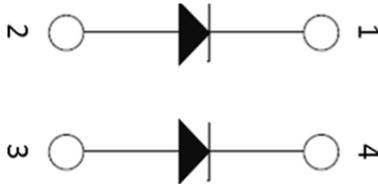


### SiC SBD Parallel Power Module

$$V_{RRM} = 600V$$

$$I_{DAV} = 20A @ T_C = 125^{\circ}C$$



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	$V_{RRM}$		600	V
Average Forward Current (per SBD)	$I_{DAV}$	$T_C = 25^{\circ}C$	46	A
		$T_C = 125^{\circ}C$	25	A
Non-repetitive Forward Surge Current	$I_{FSM}$	$tp=8.3\text{ ms}, T_C = 25^{\circ}C$	192	A
		$tp=10\ \mu\text{s}, T_C = 25^{\circ}C$	480	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)

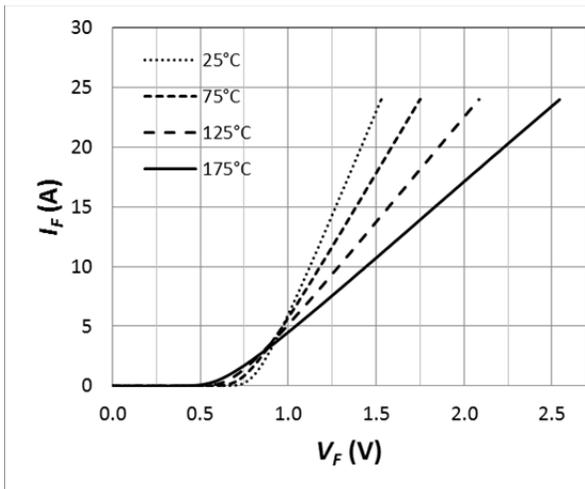
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Maximum peak repetitive reverse voltage	$V_{RRM}$		600	--	--	V
Maximum Reverse Leakage Current per diode	$I_{RM}$	$V_R = 600\text{V}, T_j = 25^{\circ}\text{C}$	--	2.6	200	$\mu\text{A}$
		$V_R = 600\text{V}, T_j = 150^{\circ}\text{C}$	--	970	--	$\mu\text{A}$
Diode Forward Voltage	$V_F$	$I_F = 20\text{A}, T_j = 25^{\circ}\text{C}$	--	1.5	1.7	V
		$I_F = 20\text{A}, T_j = 175^{\circ}\text{C}$	--	2.5	2.8	V
Total Capacitive Charge	$Q_C$	$V_R=600\text{V}, I_F<I_{F,max}$	--	50	--	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	$V_R = 1\text{V}, f = 1\text{MHz}$	--	974	--	pF
		$V_R = 300\text{V}, f = 1\text{MHz}$	--	86	--	pF
		$V_R = 600\text{V}, f = 1\text{MHz}$	--	82	--	pF

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

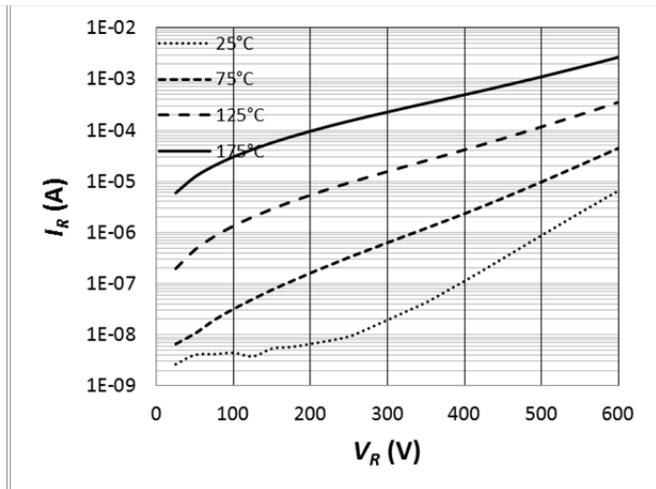
Parameters	Symbol	Conditions	Min	Typ	Max	Units
Junction to Case Thermal Resistance	$R_{THJC}$	Per Diode	--	--	0.77	$^{\circ}\text{C}/\text{W}$
Junction to Ambient Thermal Resistance	$R_{THJA}$	Per Diode	--	--	20	$^{\circ}\text{C}/\text{W}$
Mounting Torque	$M_d$				1.5	N-m
Terminal Connection Torque	$M_{dt}$		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

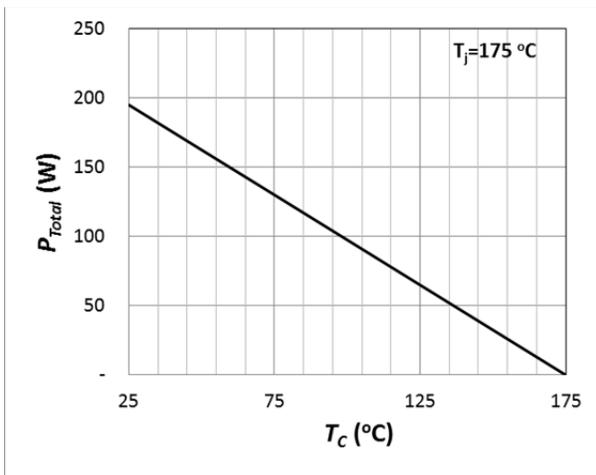
Part Number	Rating	Pin 1	Pin 2	Pin 3	Pin 4
GHXS020A060S-D3	600V, 20A	Cathode 1	Anode 1	Anode 2	Cathode 2



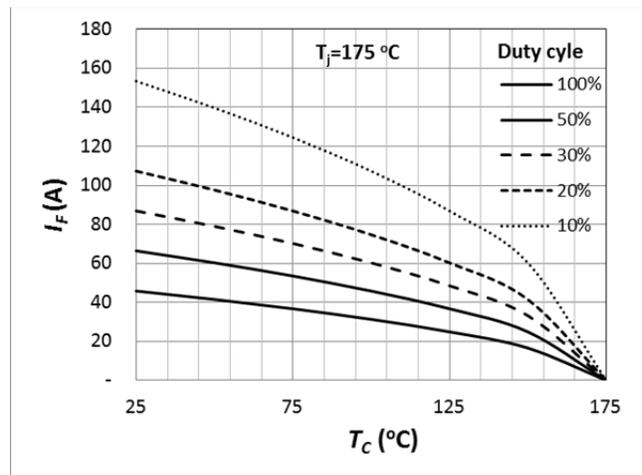
**Forward Characteristics (parameterized on Tj)**



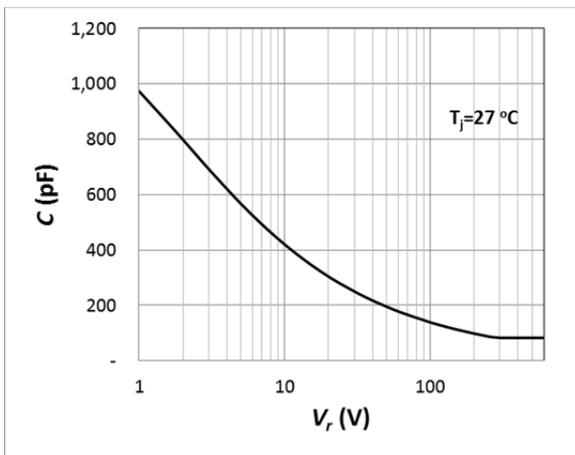
**Reverse Characteristics (parameterized on Tj)**



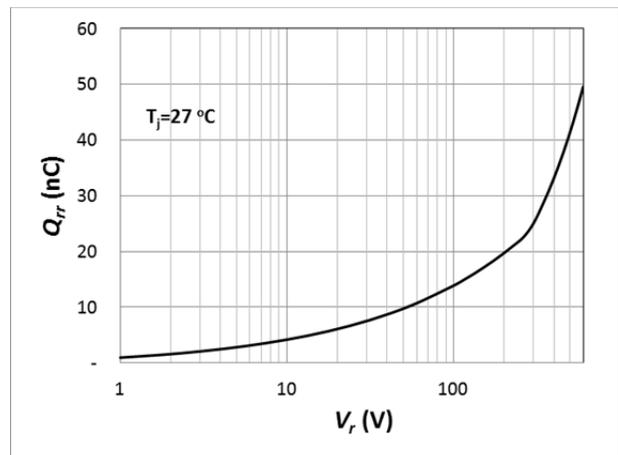
**Power Derating**



**Current Derating**

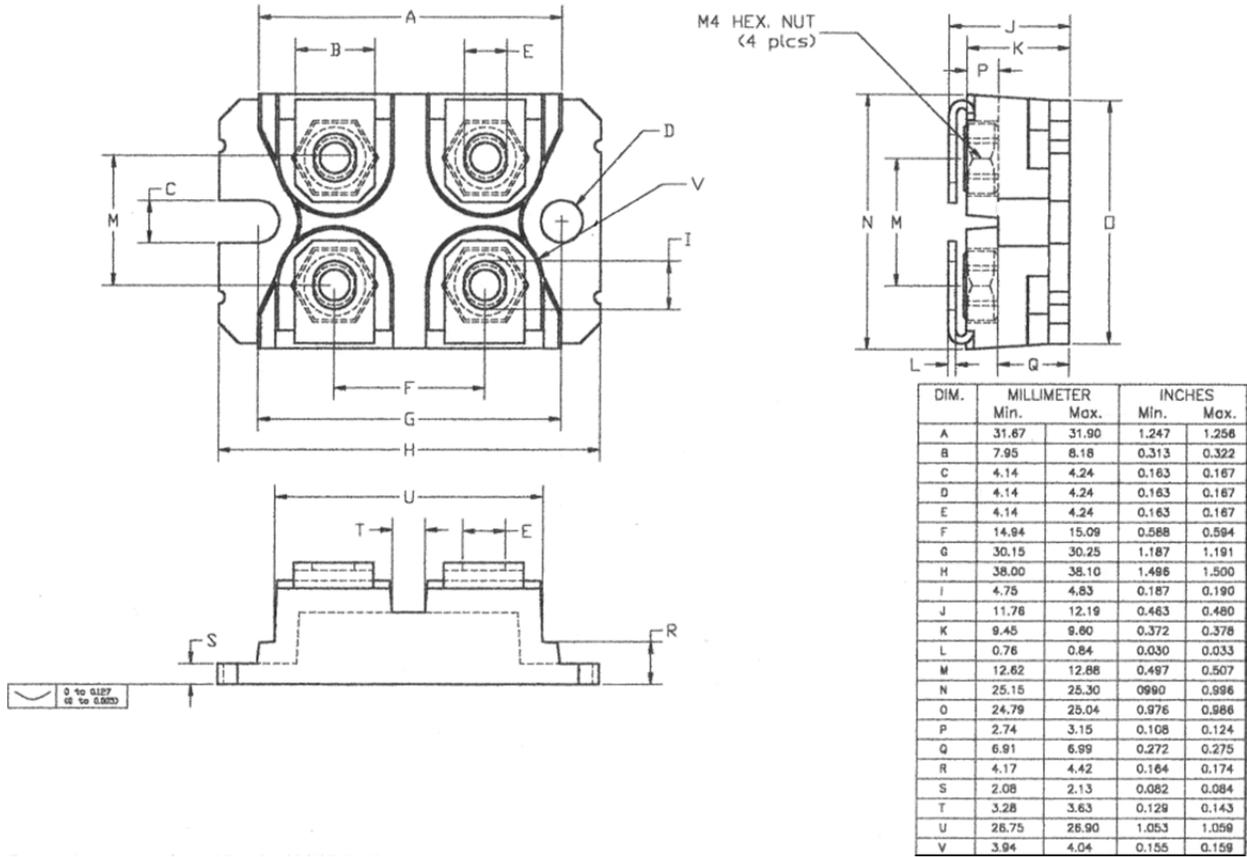


**Capacitance Curve**



**Recovery Charge**

**SOT-227 Package Outline**



### Revision History

Date	Revision	Notes
9/6/2013	1.0	Initial release
6/4/2014	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](http://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.

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