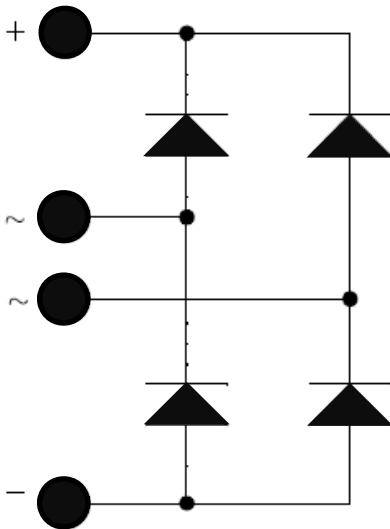


SiC SBD Rectifier Bridge Power Module

$V_{RRM} = 1200V$
 $I_{DAV} = 45A @ T_C = 125^{\circ}C$



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

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	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°C unless otherwise specified)

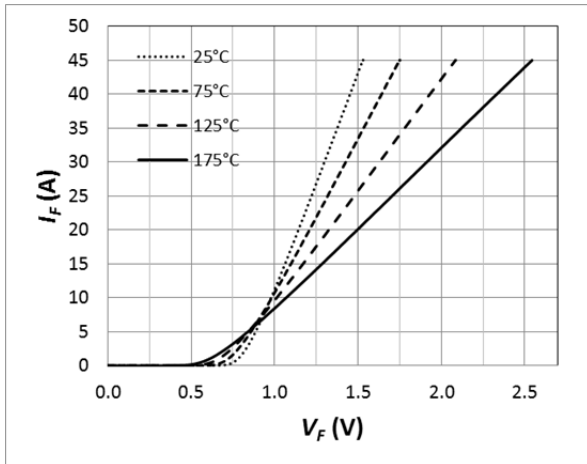
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Maximum peak repetitive reverse voltage	V _{RRM}		1200	--	--	V
Maximum Reverse Leakage Current	I _{RM}	V _R = 1200V, T _j = 25 °C	--	13	300	μA
		V _R = 1200V, T _j = 150 °C	--	1818	--	μA
Diode Forward Voltage	V _F	I _F = 45A, T _j = 25 °C	--	1.5	1.7	V
		I _F = 45A, T _j = 150 °C	--	2.3	--	V
Total Capacitive Charge	Q _C	VR=1200 V, IF<IF,max	--	156	--	nC
Switching Time	t _C	dI _F /dt = 200 A/μs, T _j = 175 °C	--	--	10	ns
Total Capacitance	C	V _R = 1V, f = 1 MHz	--	2700	--	pF
		V _R = 600V, f = 1 MHz	--	156	--	pF
		V _R = 1200V, f = 1 MHz	--	126	--	pF

Thermal and Package Characteristics (T_j=25°C unless otherwise specified)

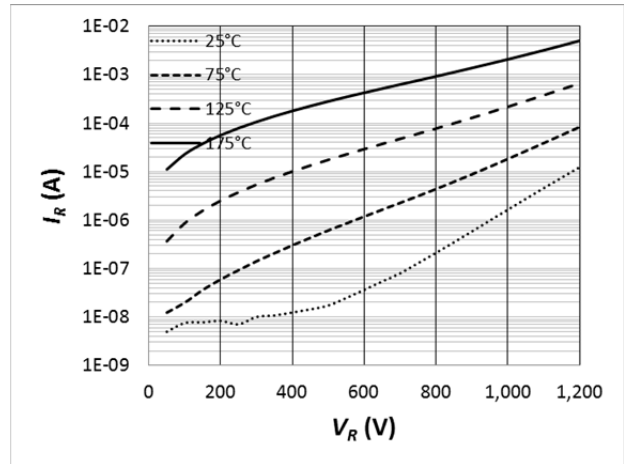
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Junction to Case Thermal Resistance	R _{THJC}	Per Diode	--	--	0.22	°C/W
Junction to Ambient Thermal Resistance	R _{THJA}	Per Diode	--	--	20	°C/W
Mounting Torque	M _d				1.5	N-m
Terminal Connection Torque	M _{dt}		1.3	--	1.5	N-m
Package Weight	W _t			32		g
Isolation Voltage	V _{ISOL}	I _{ISOL} < 1mA, 50/60Hz, t=1 min	2500	V		

Part Number and Pin assignment

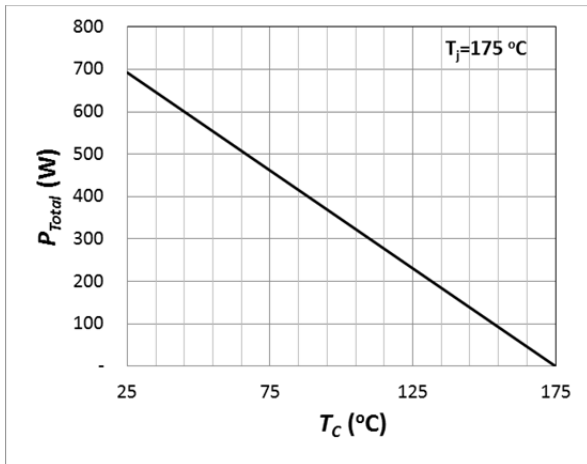
Part Number	Rating	Pin 1	Pin 2	Pin 3	Pin 4
GHXS045A120S-D1E	1200V, 45A	AC Input1	AC Input2	DC -	DC +



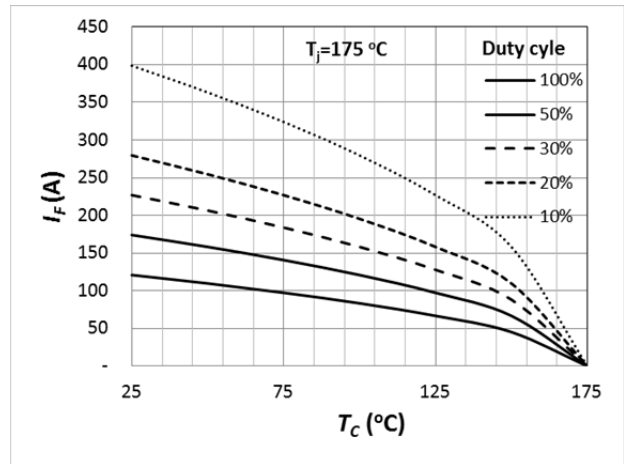
Forward Characteristics (parameterized on Tj)



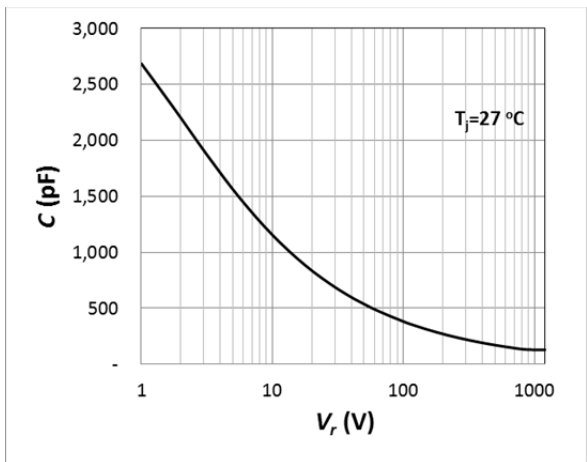
Reverse Characteristics (parameterized on Tj)



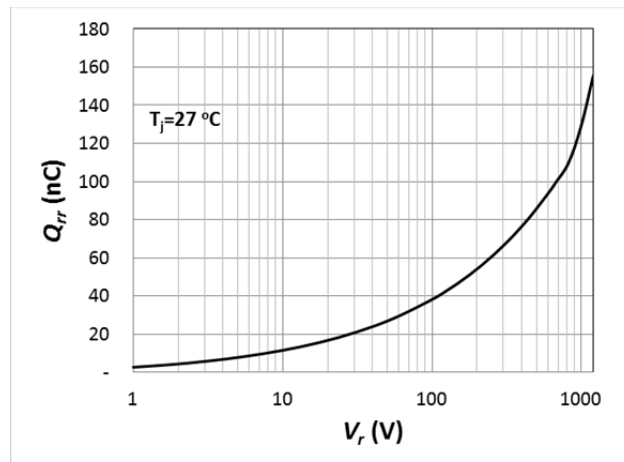
Power Derating



Current Derating

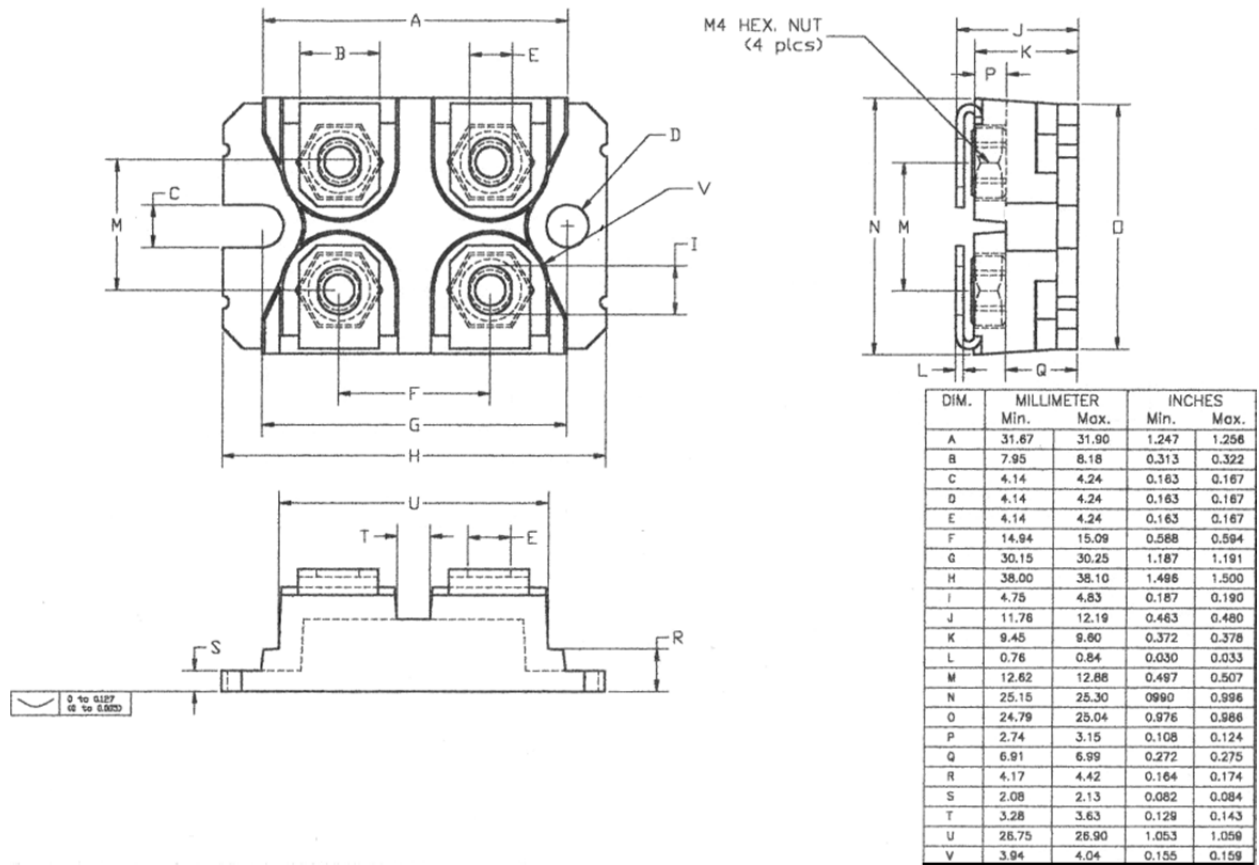


Capacitance Curve



Recovery Charge

SOT-227 Package Outline



Revision History

Date	Revision	Notes
9/6/2013	1.0	Initial release
6/3/2014	1.1	Add the part number, pin assignment table.

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Notes

- **RoHS Compliance**

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented March, 2013. RoHS Declarations for this product can be obtained from the Product Documentation sections of www.gptechgroup.com.

- **REACH Compliance**

REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact our office at GPTG Headquarters in Lake Forest, California to insure you get the most up-to-date REACH SVHC Declaration.

REACH banned substance information (REACH Article 67) is also available upon request.

- This product has not been designed or tested for use in, and is not intended for use in, applications implanted into the human body nor in applications in which failure of the product could lead to death, personal injury or property damage, including but not limited to equipment used in the operation of nuclear facilities, life-support machines, cardiac defibrillators or similar emergency medical equipment, aircraft navigation or communication or control systems, or air traffic control.
- To obtain additional technical information or to place an order for this product, please contact us. The information in this datasheet is provided by Global Power Technologies Group. GPTG reserves the right to make changes, corrections, modifications, and improvements of datasheet without notice.