.50	0.60
B	6.00	6.10	6.223	C4	0.508BSC		
B1	0.89	--	1.27	C5	0	--	0.127
B2	--	--	--	E	2.743REF		
B3	9.40	10.0	10.40	Z	0°		10°
B4	1.40	1.52	1.77				

**Marking Outline**



1. Logo Mark: 
2. Part Name: GS06D065SD
3. Date code: XXXX

**Revision History**

Document Version	Date of release	Description of changes
Rev.A	2022.06.16	Preliminary Datasheet

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