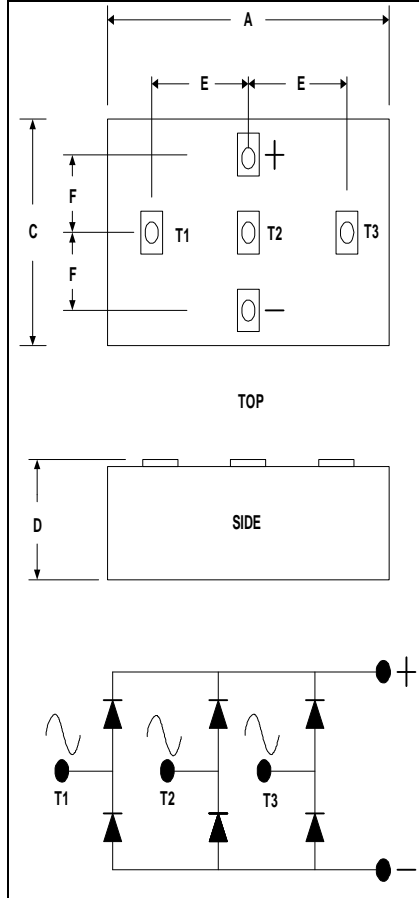


Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (724) 925-7272

3 Phase Diode Bridge Module
120 Amp/Phase Up to 2400 Volts



Description:

Powerex 3 Phase 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 Recognized

Applications:

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

Dimensions

Dimension	Inches		Metric	
	Min.	Max.	Min.	Max.
A		5.51		140
B				
C		5.12		130
D		1.50		38
E				
F				
GØ				

Note: Dimensions are for reference only.



Preliminary

QRE2412001
120 Amp/Phase

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

QRD2412002

3 Phase Diode Bridge POW-R-BLOK™ Modules

120 Amperes /Phase 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/Phase		$I_{F(RMS)}$	195	A
Average Forward Current/Phase	180° Conduction, $T_C=106^{\circ}C$	$I_{F(AV)}$	120	A
Peak Half Cycle Non-Repetitive Surge Current/Phase	$t = 8.3mS, 100\%V_{RRM}$ reapplied	I_{FSM}	3500	A
Peak Half Cycle Non-Repetitive Surge Current/Phase	$t = 10mS, 100\%V_{RRM}$ 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	--	--	2.84 to 3.43	Nm
Maximum Terminal Torque, M8 Terminal Screw	--	--	6.67 to 8.24	Nm
Module Weight, Typical	--	--	1.5 3.3	kg lb.
V Isolation		V_{RMS}	6000	Vrms



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QRD2412002**3 Phase Diode Bridge POW-R-BLOK™ Modules**

120 Amperes /Phase Up to 2400 Volts

Electrical and Thermal Characteristics, T_J=25°C unless otherwise specified

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

Thermal Characteristics

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	R _{θJC}	Per Module, both conducting Per Diode, both conducting	-----	-----	0.20	°C/W °C/W
Thermal Resistance, Case to Sink Lubricated	R _{θCS}	Per Module	-----	-----		°C/W



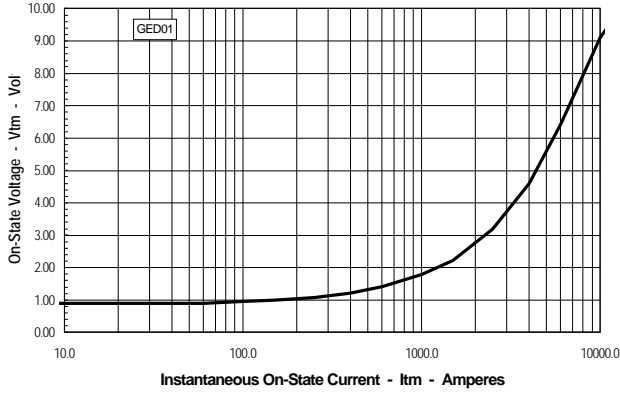
Preliminary

QRE2412001 120 Amp/Phase 3 Phase Diode Bridge Module

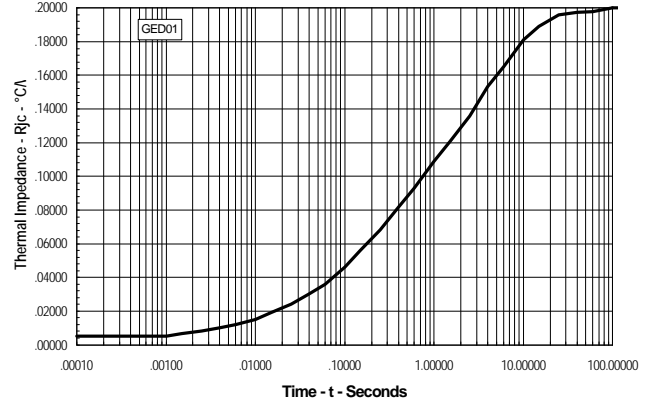
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POW-R-BLOK 3 Phase Diode Bridge Module
120 Amperes/Phase up to 2400 Volts

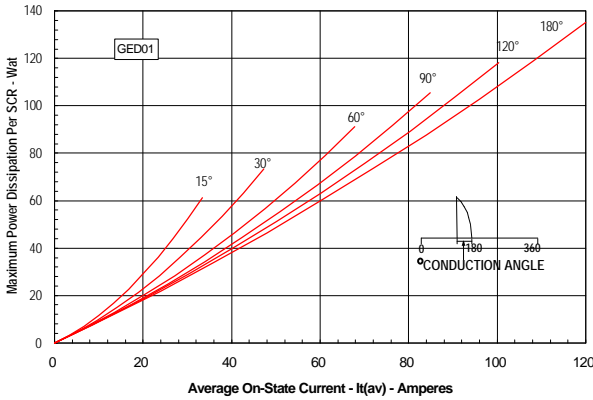
Maximum On-State Forward Voltage Drop
($T_j = 150^\circ\text{C}$)



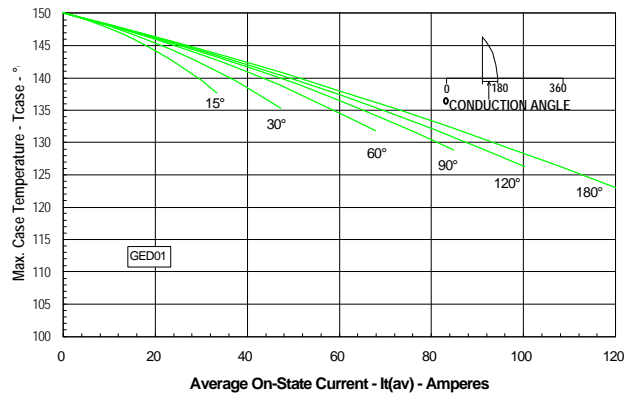
Maximum Transient Thermal Impedance
(Junction to Case)



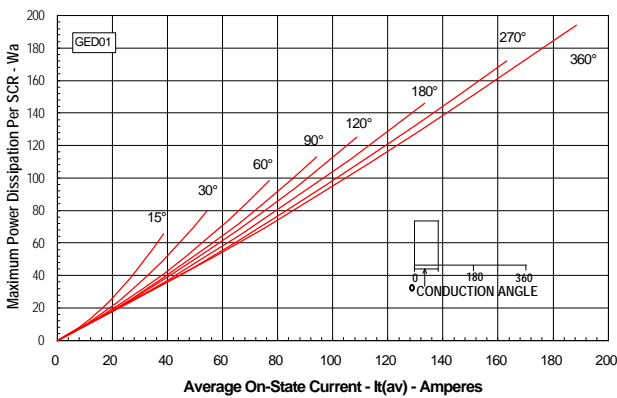
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



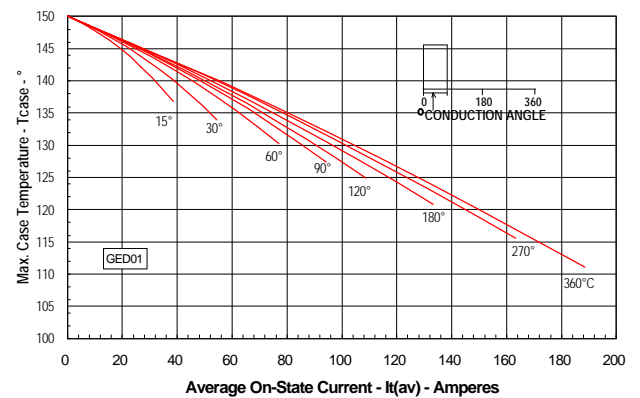
Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)



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