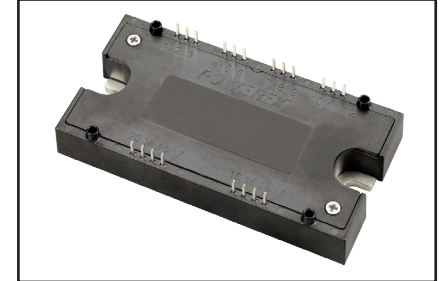
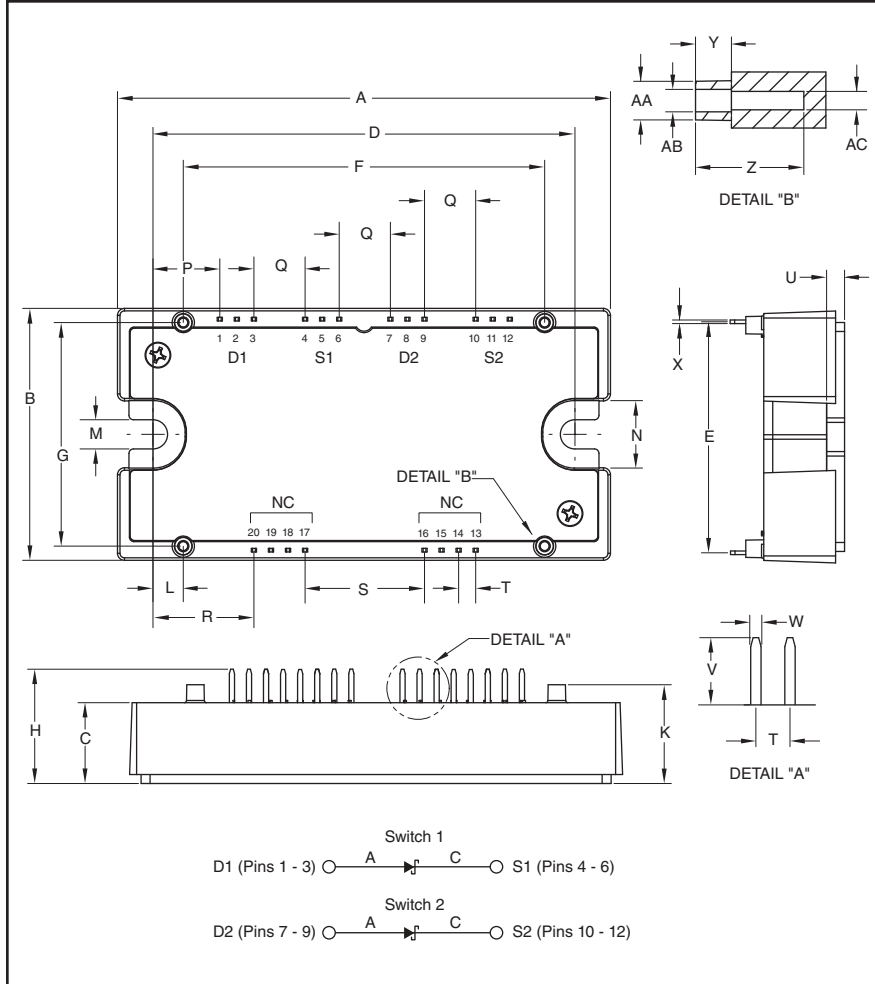


Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272
www.pwr.com

Split Dual SiC Super Fast Diode Module 100 Amperes/1200 Volts



Description:

Powerex Super Fast Recovery Dual Diode Modules are designed for use in applications requiring fast switching. The modules are isolated for easy mounting with other components on common heatsinks.

Features:

- Super Fast Switching Time
- RoHS Compliant
- Isolated Mounting
- Copper Baseplate
- Low Thermal Impedance
- 2500V Isolating Voltage
- Zero Reverse Recovery

Applications:

- Free Wheeling
- Welding and Plasma Cutting Machine

Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	4.32	109.8
B	2.21	56.1
C	0.71	18.0
D	3.70±0.02	94.0±0.5
E	2.026	51.46
F	3.17	80.5
G	1.96	49.8
H	1.00	25.5
K	0.87	22.0
L	0.266	6.75
M	0.26	6.5
N	0.59	15.0
P	0.586	14.89

Dimensions	Inches	Millimeters
Q	0.449	11.40
R	0.885	22.49
S	1.047	26.6
T	0.15	3.80
U	0.16	4.0
V	0.30	7.5
W	0.045	1.15
X	0.03	0.8
Y	0.16	4.0
Z	0.47	12.1
AA	0.17 Dia.	4.3 Dia.
AB	0.10 Dia.	2.5 Dia.
AC	0.08 Dia.	2.1 Dia.

QRD1210004
Split Dual SiC Super Fast Diode Module
 100 Amperes/1200 Volts

Absolute Maximum Ratings, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Ratings	Symbol	QRD1210004	Units
Repetitive Peak Reverse Blocking Voltage	V_{RRM}	1200	Volts
Non-Repetitive Peak Reverse Blocking Voltage	V_{RSM}	$V_{RRM} + 100$	Volts
DC Current, $T_C = 80^\circ\text{C}$ (Resistive load)	$I_F(\text{DC})$	100	Amperes
Peak Half Cycle Non-repetitive Surge Current ($t = 8.3\text{mS}$, 100% V_{RRM} Reapplied)	I_{FSM}	TBD	Amperes
I^2t for Fusing for One Cycle ($t = 8.3\text{mS}$, 100% V_{RRM} Reapplied)	I^2t	TBD	A^2sec
Operating Junction Temperature	T_j	-40 to 175	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to 150	$^\circ\text{C}$
Maximum Mounting Torque, M6 Mounting Screw	—	40	in-lb
Module Weight (Typical)	—	270	Grams
V Isolation (60 Hz, Circuit to Base, All Terminals Shorted, $t = 1\text{ sec}$)	V_{RMS}	2500	Volts

Electrical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

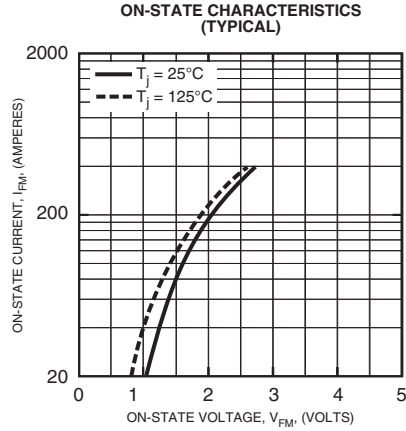
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Reverse Leakage Current	I_{RRM}	$T_j = 25\text{ }^\circ\text{C}$, Rated V_{RRM}	—	—	1.0	mA
		$T_j = 175\text{ }^\circ\text{C}$, Rated V_{RRM}	—	—	2.0	mA
On-State Voltage	V_{FM}	$T_j = 25\text{ }^\circ\text{C}$, $I_F = 100\text{A}$	—	1.5	1.8	Volts
		$T_j = 175\text{ }^\circ\text{C}$, $I_F = 100\text{A}$	—	2.2	3.0	Volts

Thermal and Mechanical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

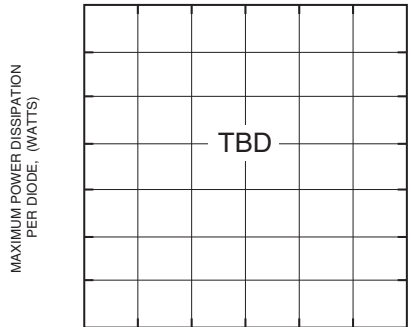
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case*	$R_{th(j-c)}$ Q	Per Diode	—	—	0.26	$^\circ\text{C/W}$
Contact Thermal Resistance, Case to Sink (Lubricated)*	$R_{th(c-s)}$	Per Module	—	—	0.04	$^\circ\text{C/W}$

* T_C , T_j measured point is just under the chip.

QRD1210004
Split Dual SiC Super Fast Diode Module
 100 Amperes/1200 Volts

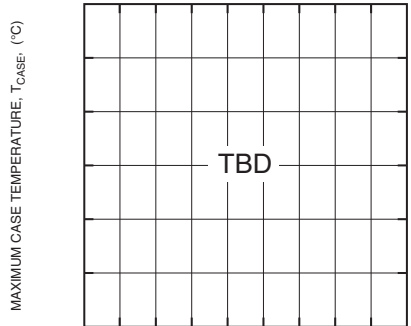


MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)

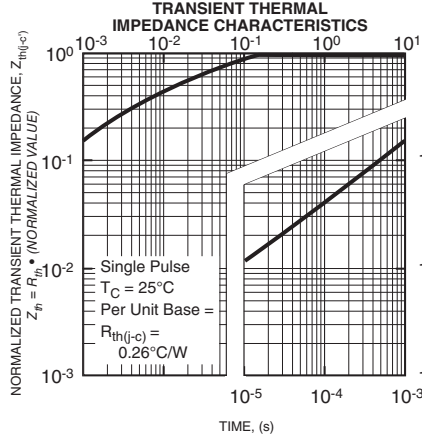


AVERAGE ON-STATE CURRENT, $I_{F(av)}$, (AMPERES)

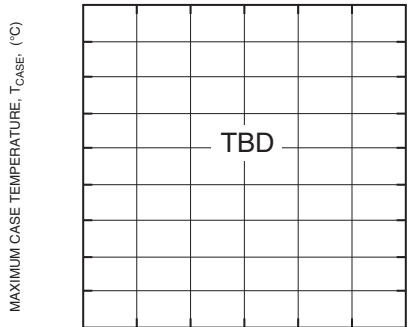
MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



AVERAGE ON-STATE CURRENT, $I_{F(av)}$, (AMPERES)

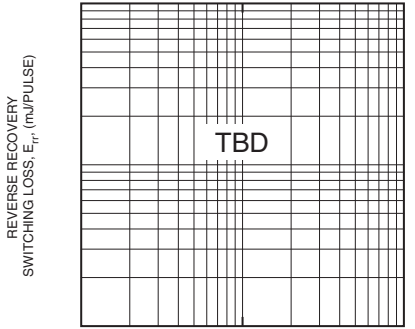


MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)



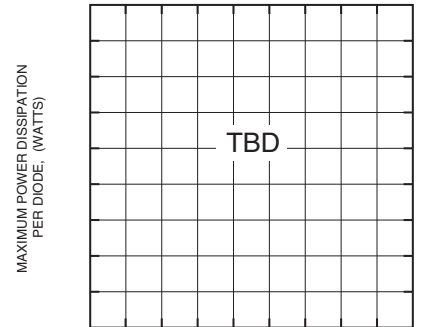
AVERAGE ON-STATE CURRENT, $I_{F(av)}$, (AMPERES)

REVERSE RECOVERY SWITCHING LOSS (TYPICAL)



ON-STATE CURRENT, I_{FM} , (AMPERES)

MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



AVERAGE ON-STATE CURRENT, $I_{F(av)}$, (AMPERES)