

SiC SBD Rectifier Bridge

Power Module

$$V_{RRM} = 1200V$$

$$I_{DAV} = 30A @ T_C = 125^{\circ}C$$

Features

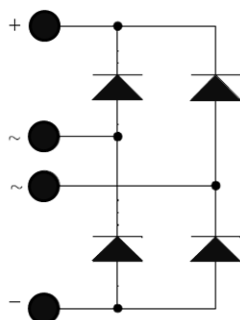
- **SiC Schottky Diode**
 - Zero reverse recovery
 - Zero forward recovery
 - Temperature Independent switching behavior
 - Positive temperature coefficient on V_F
- Low stray inductance
- High junction temperature operation

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}	$T_C = 25^{\circ}C$	60	A
		$T_C = 125^{\circ}C$	30	A
Non-repetitive Forward Surge Current	I_{FSM}	$tp=8.3\text{ ms}, T_C = 25^{\circ}C$	240	A
		$tp=10\text{ }\mu s, T_C = 25^{\circ}C$	600	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)

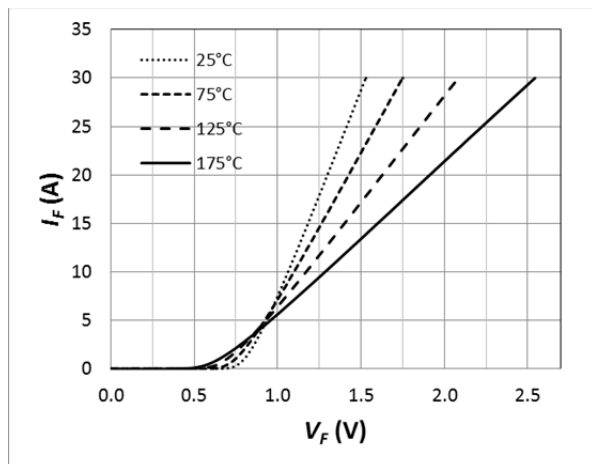
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Maximum peak repetitive reverse voltage	V_{RRM}		1200	--	--	V
Maximum Reverse Leakage Current	I_{RM}	$V_R = 1200\text{V}, T_j = 25^{\circ}\text{C}$	--	9	200	μA
		$V_R = 1200\text{V}, T_j = 150^{\circ}\text{C}$	--	1212	--	μA
Diode Forward Voltage	V_F	$I_F = 30\text{A}, T_j = 25^{\circ}\text{C}$	--	1.5	1.7	V
		$I_F = 30\text{A}, T_j = 150^{\circ}\text{C}$	--	2.3	--	V
Total Capacitive Charge	Q_C	$V_R=1200\text{ V}, I_F<I_{F,max}$	--	105	--	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	$V_R = 1\text{V}, f = 1\text{ MHz}$	--	1800	--	pF
		$V_R = 600\text{V}, f = 1\text{ MHz}$	--	105	--	pF
		$V_R = 1200\text{V}, f = 1\text{ MHz}$	--	86	--	pF

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

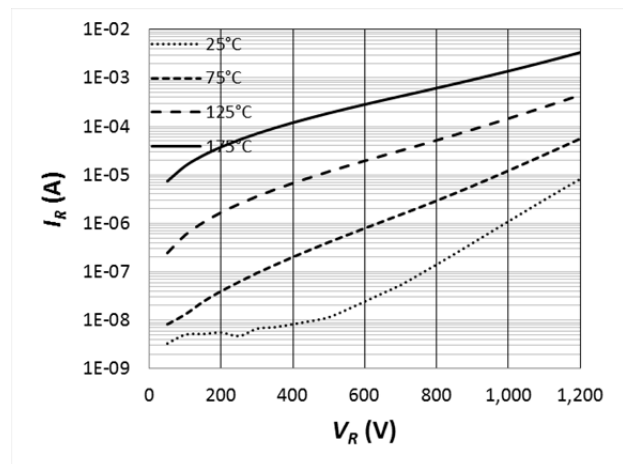
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Junction to Case Thermal Resistance	R_{THJC}	Per Diode	--	--	0.65	$^{\circ}\text{C}/\text{W}$
Junction to Ambient Thermal Resistance	R_{THJA}	Per Diode	--	--	TBD	$^{\circ}\text{C}/\text{W}$
Mounting Torque	M_d				1.5	N-m
Terminal Connection Torque	M_{dt}		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		

Part Number and Pin assignment

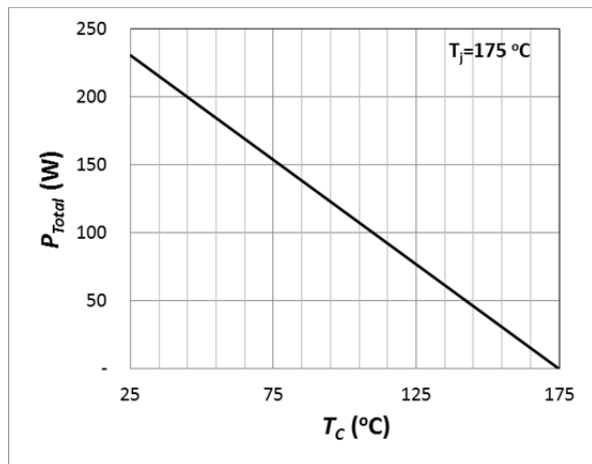
Part Number	Rating	Pin 1	Pin 2	Pin 3	Pin 4
GHXS030A120S-D1E	1200V, 30A	AC Input1	AC Input2	DC -	DC +



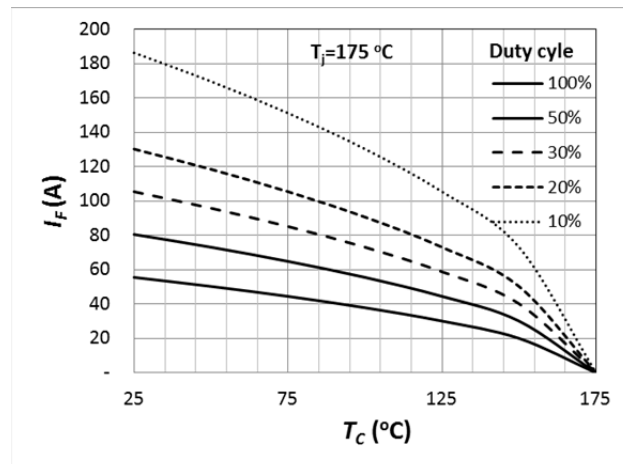
Forward Characteristics (parameterized on T_j)



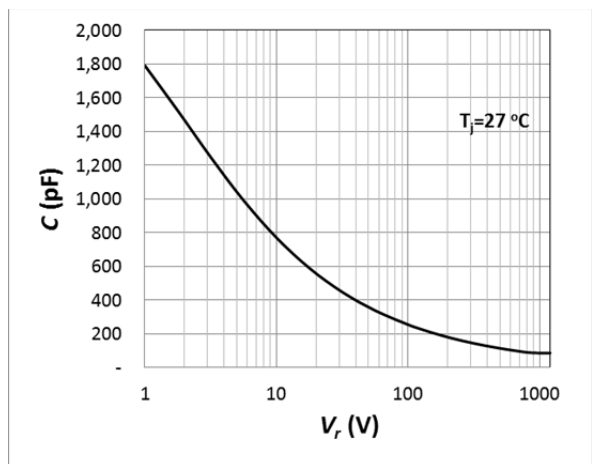
Reverse Characteristics (parameterized on T_j)



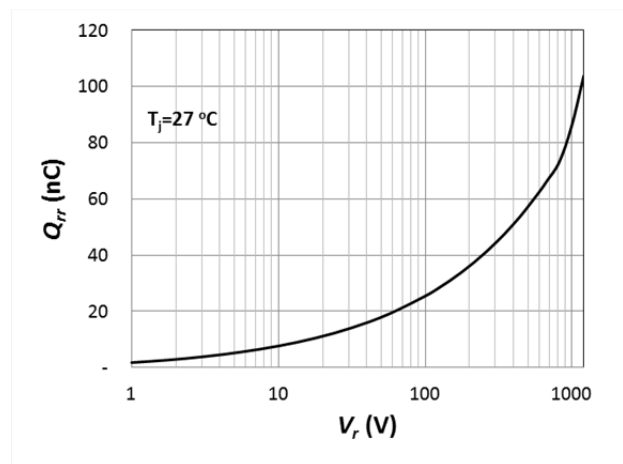
Power Derating



Current Derating

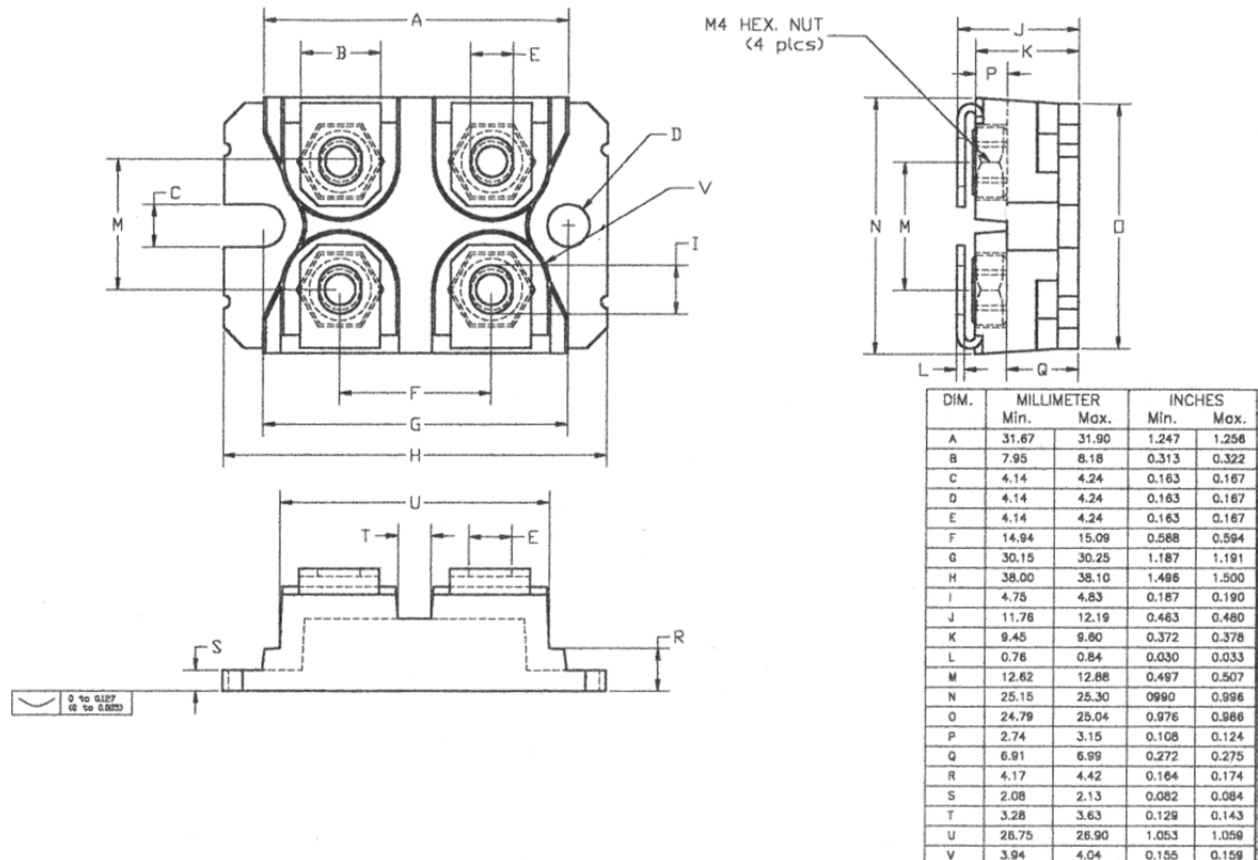


Capacitance Curve



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.
01/03/2020	1.2	Applied company name change

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.SemiQ.com.

REACH Compliance

REACH substances of high concern (SVHC) information is available for this product. Since the European Chemicals Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact our office at SemiQ 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.

SemiQ Inc., reserves the right to make changes to the product specifications and data in this document without notice. SemiQ products are sold pursuant to SemiQ's terms and conditions of sale in place at the time of order acknowledgement.

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.

SemiQ makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SemiQ assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using SemiQ products.

To obtain additional technical information or to place an order for this product, please contact us. The information in this datasheet is provided by SemiQ. SemiQ reserves the right to make changes, corrections, modifications, and improvements of datasheet without notice.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

SemiQ:

[GHXS030A120S-D1E](#)