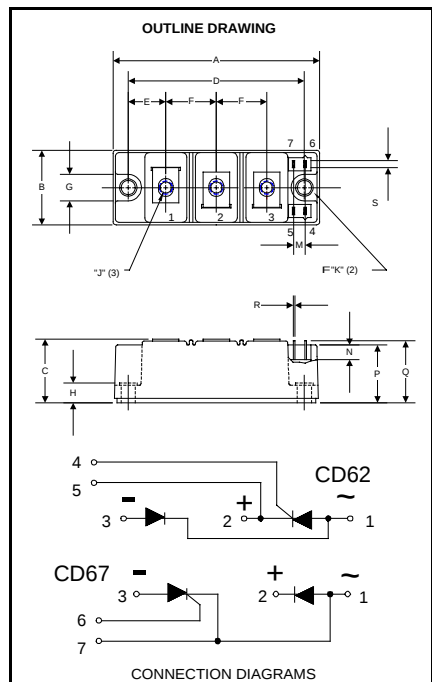




CD62__15A, CD67__15A
SCR/Diode Isolated
POW-R-BLOK™ Module
 Up to 160 Amperes & 1600 Volts

Description:

Powerex 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. POW-R-BLOK™ has been tested and recognized by the Underwriters Laboratories.

Features:

- Electrically Isolated Heatsinking
- DBC Alumina (Al₂O₃) Insulator
- Glass Passivated Chips
- Metal Baseplate
- Low Thermal Impedance for Improved Current Capability
- Quick Connect Gate Terminal with Provision for Keyed Mating Plug
- 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

CD62__15A, CD67__15A Outline Dimensions

Dimension	Inches	Millimeters
A	3.70	94
B	1.38	35
C	1.18	30
D	3.15	80
E	0.67	17
F	0.91	23
G	0.57	14.5
H	0.35	9
J	M6	M6
K	0.26	6.5
M	.020	5
N	0.28	7
P	1.10	28
Q	1.14	29
R	0.03	0.8
S	0.11	2.8

Note: Dimensions are for reference only.

Ordering Information:

Example: Select the complete nine digit module part number from the table below.

Example: CD621615A is a 1600Volt, 150 Ampere SCR/Diode Isolated POW-R-BLOK™ Module

Type	Voltage Volts (x100)	Current Amperes (x 10)
CD62	08	15
CD67	12	16
	14	
	16	

Absolute Maximum Ratings

Characteristics	Conditions	Symbol		Units
Repetitive Peak Forward and Reverse Blocking Voltage		V_{DRM} & V_{RRM}	up to 1600	V
Non-Repetitive Peak Reverse Blocking Voltage ($t < 5$ msec)		V_{RSM}	$V_{RRM} + 100$	V
RMS Forward Current	180° Conduction, $T_C=85^\circ\text{C}$	$I_{T(RMS)}$	250	A
	180° Conduction, $T_C=85^\circ\text{C}$ (AC Switch)	$I_{T(RMS)}$	355	A
Average Forward Current	180° Conduction, $T_C=85^\circ\text{C}$	$I_{T(AV)}$	160	A
	180° Conduction, $T_C=90^\circ\text{C}$	$I_{T(AV)}$	150	A
Peak One Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I_{TSM}	4300	A
	60 Hz, No V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I_{TSM}	5100	A
	50 Hz, 100% V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I_{TSM}	4100	A
	50 Hz, No V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I_{TSM}	4870	A
Peak Three Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I_{TSM}	3250	A
	50 Hz, 100% V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I_{TSM}	3150	A
Peak Ten Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I_{TSM}	2650	A
	50 Hz, 100% V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I_{TSM}	2550	A
I^2t for Fusing for One Cycle	8.3 ms, 100% V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I^2t	76,700	$\text{A}^2 \text{ sec}$
	8.3 ms, No V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I^2t	108,000	$\text{A}^2 \text{ sec}$
	10 ms, 100% V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I^2t	84,000	$\text{A}^2 \text{ sec}$
	10 ms, No V_{RRM} reapplied, $T_J=125^\circ\text{C}$	I^2t	119,000	$\text{A}^2 \text{ sec}$
Maximum Rate-of-Rise of On-State Current, Non Repetitive	$T_J=125^\circ\text{C}$, $V_D=1.0 V_{DRM} \text{ (Rated)}$, $I_{TM}=400\text{A}$, $I_G=0.5 \text{ A}$, $T_r < 0.25\text{ms}$, $t_p > 6\text{ms}$	di/dt	300	A/ms
Peak Gate Power Dissipation	$T_p < 5 \text{ ms}$, $T_J = 125^\circ\text{C}$	P_{GM}	12	W
Average Gate Power Dissipation	$F = 50 \text{ Hz}$, $T_J = 125^\circ\text{C}$	$P_{G(AV)}$	3	W
Peak Forward Gate Current	$T_p < 5 \text{ ms}$, $T_J = 125^\circ\text{C}$	I_{GFM}	3	A
Peak Reverse Gate Voltage	$T_p < 5 \text{ ms}$, $T_J = 125^\circ\text{C}$	V_{GRM}	10	V
Operating Temperature		T_J	-40 to +125	$^\circ\text{C}$
Storage Temperature		T_{stg}	-40 to +150	$^\circ\text{C}$
Max. Mounting Torque, M6 Mounting Screw on Terminals			35 - 50	in.-Lb.
			4 - 6	Nm
Max. Mounting Torque, Module to Heatsink			35 - 50	in.-Lb.
			4 - 6	Nm
Module Weight, Typical			200	g
			7.1	oz.
V Isolation @ 25C		V_{rms}	3500	V

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 1600V, T _J =125°C		50	mA
Repetitive Peak Reverse Leakage Current	I _{RRM}	Up to 1600V, T _J =125°C		50	mA
Peak On-State Voltage	V _{TM} / V _{FM}	I _{TM} / I _{FM} =500A		1.54	V
Threshold Voltage, Low-level	V _{(TO)1}	T _J = 125°C, I = 16.7% x I _{T(AV)} to I _{T(AV)}		0.80	V
Slope Resistance, Low-level	r _{T1}			1.67	mΩ
Threshold Voltage, High-level	V _{(TO)2}	T _J = 125°C, I = I _{T(AV)} to I _{TSM}		0.98	V
Slope Resistance, High-level	r _{T2}			1.38	mΩ
V _{TM} Coefficients, Full Range		T _J = 125°C, I = 15% x I _{T(AV)} to I _{TSM} V _{TM} = A + B Ln I + C I + D Sqrt I	A = B = C = D =	0.5926 -1.10E-03 1.03E-03 0.0241	
Minimum dV/dt	dV/dt	Exponential to 2/3 V _{DRM} T _J =125°C, Gate Open	1000		V/ms
Turn-On Time (Typical)	t _{on}	I _{TM} = 300A, V _D = 2/3 V _{DRM} dI _G /dt = 1A/ms	3	(Typical)	ms
Turn-Off Time (Typical)	t _{off}	T _J = 125°C, I _T = 300A, R _{gk} = 100Ω V _r = 50V, -dI/dt = 15 A/ms Re-Applied dV/dt = 20V/ms, Linear to 2/3 V _{DRM}	50 - 200	(Typical)	ms
Gate Trigger Current	I _{GT}	T _J = -40°C, V _D =6V, R _a =1Ω, Resistive Load T _J = 25°C, V _D =6V, R _a =1Ω, Resistive Load T _J =125°C, V _D =6V, R _a =1Ω, Resistive Load		270 150 80	mA
Gate Trigger Voltage	V _{GT}	T _J = -40°C, V _D =6V, R _a =1Ω, Resistive Load T _J = 25°C, V _D =6V, R _a =1Ω, Resistive Load T _J =125°C, V _D =6V, R _a =1Ω, Resistive Load		4.0 2.5 1.7	Volts
Non-Triggering Gate Voltage	V _{GDM}	T _J =125°C, V _D =V _{DRM}		0.30	Volts
Non-Triggering Gate Current	I _{GDM}	T _J =125°C, V _D =V _{DRM}		10	mA

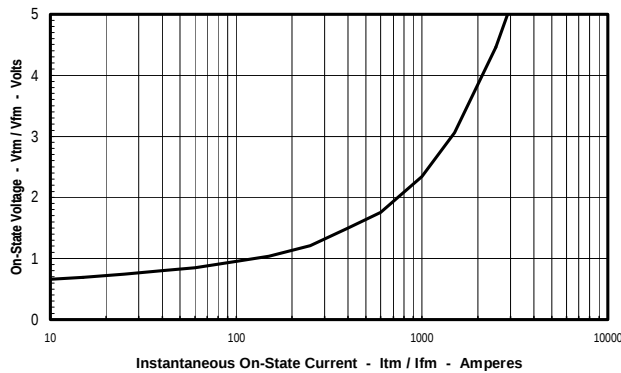
Thermal Characteristics

Characteristics	Symbol	Max.	Units
Thermal Resistance, Junction to Case DC Operation	R _{ΘJ-C}	0.08 0.16	°C/W °C/W
Thermal Impedance Coefficients (Per Junction)	Z _{ΘJ-C}	Z _{ΘJ-C} = K ₁ (1-exp(-t/t ₁)) + K ₂ (1-exp(-t/t ₂)) + K ₃ (1-exp(-t/t ₃)) + K ₄ (1-exp(-t/t ₄))	K ₁ = 5.45334E-3 t ₁ = 4.511E-5 K ₂ = 3.8509E+1 t ₂ = 1.3558E-1 K ₃ = -3.5154E+1 t ₃ = 1.3311E-1 K ₄ = -3.20 t ₄ = 1.5936E-1
Thermal Resistance, Case to Sink Lubricated	R _{ΘC-S}	0.05	°C/W

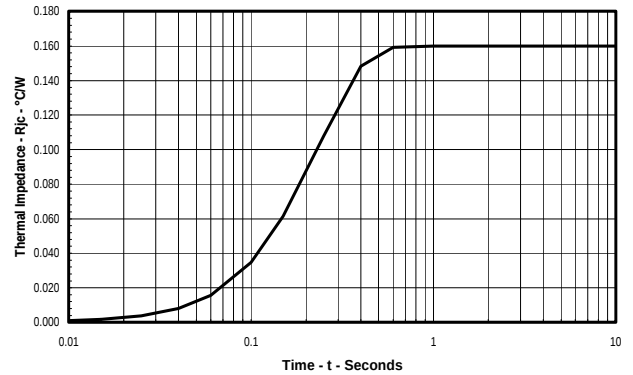
Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (724) 925-7272

SCR/Diode Module Up to 160 Amperes & 1600 Volts

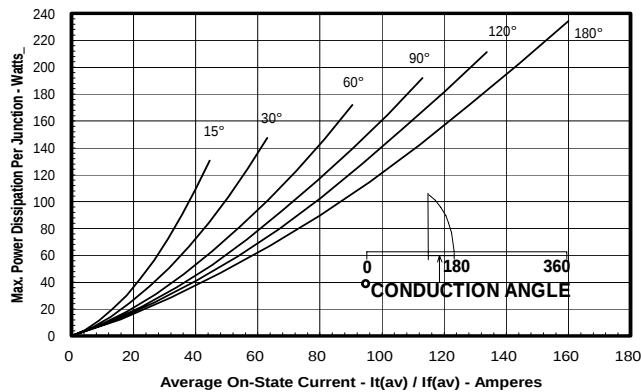
Maximum On-State Forward Voltage Drop
($T_J = 125^\circ\text{C}$)



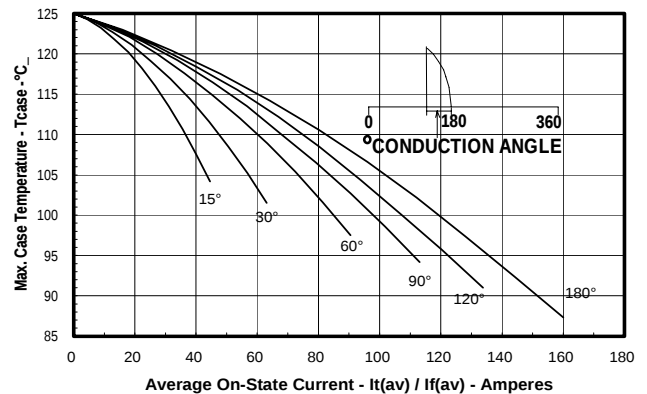
Maximum Transient Thermal Impedance
(Junction to Case)



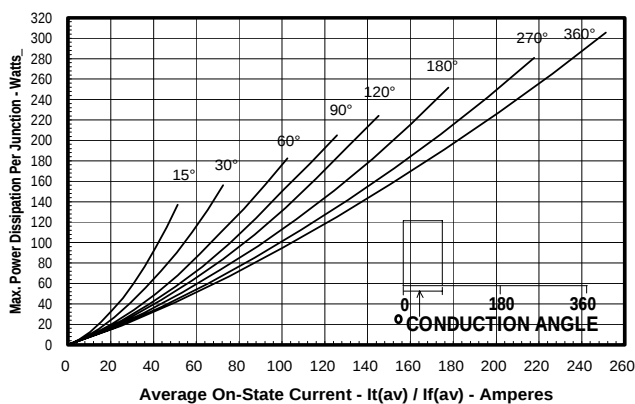
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)

