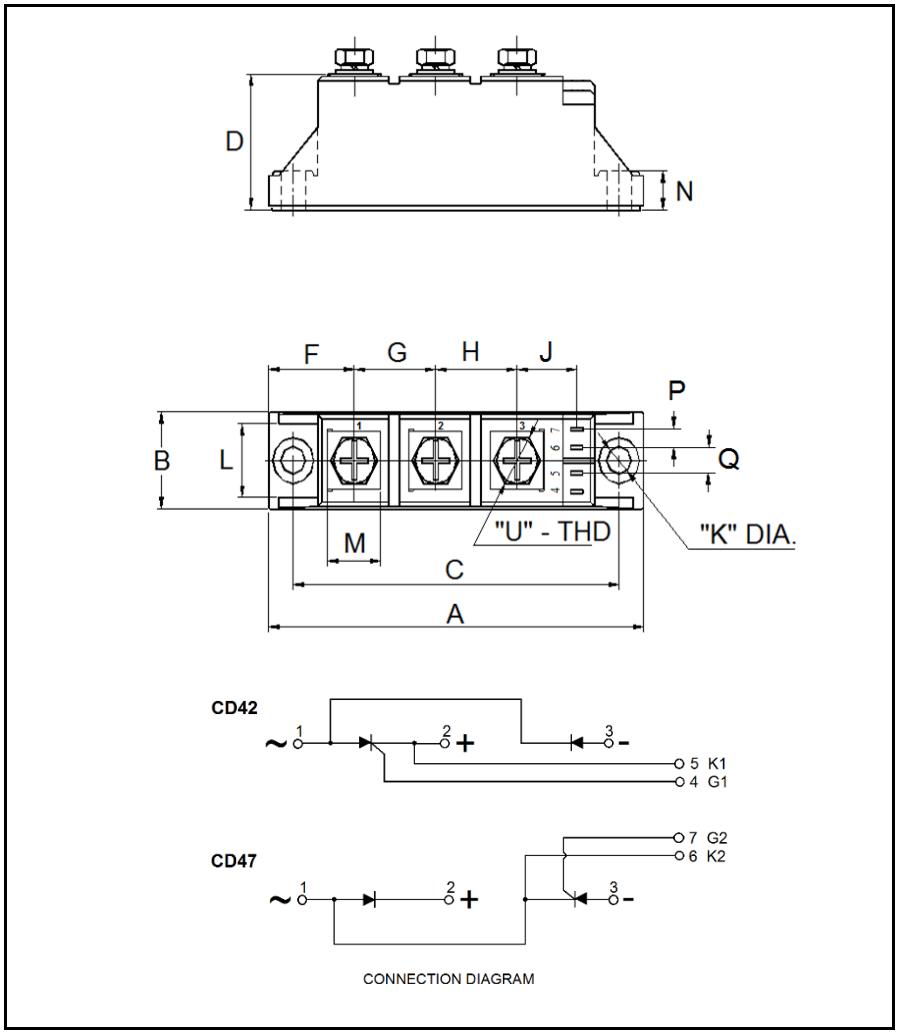
CD42__90C
CD47__90C

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

POW-R-BLOK™
Dual SCR/Diode Isolated Module
90 Amperes / Up to 1800 Volts



Description:
Powerex Dual SCR/Diode Modules are designed for use in applications requiring phase control and isolated packaging. The modules are isolated for easy mounting with other components on a common heatsink.

Features:
- Electrically Isolated Heatsinking
- Compression Bonded for Increased Power Cycling Capability
- Low Thermal Impedance for Improved Current Capability
- RoHS Compliant
- UL Recognized (E78240)

Benefits:
- No Additional Insulation Components Required
- Easy Installation
- No Clamping Components Required
- Reduce Engineering Time

Applications:
- Bridge Circuits
- AC & DC Motor Drives
- Battery Supplies
- Power Supplies
- Large IGBT Circuit Front Ends
- Lighting Control
- Heat & Temperature Control
- Welders

Outline Dimensions

Dimension	Inches	Millimeters
A	3.62	92
B	0.83	21
C	3.15	80
D	1.18	30
F	0.83	21
G	0.79	20
H	0.79	20
J	0.57	14.5
K	0.24	6.2
L	0.63	16
M	0.51	13
N	0.33	8.5
P	0.16	4
Q	0.22	5.6
S	0.11 x .02	2.8 x 0.5
U	M5	M5

Note: Dimensions are for reference only.

Ordering Information:
Select the complete nine digit module part number from the table below. Example: CD421690C is a 1600Volt, 90 Ampere Dual SCR/Diode Isolated *POW-R-BLOK™* Module

Type	Voltage Volts (x100)	Current Amperes	Version
CD42 CD47	08 12 14 16 18	90	C

Revision Date: 03/30/2015

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

POW-R-BLOK™
Dual SCR/Diode Isolated Module
90 Amperes / Up to 1800 Volts

Absolute Maximum Ratings

Characteristics	Conditions	Symbol		Units
Repetitive Peak Forward and Reverse Blocking Voltage		V_{DRM} & V_{RRM}	up to 1800	V
Non-Repetitive Peak Reverse Blocking Voltage (t < 5 msec)		V_{RSM}	V_{RRM} + 100	V
RMS Forward Current	180° Conduction, T_C=85°C	$I_{T(RMS)}$	141	A
Average Forward Current	180° Conduction, T_C=85°C	$I_{T(AV)}$	90	A
Peak One Cycle Surge Current, Non-Repetitive	50 Hz, 60% V_{RRM} reapplied, T_j=125°C	I_{TSM}	2000	A
I^2t for Fusing for One Cycle, 10 milliseconds	50 Hz, 60% V_{RRM} reapplied, T_j=125°C	I^2t	20,400	A^2 sec
Maximum Rate-of-Rise of On-State Current, (Repetitive)	T_j=125°C	di/dt	100	A/µs
Operating Temperature		T_J	-40 to +125	°C
Storage Temperature		T_{stg}	-40 to +125	°C
Max. Mounting Torque, M5 Mounting Screw on Terminals			35 4	in.-Lb. Nm
Max. Mounting Torque, Module to Heatsink			53 6	in.-Lb. Nm
Module Weight, Typical			160 5.64	g oz.
V Isolation @ 25C	50 – 60 Hz, 1 minute	V_{rms}	2500	V

Information presented is based upon manufacturers testing and projected capabilities.
This information is subject to change without notice.
The manufacturer makes no claim as to the suitability of use, reliability, capability,
or future availability of this product.

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

POW-R-BLOK™
Dual SCR/Diode Isolated Module
90 Amperes / Up to 1800 Volts

Electrical Characteristics, T_J=25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Max.	Units
Repetitive Peak Forward Leakage Current	I_{DRM}	Up to V_{DRM}, T_J=125°C		10	mA
Repetitive Peak Reverse Leakage Current	I_{RRM}	Up to V_{RRM}, T_J=125°C		10	mA
Peak On-State Voltage	V_{TM}	I_{TM} =270A		1.90	V
Threshold Voltage, Low-level Slope Resistance, Low-level	$V_{(TO)1}$ r_{T1}	T_J = 125°C, I = 16.7% x $\pi I_{T(AV)}$ to $\pi I_{T(AV)}$		0.8 3.01	V mΩ
Minimum dV/dt	dV/dt	T_j=125°C, V_{DM}= 0.67 V_{DRM}	800		V/µs
Gate Trigger Current	I_{GT}	T_j= 25°C, V_D=12V, I_A= 1 A	30	100	mA
Gate Trigger Voltage	V_{GT}	T_j= 25°C, V_D=12V, I_A= 1 A	0.75	2.5	Volts
Holding Current	I_H	T_j= 25°C, V_D=12V, I_A= 1 A	20	100	mA

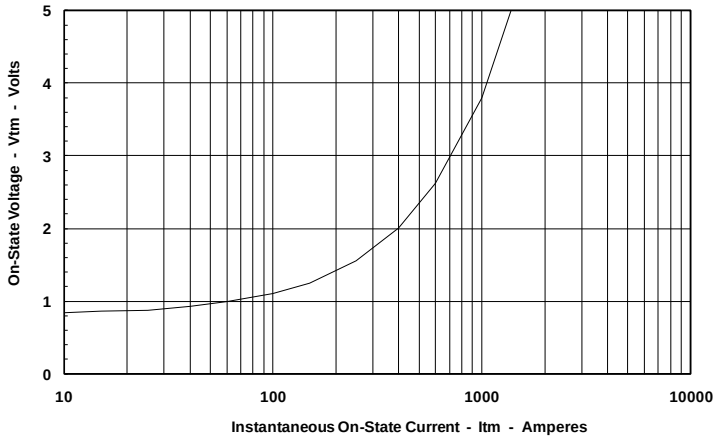
Thermal Characteristics

Characteristics	Symbol		Max.	Units
Thermal Resistance, Junction to Case DC Operation	$R_{\Theta J-C}$	Per Junction, both conducting	0.28	°C/W
Thermal Resistance, Case to Sink Lubricated	$R_{\Theta C-S}$	Per Module	0.15	°C/W

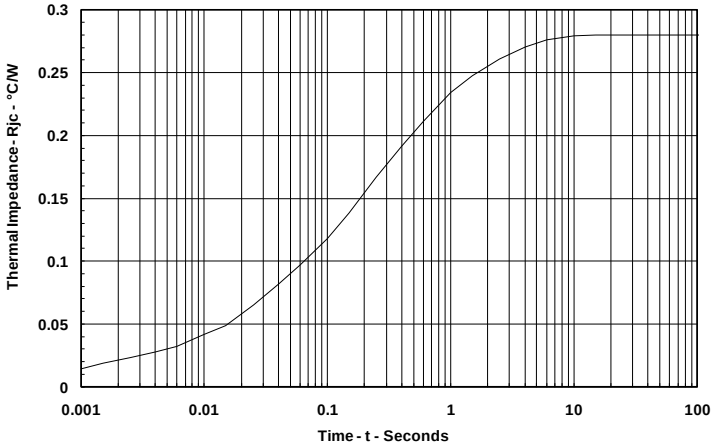
Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272
http://www.pwrx.com

POW-R-BLOK™
Dual SCR/Diode Isolated Module
90 Amperes / Up to 1800 Volts

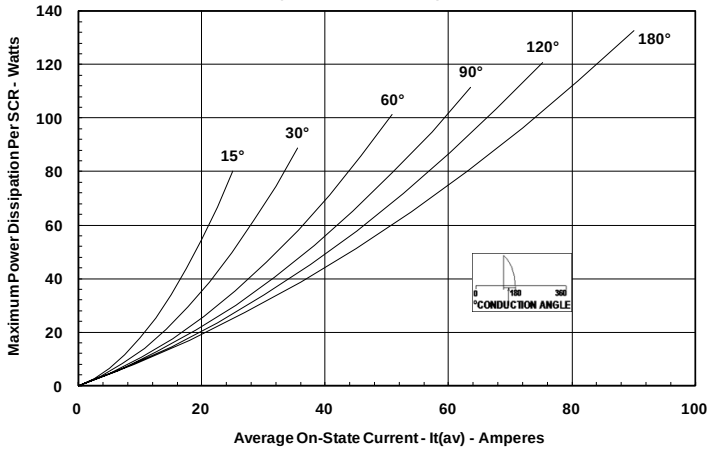
Maximum On-State Forward Voltage Drop
(Tj = 125 °C)



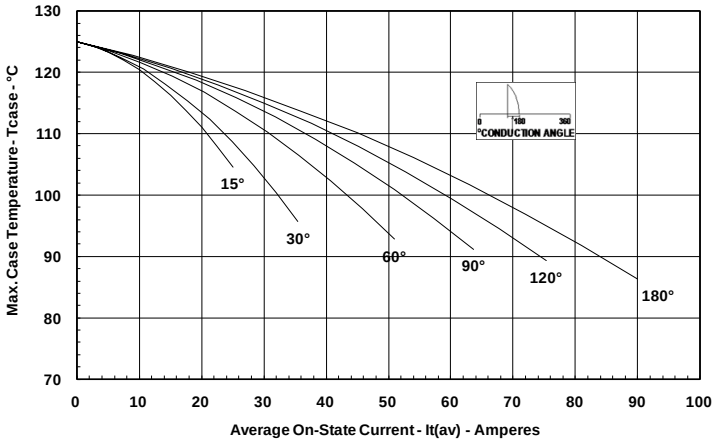
Maximum Transient Thermal Impedance
(Junction to Case)



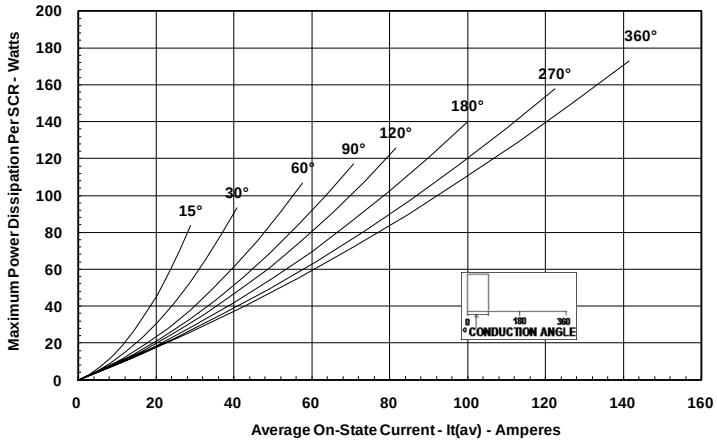
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



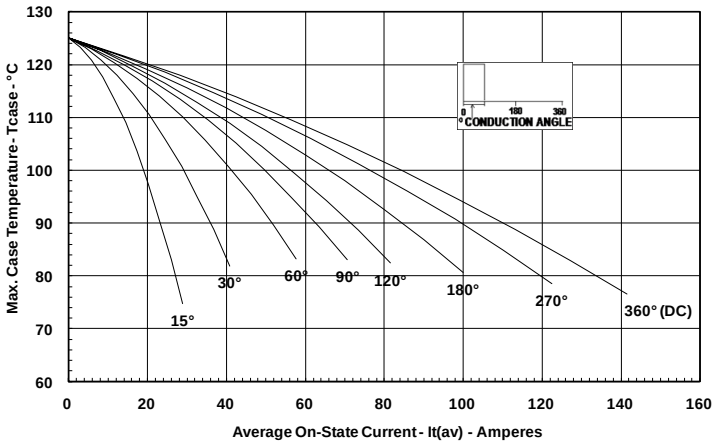
Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)



Revision Date: 03/30/2015