GHXS045A120S-D3

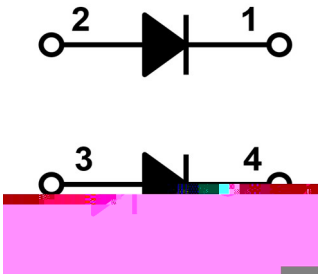
V_{DC}	1200 V
I_F	45 A
$T_{j,max}$	175 °C

1200V SiC Power Module
Dual Diode Pack

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
- All parts tested to greater than 1,400V

Package



Parallel

Benefits

- Outstanding performance at high frequency operation
- Low loss and low EMI noise
- Very rugged and easy mounting
- Internally isolated package (AlN)
- Low junction to case thermal resistance
- Easy paralleling due to positive T_C of V_F
- RoHS compliant

Part #	Package	Marking
GHXS045A120S-D3	SOT-227	GHXS045A120S-D3

Applications

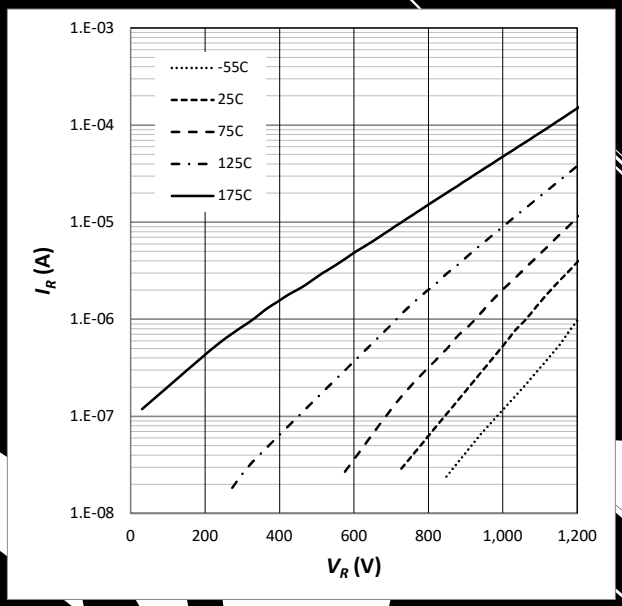
- Switched-mode power supply
- Induction heater
- Welding equipment
- Charging station

RoHS

Maximum Ratings, at T_j=25 °C, unless otherwise specified (per leg)

Characteristics	Symbol	Conditions	Values	Unit
Continuous forward current	I_{F*}	T_C=25 °C, T_j=175 °C	116	A
		T_C=146 °C, T_j=175 °C	45	
		T_C=150 °C, T_j=175 °C	40	
Surge non-repetitive forward current sine halfwave	I_{FSM}	T_C=25 °C, t_p=8.3 ms	340	A
		T_C=110 °C, t_p=8.3 ms	310	
Non-repetitive peak forward current	$I_{F,max}$	T_C=25 °C, t_p=10 µs	1700	A
^{2} value	$\int^2$	T_C=25 °C, t_p=8.3 ms	480	A^2s
		T_C=110 °C, t_p=8.3 ms	398	
Repetitive peak reverse voltage	V_{RRM}	T_j=25 °C	1200	V
Diode ruggedness		Turn-on slew rate, repetitive	200	V/ns
Power dissipation	P_{tot*}	T_C=25 °C	484	W
Operating junction temperature	T_j		-55…175	°C
Storage temperature	$T_{storage}$		-55…150	°C

Notes: *Typical Rth_{JC} used



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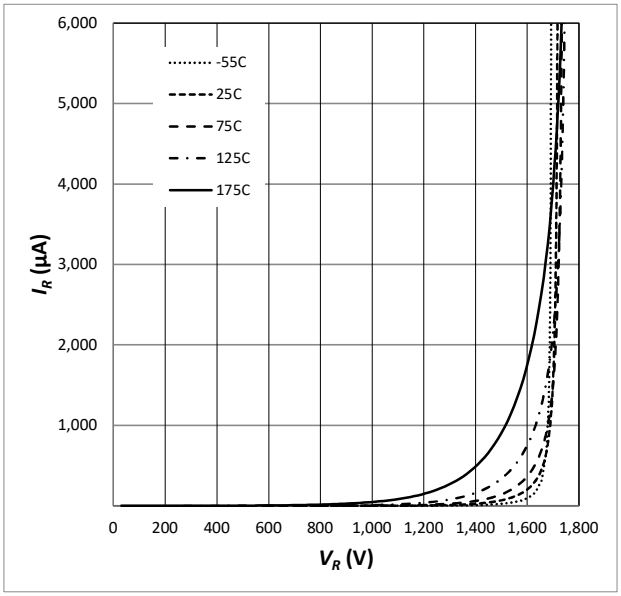


Fig. 3 Reverse Characteristics (parameterized on Tj)

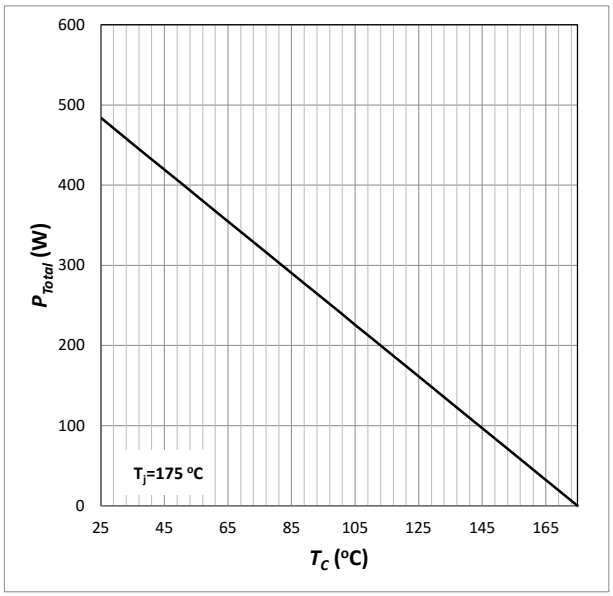


Fig. 4 Power Derating

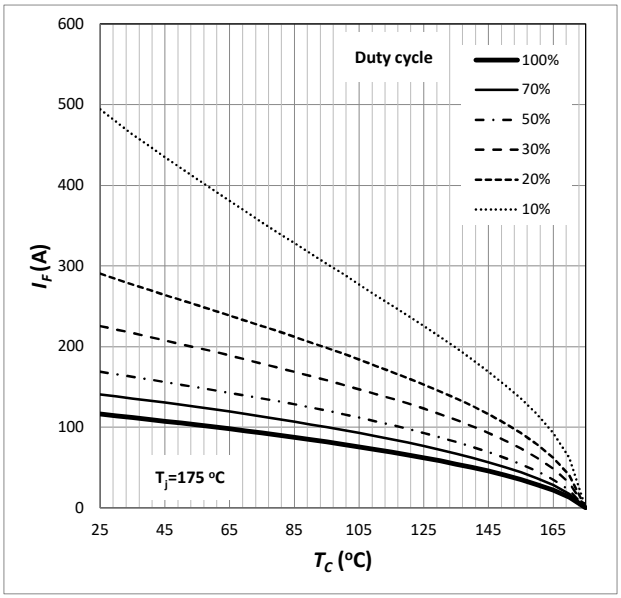


Fig. 5 Current Derating

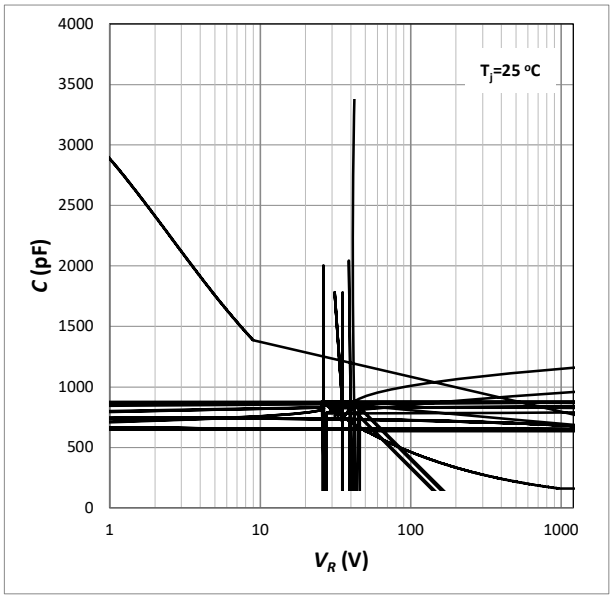


Fig. 6 Capacitance

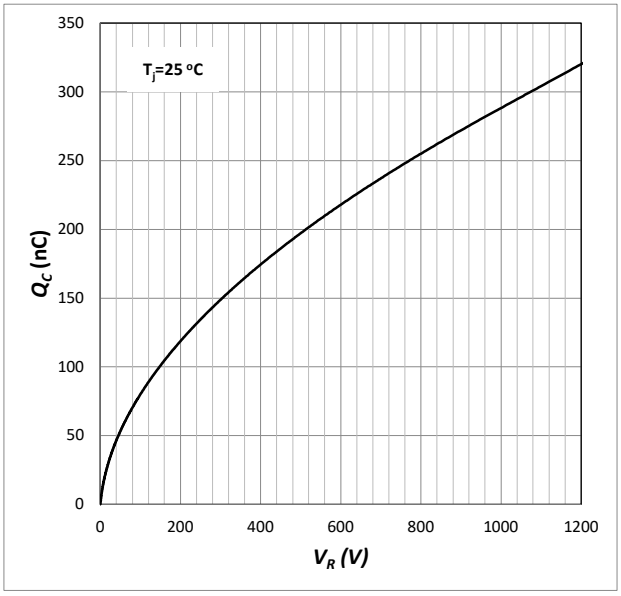


Fig. 7 Capacitive Charge

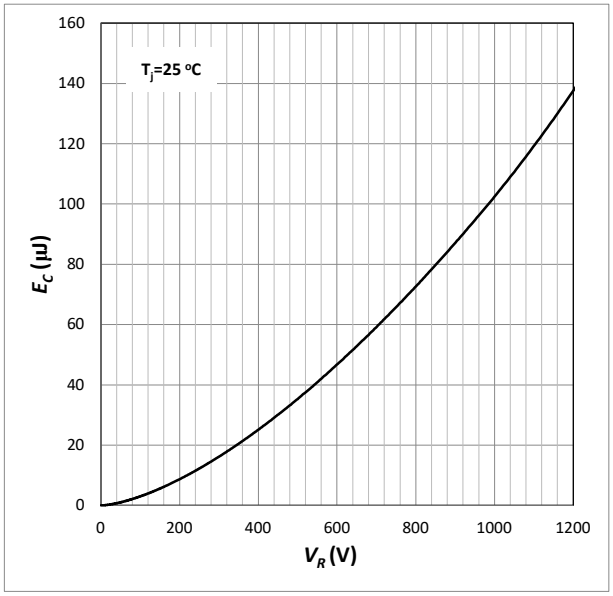


Fig. 8 Typical Capacitance Stored Energy

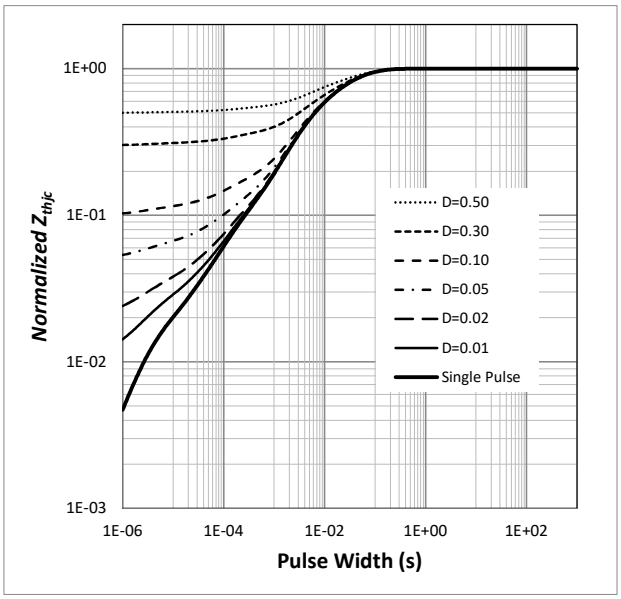
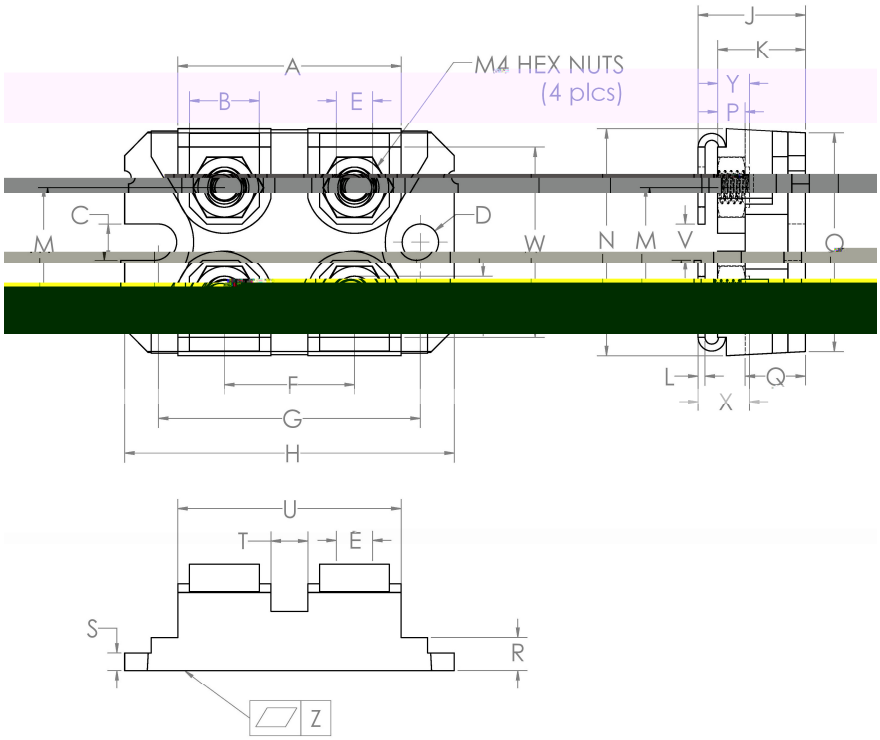


Fig. 9 Transient Thermal Impedance

Package Dimensions SOT-227



Sym	Millimeters		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	11.68	12.19	0.460	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	3.02	3.15	0.119	0.124
Q	6.71	6.96	0.264	0.274
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	3.86	4.24	0.152	0.167
W	20.55	26.90	0.809	0.814
X	5.45	5.85	0.215	0.230
Y	3.15	3.66	0.124	0.144
Z	0.00	0.13	0.000	0.005

Revision History

Date	Revision	Notes
9/6/2013	1.0	Initial release
6/4/2014	1.1	Add the part number, pin assignment table.
1/3/2020	1.2	Applied company name change.
11/12/2020	1.3	Updated parameters.

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.

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