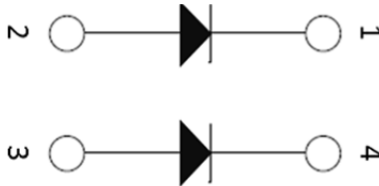


SiC SBD Parallel Power Module

$$V_{RRM} = 1200V$$

$$I_{DAV} = 45A @ T_C = 125^{\circ}C$$



Parallel



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

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}		1200	V
Average Forward Current (per SBD)	I_{DAV}	$T_C = 25^{\circ}C$	121	A
		$T_C = 150^{\circ}C$	45	A
Non-repetitive Forward Surge Current	I_{FSM}	$t=8.3\text{ ms}, T_C = 150^{\circ}C$	225	A
		$T=10\ \mu s, T_C = 25^{\circ}C$	900	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)

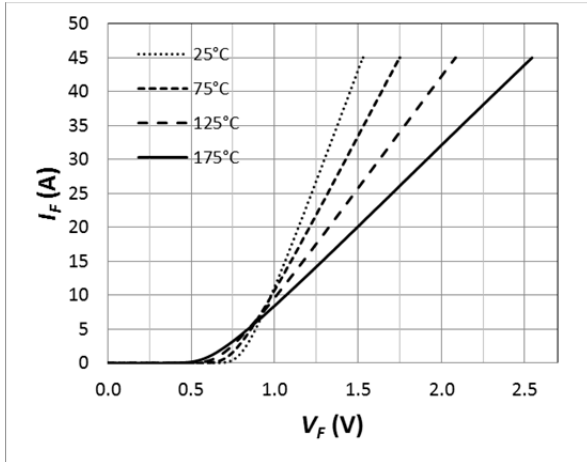
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Maximum peak repetitive reverse voltage	V_{RRM}		1200	--	--	V
Maximum Reverse Leakage Current	I_{RM}	$V_R = 1200\text{V}, T_j = 25^{\circ}\text{C}$	--	13	300	μA
		$V_R = 1200\text{V}, T_j = 150^{\circ}\text{C}$	--	1818	--	μA
Diode Forward Voltage	V_F	$I_F = 45\text{A}, T_j = 25^{\circ}\text{C}$	--	1.5	1.7	V
		$I_F = 45\text{A}, T_j = 150^{\circ}\text{C}$	--	2.3	--	V
Total Capacitive Charge	Q_C	$V_R=1200\text{ V}, I_F<I_{F,max}$	--	156	--	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	$V_R = 1\text{V}, f = 1\text{ MHz}$	--	2700	--	pF
		$V_R = 600\text{V}, f = 1\text{ MHz}$	--	156	--	pF
		$V_R = 1200\text{V}, f = 1\text{ MHz}$	--	126	--	pF

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

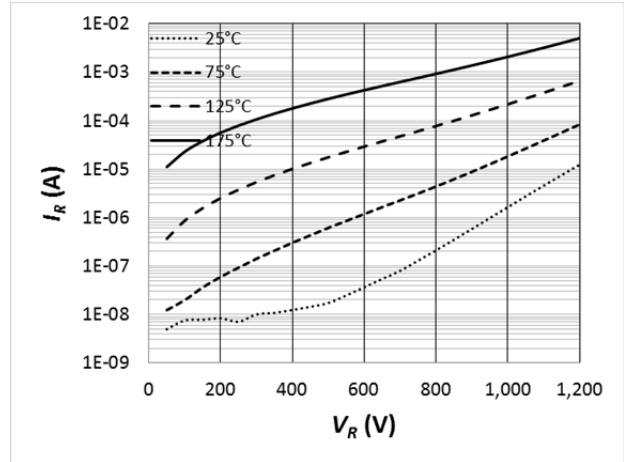
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Junction to Case Thermal Resistance	R_{THJC}	Per Diode	--	--	022	$^{\circ}\text{C}/\text{W}$
Junction to Ambient Thermal Resistance	R_{THJA}	Per Diode	--	--	20	$^{\circ}\text{C}/\text{W}$
Mounting Torque	M_d				1.5	N-m
Terminal Connection Torque	M_{dt}		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 Descriptions

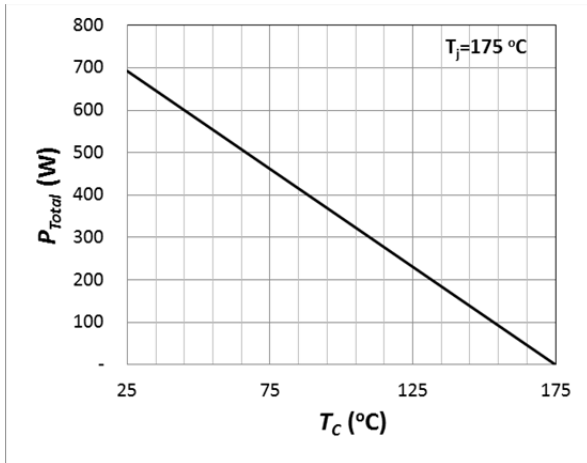
Part Number	Rating	Pin 1	Pin 2	Pin 3	Pin 4
GHXS045A120S-D3	1200V, 45A	Cathode 1	Anode 1	Anode 2	Cathode 2



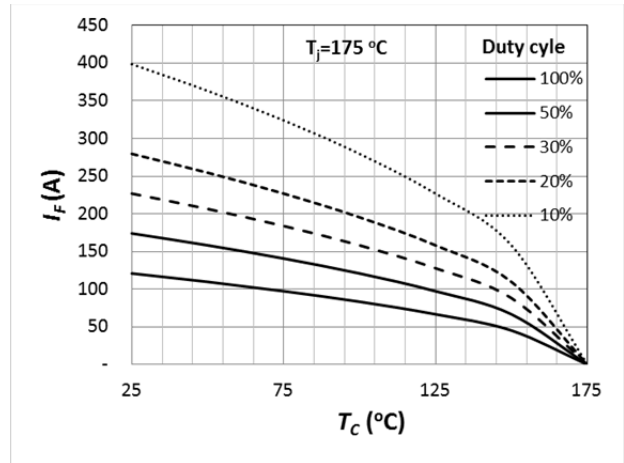
Forward Characteristics (parameterized on Tj)



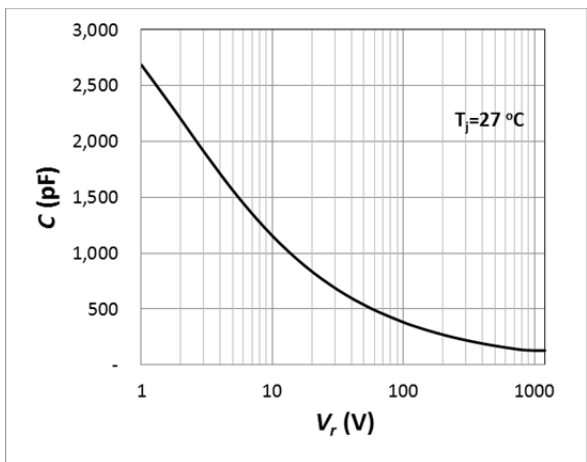
Reverse Characteristics (parameterized on Tj)



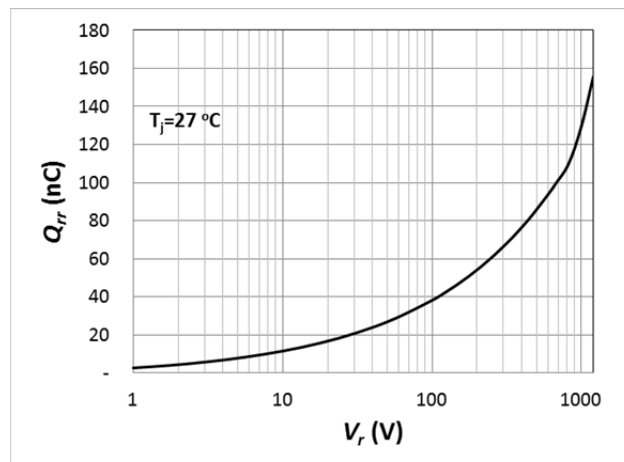
Power Derating



Current Derating

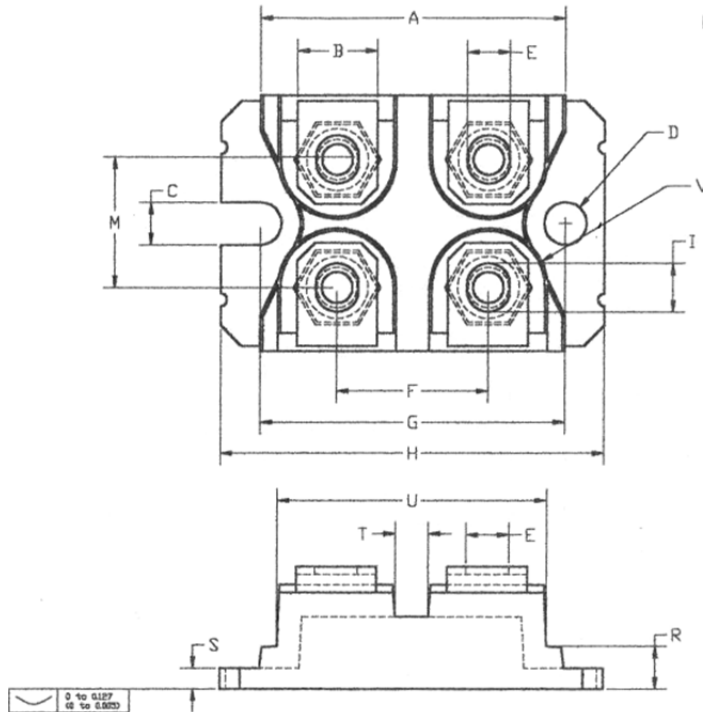


Capacitance Curve

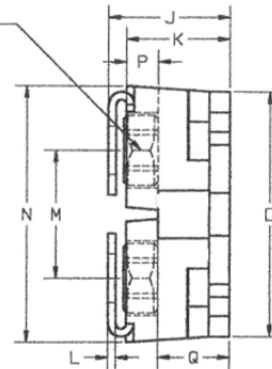


Recovery Charge

SOT-227 Package Outline



M4 HEX. NUT
(4 pcs)



DIM.	MILLIMETER		INCHES	
	Min.	Max.	Min.	Max.
A	31.67	31.90	1.247	1.256
B	7.95	8.18	0.313	0.322
C	4.14	4.24	0.163	0.167
D	4.14	4.24	0.163	0.167
E	4.14	4.24	0.163	0.167
F	14.94	15.09	0.588	0.594
G	30.15	30.25	1.187	1.191
H	38.00	38.10	1.496	1.500
I	4.75	4.83	0.187	0.190
J	11.78	12.19	0.463	0.480
K	9.45	9.60	0.372	0.378
L	0.76	0.84	0.030	0.033
M	12.62	12.88	0.497	0.507
N	25.15	25.30	0.990	0.996
O	24.79	25.04	0.976	0.986
P	2.74	3.15	0.108	0.124
Q	6.91	6.99	0.272	0.275
R	4.17	4.42	0.164	0.174
S	2.08	2.13	0.082	0.084
T	3.28	3.63	0.129	0.143
U	26.75	26.90	1.053	1.059
V	3.94	4.04	0.155	0.159