

QR_3310002
Fast Recovery Diode
Module

Description:

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

Features:

- Fast Recovery Time (1.2 μ s max.)
- Isolation Material – DBC Alumina
- Copper Baseplate
- Low Thermal Impedance
- 6000 V Isolated Mounting

Applications:

- Switching Power Supplies
- Inverters
- Choppers
- Welding Power Supplies
- Free Wheeling Diode
- High Frequency Rectifiers

Dimensions	Inches	Millimeters
A	3.70	94
B	1.34	34
C	1.40	35.6
D	3.15	80
E	0.67	17
F	0.28	6.99
G	0.67	17.1
H	0.91	23
J	0.36	9.0
K	1.18	30
L	0.216	5.5
M	#10-32	#10-32

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

Characteristics	Conditions	Symbol	QRD3310002	Units
			QRC3310002	
Repetitive Peak Reverse Blocking Voltage	-	V_{RRM}	3300	Volts
Non-Repetitive Peak Reverse Blocking Voltage	-	V_{RSM}	$V_{RRM} + 100$	Volts
Average Forward Current	$T_c=80^\circ\text{C}$	$I_{F(AV)}$	60	Amperes
	$T_c=25^\circ\text{C}$	$I_{F(AV)}$	90	Amperes
Forward Current	Pulse	I_{FM}	200	Amperes
Operating Junction Temperature	-	T_J	-40 to 150	$^\circ\text{C}$
Storage Temperature	-	T_{STG}	-40 to 150	$^\circ\text{C}$
Maximum Mounting Torque, #10-32 Mounting Screw	-	-	26	In.-lb.
Maximum Terminal Torque, #10-32 Terminal Screw	-	-	26	In.-lb.
Module Weight (Typical)	-	-	250	Grams
V Isolation	60 Hz, circuit to base, all terminals shorted, $t = 1 \text{ sec}$	V_{RMS}	6000	Volts

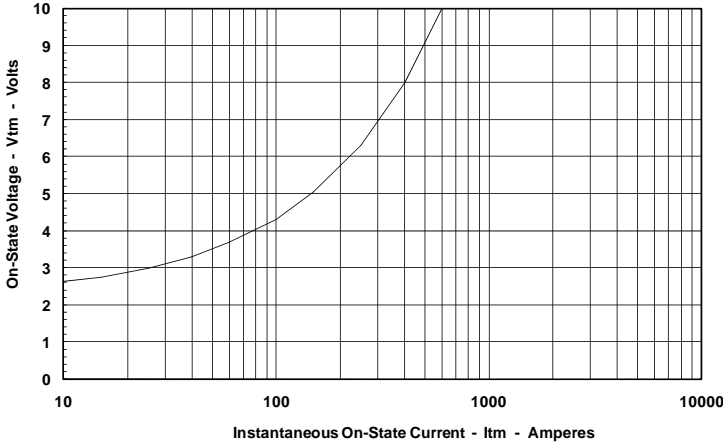
Electrical Characteristics, $T_J=25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Peak Reverse Leakage Current	I_{RRM}	Rated V_{RRM}	-	-	5	mA
Peak On-State Voltage	V_{FM}	$I_F=100\text{A}$	-	3.3	4.3	Volts
Reverse Recovery Time	t_{rr}	$I_F = 100\text{A}$, $di/dt = -200\text{A}/\mu\text{s}$	-	-	1.2	μs
Reverse Recovery Charge	Q_{rr}	$I_F = 100\text{A}$, $di/dt = -200\text{A}/\mu\text{s}$	-	25	-	μC

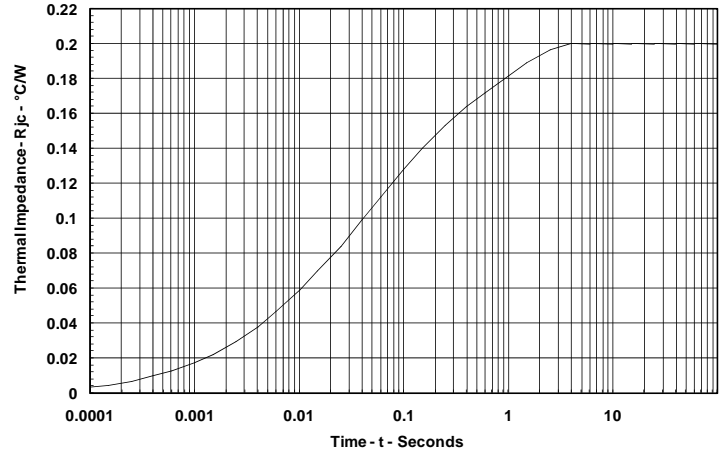
Thermal Characteristics, $T_J=25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Per Diode	-	-	0.20	$^\circ\text{C}/\text{Watt}$
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	Per Module	-	-	0.05	$^\circ\text{C}/\text{Watt}$

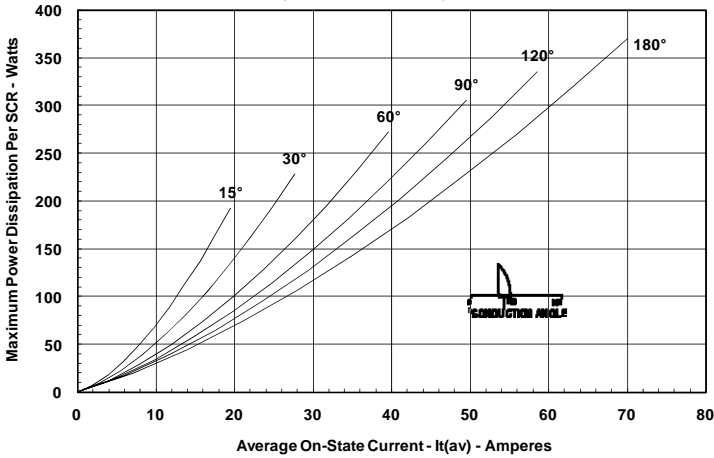
Maximum On-State Forward Voltage Drop
 ($T_j = 150\text{ C}$)



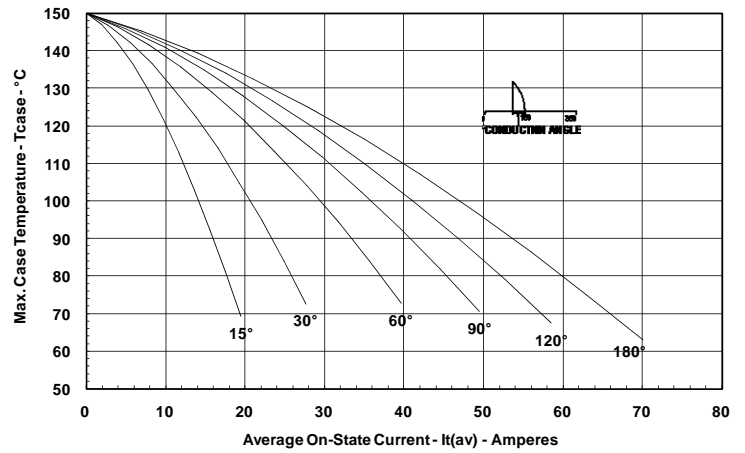
Maximum Transient Thermal Impedance
 (Junction to Case)



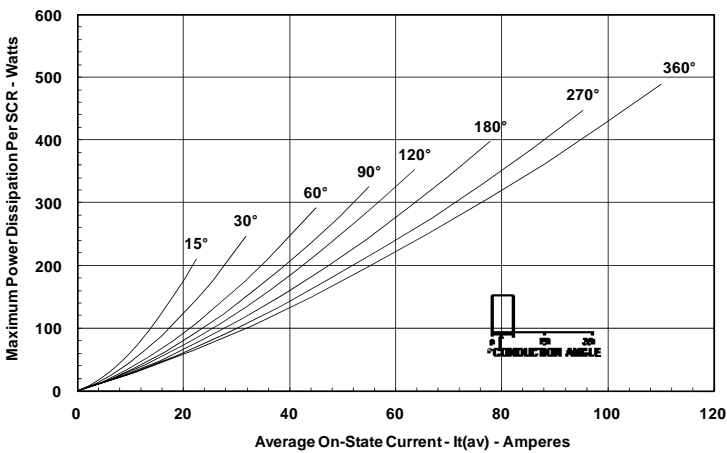
Maximum On-State Power Dissipation
 (Sinusoidal Waveform)



Maximum Allowable Case Temperature
 (Sinusoidal Waveform)



Maximum On-State Power Dissipation
 (Rectangular Waveform)



Maximum Allowable Case Temperature
 (Rectangular Waveform)

