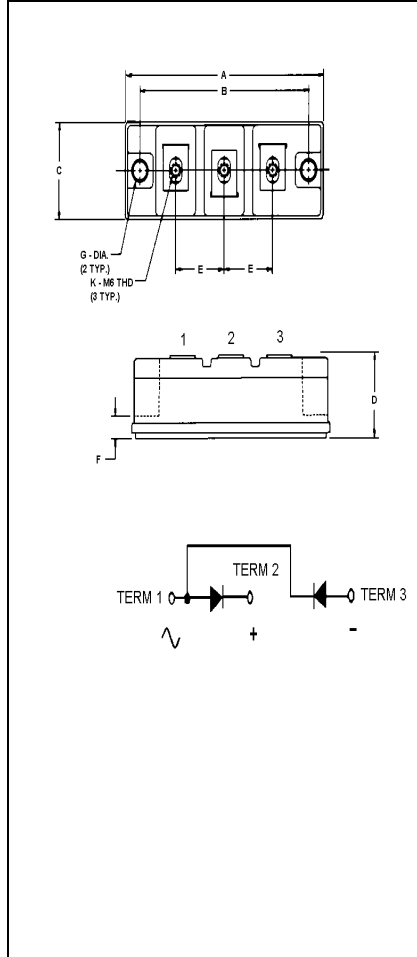


Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (724) 925-7272

### POW-R-BLOK™ Dual DIODE Module 120 Amperes / Up to 2400 Volts



#### Description:

Powerex Dual Diode Modules are designed for use in applications requiring rectification and isolated packaging. The modules are isolated for easy mounting with other components on a common heatsink.

#### Features:

- Electrically Isolated Heatsinking
- Metal Baseplate
- Low Thermal Impedance for Improved Current Capability
- UL Recognition Pending

#### Applications:

- Battery Supplies
- Bridge Circuits
- AC & DC Motor Control
- Rectifiers

#### Dimensions

Dimension	Inches		Metric	
	Min.	Max.	Min.	Max.
A	3.681	3.721	93.50	94.51
B	3.145	3.155	79.88	80.14
C	1.329	1.349	33.76	34.26
D	1.160	1.200	29.51	30.53
E	.901	.911	22.88	23.14
F	.305	.325	7.75	8.26
K			M6 x 0.8	
GØ	.251	.261	6.38	6.63

Note: Dimensions are for reference only.

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**QRD2412001**  
**Diode POW-R-BLOK™ Modules**  
120 Amperes / Up to 2400 Volts

**Absolute Maximum Ratings**

Characteristics	Conditions	Symbol		Units
Repetitive Peak Reverse Blocking Voltage		$V_{RRM}$	up to 2400	V
Non-Repetitive Peak Reverse Blocking Voltage		$V_{RSM}$	$V_{RRM} + 100$	V
RMS Forward Current		$I_{F(RMS)}$	195	A
Average Forward Current	180° Conduction, $T_C=106^{\circ}C$	$I_{F(AV)}$	120	A
Peak Half Cycle Non-Repetitive Surge Current	$t = 8.3mS, 100\%V_{RRM}$ reapplied	$I_{FSM}$	3500	A
Peak Half Cycle Non-Repetitive Surge Current	$t = 10mS, 100\%V_{RRM}$ reapplied	$I_{FSM}$	3350	A
$I^2t$ for Fusing for One Cycle	$t = 8.3mS, 100\%V_{RRM}$ reapplied	$I^2t$	52,000	$A^2\text{-sec}$
$I^2t$ for Fusing for One Cycle	$t = 10mS, 100\%V_{RRM}$ reapplied	$I^2t$	56,000	$A^2\text{-sec}$
Operating Junction Temperature		$T_J$	-40 to +150	$^{\circ}C$
Storage Temperature		$T_{stg}$	-40 to +150	$^{\circ}C$
Maximum Mounting Torque, M6 Mounting Screw	--	--	4 to 6	Nm
Maximum Terminal Torque, M6 Terminal Screw	--	--	4 to 6	Nm
Module Weight, Typical	--	--	500 17.8	g oz
V Isolation		$V_{RMS}$	6000	Vrms

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**QRD2412001**  
**Diode POW-R-BLOK™ Modules**  
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**Electrical and Thermal Characteristics, T<sub>J</sub>=25°C unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max	Units
Peak Reverse Leakage Current	I <sub>RRM</sub>	T <sub>J</sub> =150, Rated V <sub>RRM</sub>			50	mA
Peak On-State Voltage	V <sub>FM</sub>	I <sub>FM</sub> =500A			1.55	V
Threshold Voltage, Low-level	V <sub>(TO)1</sub>	T <sub>J</sub> = 150°C, I = 15%I <sub>F(AV)</sub> to πI <sub>F(AV)</sub>				V
Slope Resistance, Low-level	r <sub>T1</sub>					mΩ
Threshold Voltage, High-level	V <sub>(TO)2</sub>	T <sub>J</sub> = 150°C, I = πI <sub>F(AV)</sub> to I <sub>FSM</sub>				V
Slope Resistance, High-level	r <sub>T2</sub>					mΩ
V <sub>FM</sub> Coefficients, Full Range		T <sub>J</sub> = 150°C, I = 15%I <sub>F(AV)</sub> to I <sub>FSM</sub>		A = 0.9591 B = -3.377 C = 9.9197 D = 5.3171		
		V <sub>FM</sub> =A + B Ln I <sub>FM</sub> + C I <sub>FM</sub> + D Sqrt I <sub>FM</sub>				

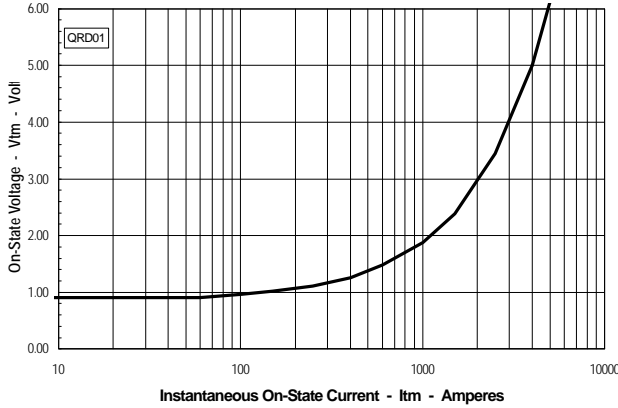
**Thermal Characteristics**

Characteristics	Symbol	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	-----	-----	0.10	°C/W
				0.20	°C/W
Thermal Resistance, Case to Sink Lubricated	R <sub>θCS</sub>	-----	-----	0.035	°C/W

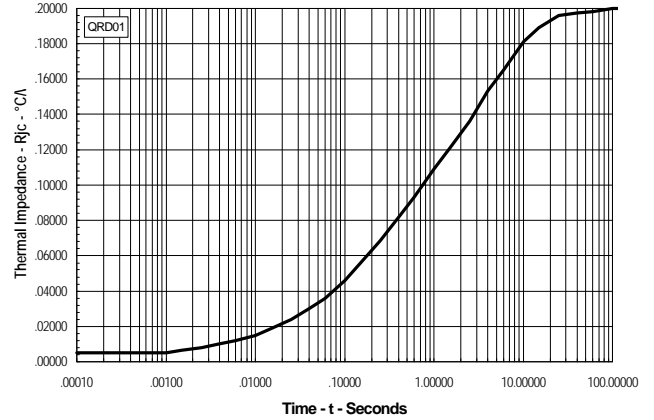
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## POW-R-BLOK Dual Diode Module 120 Amperes/ Up to 2400 Volts

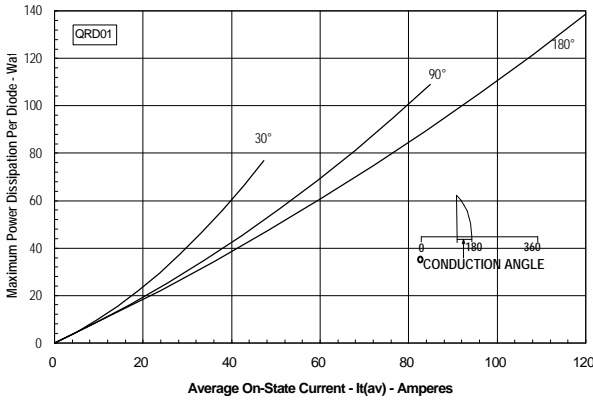
**Maximum On-State Forward Voltage Drop**  
( $T_j = 150^\circ\text{C}$ )



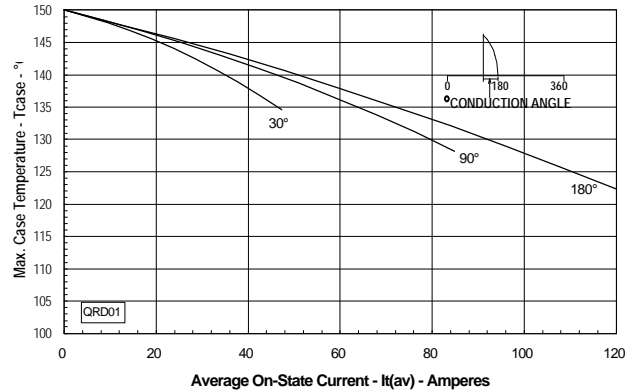
**Maximum Transient Thermal Impedance**  
(Junction to Case)



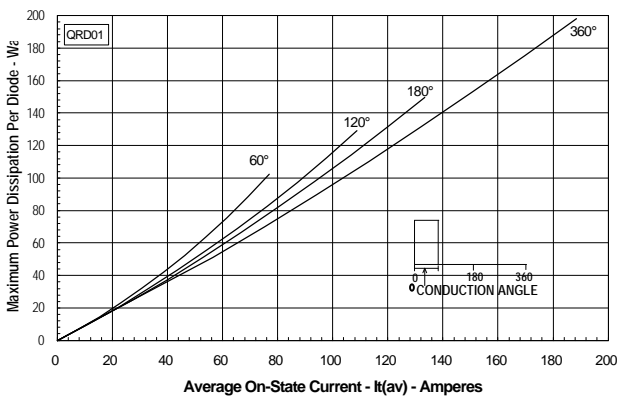
**Maximum On-State Power Dissipation**  
(Sinusoidal Waveform)



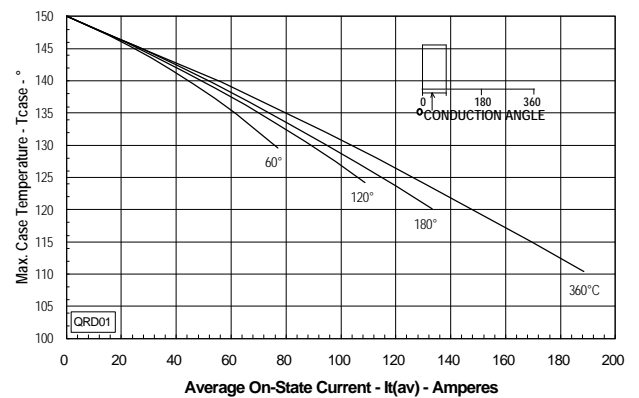
**Maximum Allowable Case Temperature**  
(Sinusoidal Waveform)



**Maximum On-State Power Dissipation**  
(Rectangular Waveform)



**Maximum Allowable Case Temperature**  
(Rectangular Waveform)



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