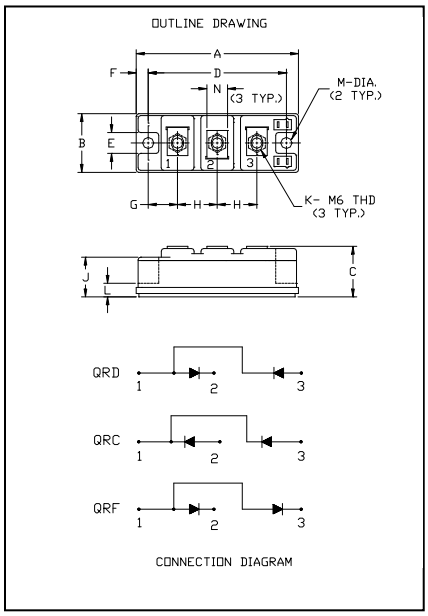
QR_1230T30

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

Fast Recovery Diode Module



QR_1230T30
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
- Isolated Mounting
- Metal Baseplate
- Low Thermal Impedance
- 3000 V isolating voltage

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

Dimensions	Inches	Millimeters
A	3.70	94.0
B	1.34	34.0
C	1.18	30.0
D	3.15	80.0
E	0.50	12.7
F	0.28	7.0
G	0.67	17.0
H	0.91	23.0
J	0.91	23.0
K	M6X1.0	M6X1.0
L	0.31	8.0
M	0.256 Dia.	6.5 Dia.
N	0.47	12.0

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Fast Recovery Diode Module

Absolute Maximum Ratings, T_J=25°C unless otherwise specified

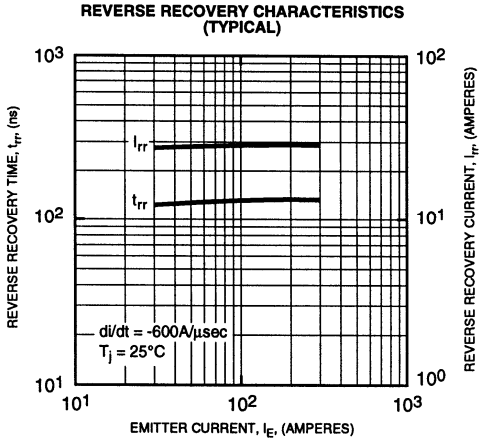
Characteristics	Conditions	Symbol	QRD1230T30 QRC1230T30 QRF1230T30	Units
Repetitive Peak Reverse Blocking Voltage	-	V_{RRM}	1200	Volts
Non-Repetitive Peak Reverse Blocking Voltage	-	V_{RSM}	V_{RRM} + 100	Volts
Average Forward Current	180° Conduction, Tc=80°C	$I_{F(AV)}$	149	Amperes
	180° Conduction, Tc=25°C		193	Amperes
Peak Half Cycle Non-Repetitive Surge Current	t = 8.3mS, 100%V_{RRM} Reapplied	I_{FSM}	2500	Amperes
I^2t for Fusing for One Cycle	t = 8.3mS, 100%V_{RRM} Reapplied	I^2t	26040	A^2sec
Operating Junction Temperature	-	T_J	-40 to 150	°C
Storage Temperature	-	T_{STG}	-40 to 150	°C
Maximum Mounting Torque, M6 Mounting Screw	-	-	26	In.-lb.
Maximum Terminal Torque, M6 Terminal Screw	-	-	26	In.-lb.
Module Weight (Typical)	-	-	220	Grams
V Isolation	60 Hz, circuit to base, all terminals shorted, t = 60 sec	V_{RMS}	3000	Volts

Thermal Characteristics, T_J=25°C unless otherwise specified

Characteristics	Symbol		Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{\Theta JC}$	Per Diode	-	-	0.12	°C/Watt
Thermal Resistance, Case to Sink Lubricated	$R_{\Theta CS}$	Per Module	-	-	0.04	°C/Watt

Electrical Characteristics, T_J=25°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=300A	-	-	3.5	Volts
Reverse Recovery Time	trr	I_F = 300A, di/dt = –600A/μs	-	-	250	ns
Reverse Recovery Charge	Qrr	I_F =300A, di/dt = –600A/μs	-	2.23	-	μC



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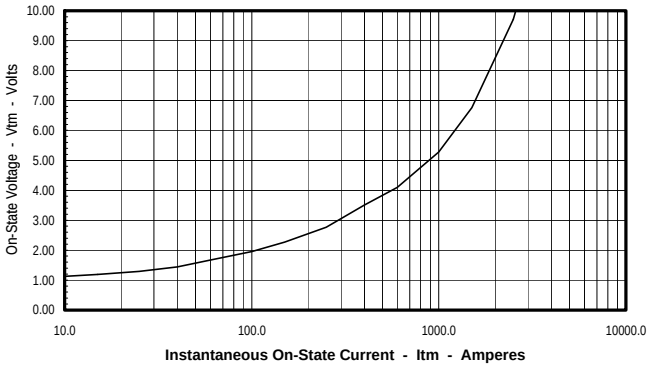
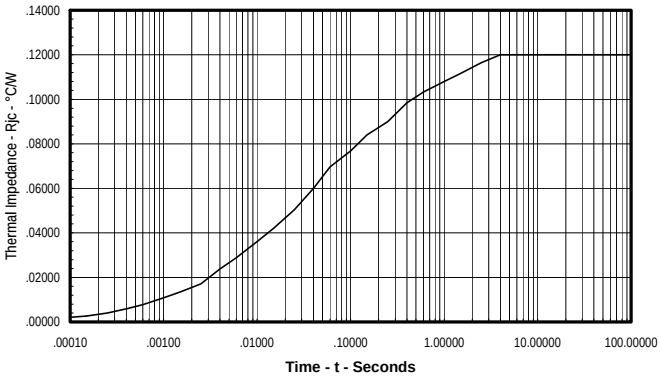
Fast Recovery Diode Module

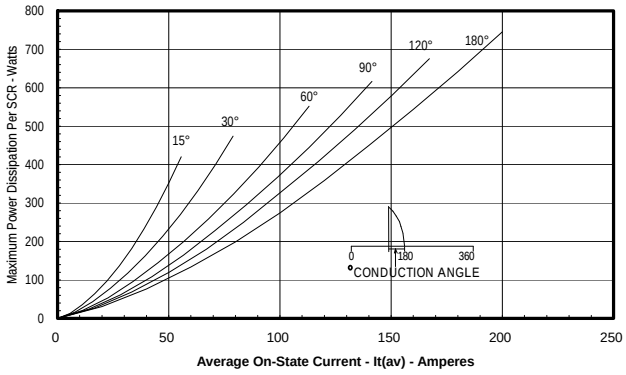
Maximum On-State Forward Voltage Drop
(Tj = 150 °C)



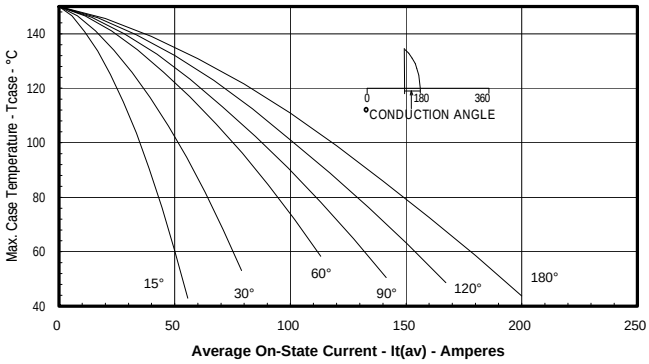
Maximum Transient Thermal Impedance
(Junction to Case)



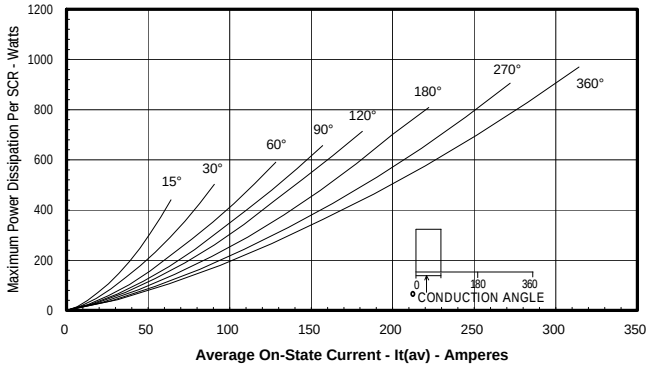
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



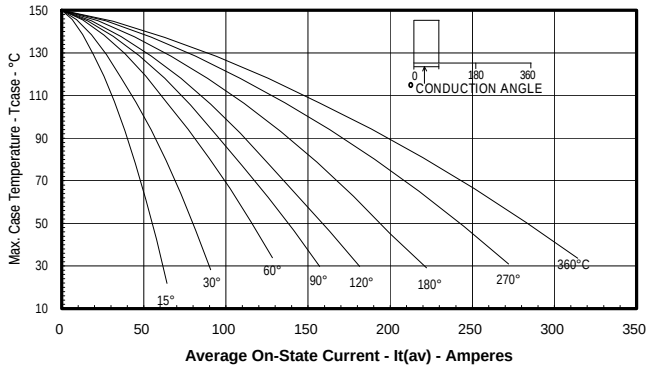
Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)



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