

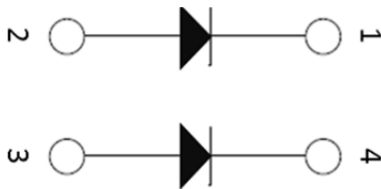
SiC SBD Parallel Power Module

$$V_{RRM} = 600V$$

$$I_{DAV} = 50A @ T_C = 125^{\circ}C$$

Features

- **SiC Schottky Diode**
 - Zero reverse recovery
 - Zero forward recovery
 - Temperature Independent switching behavior
 - Positive temperature coefficient on V_f
- Low stray inductance
- High junction temperature operation



Parallel

Applications

- Supplies for DC power equipment
- Rectifier for induction heating
- Welding equipment
- High temperature and rectifiers

Benefits

- Outstanding performance at high frequency operation
- Low losses and Low EMI noises
- Very rugged and easy mount
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- Easy paralleling due to positive T_C of V_f
- RoHS Compliant



Absolute Maximum Ratings ($T_j=25^{\circ}C$ unless otherwise specified)

Parameters	Symbol	Conditions	Specifications	Units
Maximum Reverse Voltage	V_{RRM}		600	V
Average Forward Current (per SBD)	I_{DAV}	$T_C = 25^{\circ}C$	134	A
		$T_C = 150^{\circ}C$	50	A
Non-repetitive Forward Surge Current	I_{FSM}	$t=8.3\text{ ms}, T_C = 150^{\circ}C$	250	A
		$T=10\ \mu\text{s}, T_C = 25^{\circ}C$	1000	A
Operating Junction Temperature	T_j		-55 ~ 175	$^{\circ}C$
Storage Temperature	T_{STG}		-55 ~ 150	$^{\circ}C$

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

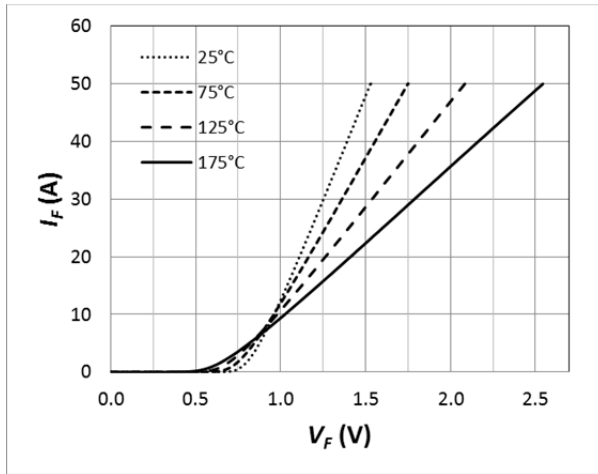
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Maximum peak repetitive reverse voltage	V_{RRM}		600	--	--	V
Maximum Reverse Leakage Current per diode	I_{RM}	$V_R = 600\text{V}, T_j = 25^{\circ}\text{C}$	--	12.2	100	μA
		$V_R = 600\text{V}, T_j = 150^{\circ}\text{C}$	--	1455	--	μA
Diode Forward Voltage	V_F	$I_F = 50\text{A}, T_j = 25^{\circ}\text{C}$	--	1.6	1.8	V
		$I_F = 50\text{A}, T_j = 175^{\circ}\text{C}$	--	2.5	--	V
Total Capacitive Charge	Q_C	$V_R=600\text{V}, I_F<I_{F,max}$	--	173	--	nC
Switching Time	t_C	$di_F/dt = 200\text{A}/\mu\text{s}, T_j = 175^{\circ}\text{C}$	--	--	10	ns
Total Capacitance	C	$V_R = 1\text{V}, f = 1\text{MHz}$	--	2984	--	pF
		$V_R = 300\text{V}, f = 1\text{MHz}$	--	174	--	pF
		$V_R = 600\text{V}, f = 1\text{MHz}$	--	144	--	pF

Thermal and Package Characteristics ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

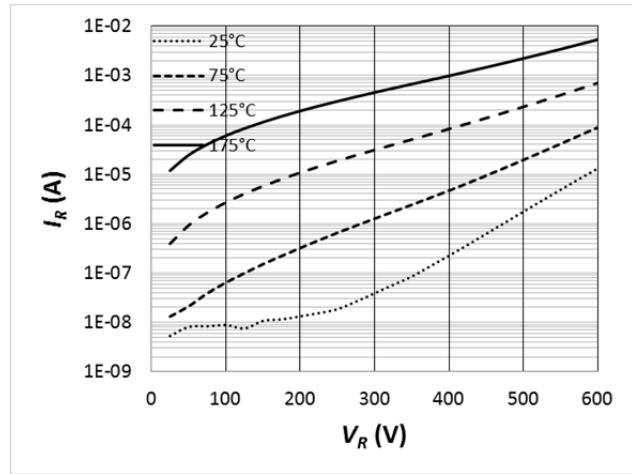
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Junction to Case Thermal Resistance	R_{THJC}	Per Diode	--	--	0.25	$^{\circ}\text{C}/\text{W}$
Junction to Ambient Thermal Resistance	R_{THJA}	Per Diode	--	--	20	$^{\circ}\text{C}/\text{W}$
Mounting Torque	M_d				1.5	N-m
Terminal Connection Torque	M_{dt}		1.3	--	1.5	N-m
Package Weight	W_t			32		g
Isolation Voltage	V_{ISOL}	$I_{ISOL} < 1\text{mA}, 50/60\text{Hz}, t=1\text{min}$	2500	V		

Product Number and Pin Descriptions

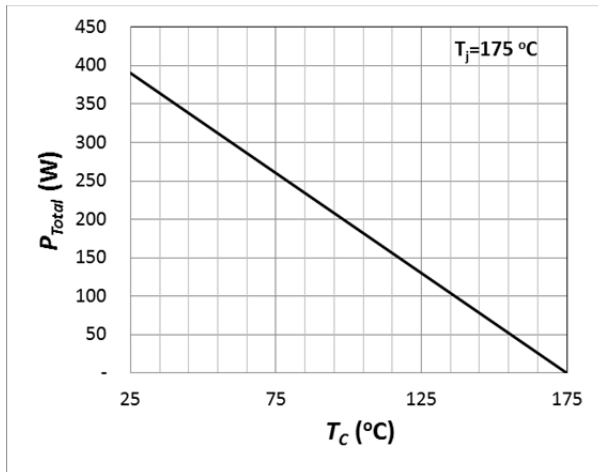
Part Number	Rating	Pin 1	Pin 2	Pin 3	Pin 4
GHXS050A060S-D3	600V, 50A	Cathode 1	Anode 1	Anode 2	Cathode 2



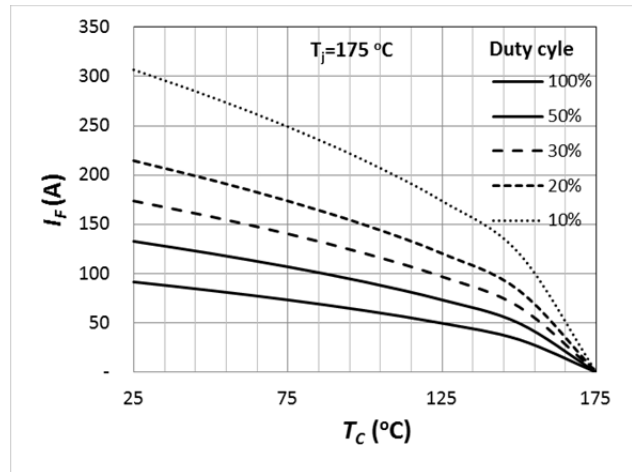
Forward Characteristics (parameterized on T_j)



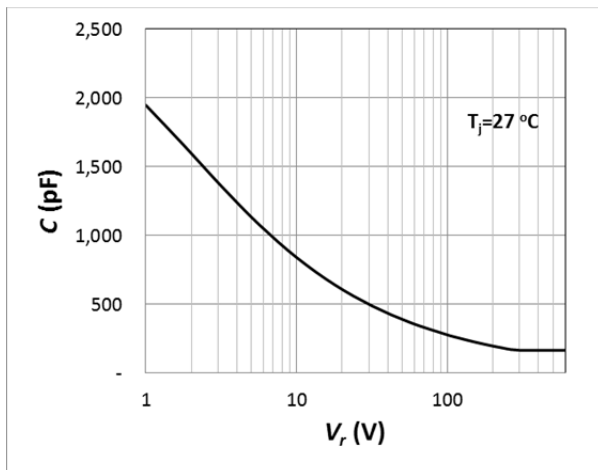
Reverse Characteristics (parameterized on T_j)



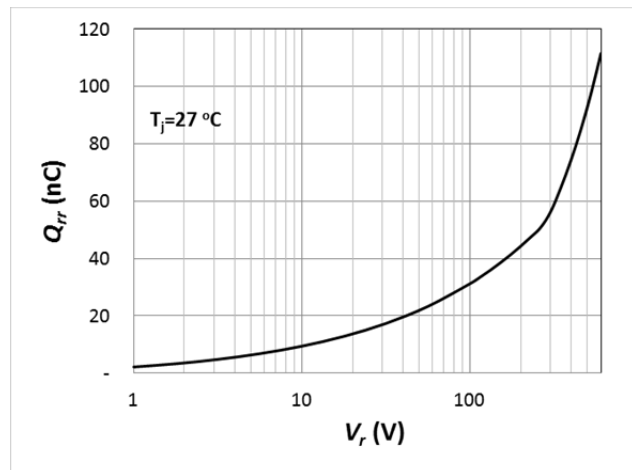
Power Derating



Current Derating



Capacitance Curve



Recovery Charge

SOT-227 Package Outline

