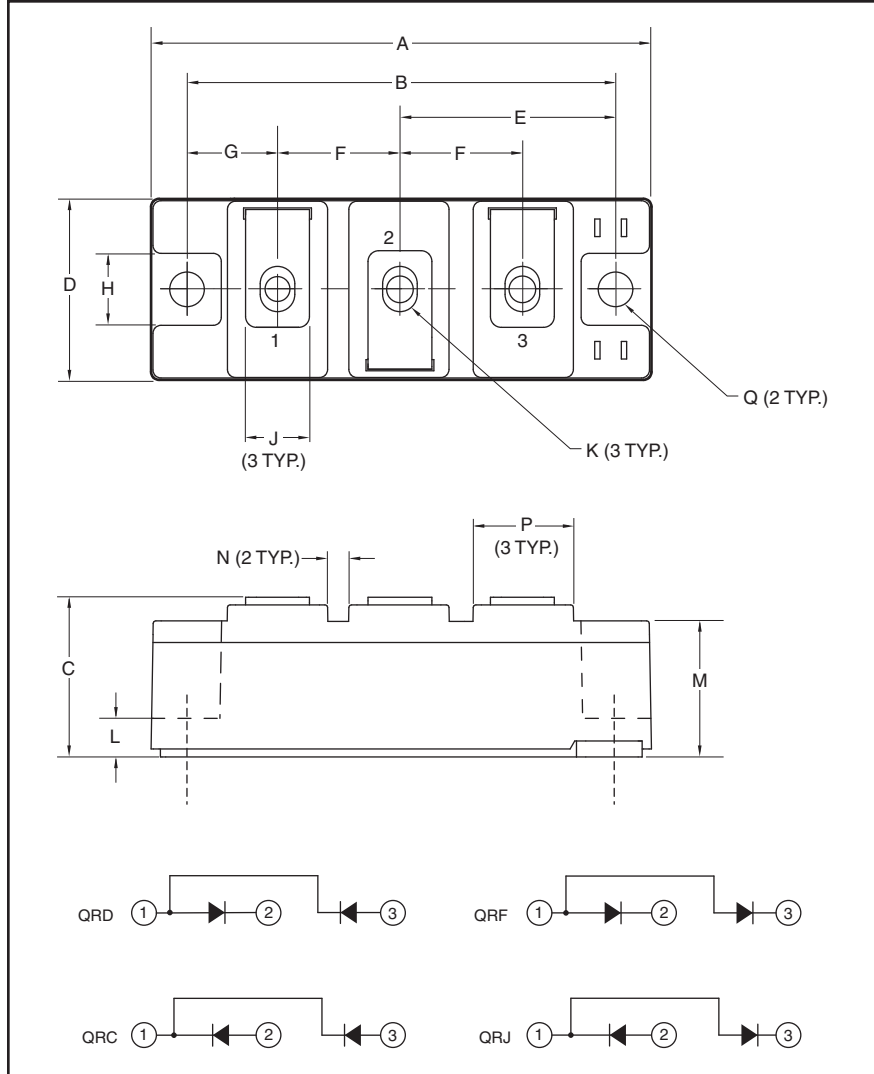


Fast Recovery Diode Modules 59 Amperes / 1400 Volts



Description:

Powerex 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:

- Fast Recovery Time
- RoHS Compliant
- Isolated Mounting
- Metal Baseplate
- Low Thermal Impedance
- 2500V Isolating Voltage

Applications:

- Free Wheeling Diode
- Welding and Plasma Cutting Machine
- Switching Power Supplies
- Inverters
- Choppers
- High Frequency Rectifiers

Outline Drawing and Circuit Diagram

Dimensions	Millimeters
A	94
B	80
C	30
D	34
E	40
F	23
G	17
H	13

Dimensions	Millimeters
J	12
K	M6
L	7.5
M	25.4
N	4
P	19
Q	6.5 Dia.

Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697-1800 (724) 925-7272
www.pwr.com

**Fast Recovery Diode Module
59 Amperes / 1400 Volts**

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

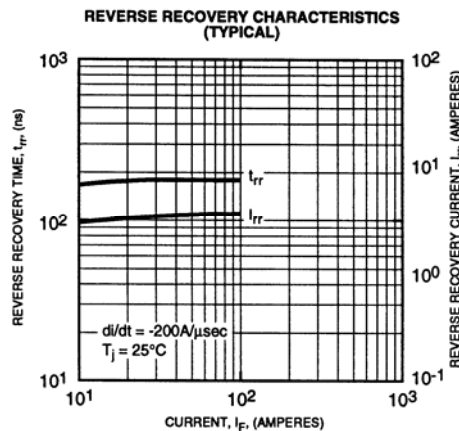
Characteristics	Conditions	Symbol	QRD1415R30	QRC1415R30	Units
			QRF1415R30		
Repetitive Peak Reverse Blocking Voltage	-	V_{RRM}	1400		Volts
Non-Repetitive Peak Reverse Blocking Voltage	-	V_{RSM}	$V_{RRM} + 100$		Volts
Average Forward Current	180° Conduction, $T_c=80^\circ\text{C}$	$I_{F(AV)}$	59		Amperes
	180° Conduction, $T_c=25^\circ\text{C}$		85		Amperes
Peak Half Cycle Non-Repetitive Surge Current	$t = 8.3\text{mS}$, 100% V_{RRM} Reapplied	I_{FSM}	1000		Amperes
I^2t for Fusing for One Cycle	$t = 8.3\text{mS}$, 100% V_{RRM} Reapplied	I^2t	4160		A^2sec
Operating Junction Temperature	-	T_J	-40 to 150		$^\circ\text{C}$
Storage Temperature	-	T_{STG}	-40 to 150		$^\circ\text{C}$
Maximum Mounting Torque, M6 Mounting Screw	-	-	26		In.-lb.
Maximum Terminal Torque, M6 Terminal Screw	-	-	26		In.-lb.
Module Weight (Typical)	-	-	180		Grams
V Isolation	60 Hz, circuit to base, all terminals shorted, $t = 1 \text{ sec}$	V_{RMS}	2500		Volts

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

Characteristics	Symbol		Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Per Diode	-	-	0.24	$^\circ\text{C/Watt}$
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	Per Module	-	-	0.04	$^\circ\text{C/Watt}$

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

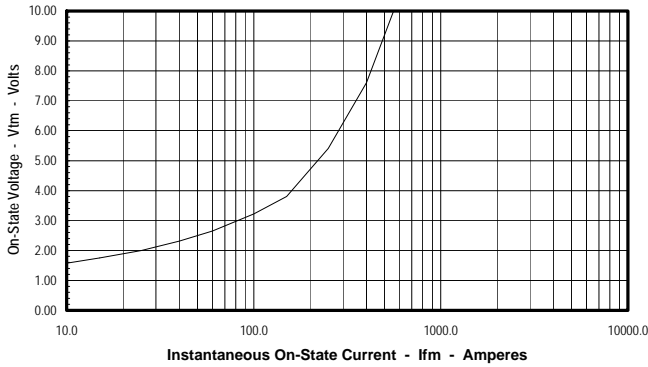
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max	Units
Peak Reverse Leakage Current	I_{RRM}	Rated V_{RRM}	-	-	1	mA
Peak On-State Voltage	V_{FM}	$I_F=150\text{A}$	-	-	3.8	Volts
Reverse Recovery Time	t_{rr}	$I_F = 150\text{A}$, $di/dt = -300\text{A}/\mu\text{s}$	-	-	300	ns
Reverse Recovery Charge	Q_{rr}	$I_F = 150\text{A}$, $di/dt = -300\text{A}/\mu\text{s}$	-	1.5	-	μC



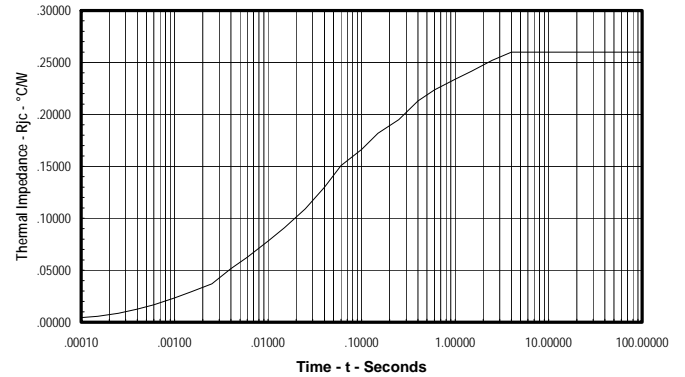
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Fast Recovery Diode Module 59 Amperes / 1400 Volts

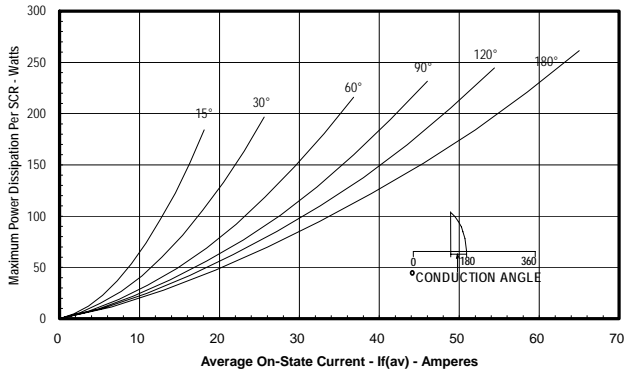
Maximum On-State Forward Voltage Drop
($T_j = 150^\circ\text{C}$)



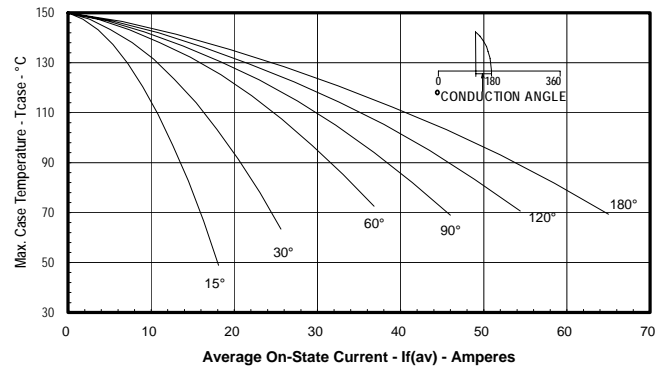
Maximum Transient Thermal Impedance
(Junction to Case)



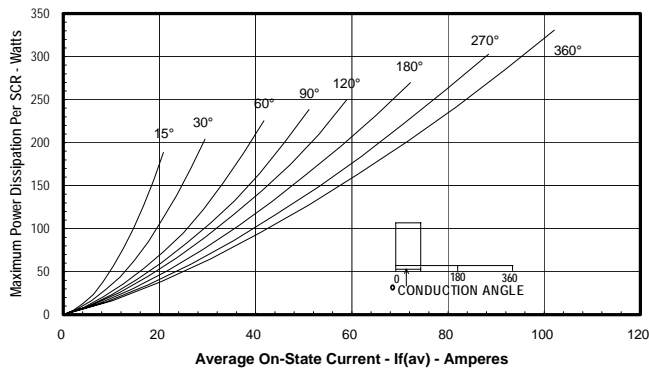
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)

