

CD43__60B
Dual SCR Isolated
POW-R-BLOK™ Module
 60 Amperes / Up to 1800 Volts

Description:

Powerex Dual SCR 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
- Copper Baseplate
- Low Thermal Impedance for Improved Current Capability
- UL Recognition Pending

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

CD43 Outline Dimensions

Dimension	Inches	Millimeters
A	3.66	93
B	0.79	20
C	3.15	80
D	1.18	30
F	0.61	15.5
G	0.79	20
H	0.79	20
J	0.16	4
K	0.22	5.7
L	0.59	15
M	1.10	28
N	0.31	8
P	0.94	24
Q	1.16	29.4
S	0.11 x .03	2.8 x 0.8
T	0.25	6.4
U	M5	M5

Note: Dimensions are for reference only.

Ordering Information:

Select the complete nine digit module part number from the table below. Example: CD431660B is a 1600Volt, 60 Ampere Dual SCR Isolated *POW-R-BLOK™* Module

Type	Voltage Volts (x100)	Current Amperes	Version
CD43	08 12 14 16 18	60	B

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, $T_C=85^\circ\text{C}$	$I_{T(RMS)}$	110	A
Average Forward Current	180° Conduction, $T_C=85^\circ\text{C}$	$I_{T(AV)}$	70	A
Peak One Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied, $T_j=125^\circ\text{C}$	I_{TSM}	1,470	A
	60 Hz, No V_{RRM} reapplied, $T_j=125^\circ\text{C}$	I_{TSM}	1,740	A
	60 Hz, No V_{RRM} reapplied, $T_j=25^\circ\text{C}$	I_{TSM}	1,940	A
	50 Hz, 100% V_{RRM} reapplied, $T_j=125^\circ\text{C}$	I_{TSM}	1,400	A
	50 Hz, No V_{RRM} reapplied, $T_j=125^\circ\text{C}$	I_{TSM}	1,665	A
	50 Hz, No V_{RRM} reapplied, $T_j=25^\circ\text{C}$	I_{TSM}	1,850	A
I^2t for Fusing for One Cycle, 8.3 milliseconds	8.3 ms, 100% V_{RRM} reapplied, $T_j=125^\circ\text{C}$	I^2t	8,960	$\text{A}^2 \text{sec}$
	8.3 ms, No V_{RRM} reapplied, $T_j=125^\circ\text{C}$	I^2t	12,560	$\text{A}^2 \text{sec}$
	8.3 ms, No V_{RRM} reapplied, $T_j=25^\circ\text{C}$	I^2t	15,600	$\text{A}^2 \text{sec}$
	10 ms, 100% V_{RRM} reapplied, $T_j=125^\circ\text{C}$	I^2t	9,800	$\text{A}^2 \text{sec}$
	10 ms, No V_{RRM} reapplied, $T_j=125^\circ\text{C}$	I^2t	13,860	$\text{A}^2 \text{sec}$
	10 ms, No V_{RRM} reapplied, $T_j=25^\circ\text{C}$	I^2t	17,110	$\text{A}^2 \text{sec}$
Maximum Rate-of-Rise of On-State Current, (Non-Repetitive)	$T_j=125^\circ\text{C}$	di/dt	150	$\text{A}/\mu\text{s}$
Operating Temperature		T_J	-40 to +125	$^\circ\text{C}$
Storage Temperature		T_{stg}	-40 to +125	$^\circ\text{C}$
Max. Mounting Torque, M5 Mounting Screw on Terminals			25	in.-Lb.
			3	Nm
Max. Mounting Torque, Module to Heatsink			44	in.-Lb.
			5	Nm
Module Weight, Typical			95	g
			3.35	oz.
V Isolation @ 25C	50 – 60 Hz, 1 minute	V_{rms}	3000	V
Circuit to base, all terminals shorted together	50 – 60 Hz, 1 second	V_{rms}	3500	V

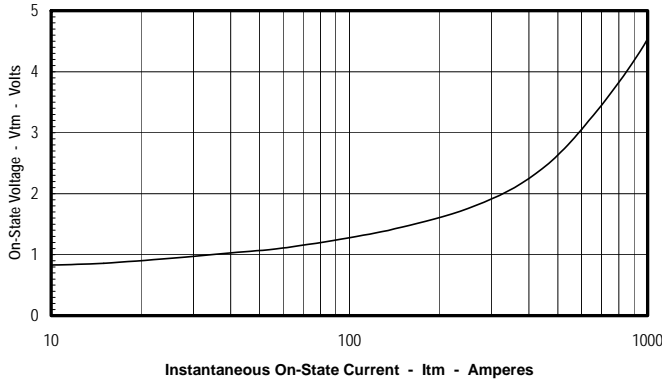
Electrical Characteristics, T_J=25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Max.	Units
Repetitive Peak Forward Leakage Current	I _{DRM}	Up to 1800V, T _J =125°C		20	mA
Repetitive Peak Reverse Leakage Current	I _{RDM}	Up to 1800V, T _J =125°C		20	mA
Peak On-State Voltage	V _{TM} / V _{FM}	I _{TM} / I _{FM} = 300A		1.9	V
Threshold Voltage, Low-level	V _{(TO)1}	T _J = 125°C, I = 16.7% × πI _{T(AV)} to πI _{T(AV)}		0.9	V
Slope Resistance, Low-level	r _{T1}			3.5	mΩ
Minimum dV/dt	dV/dt	T _J =125°C, Up to 800V T _J =125°C, 1200V - 800V	500 1000		V/μs V/μs
Turn-Off Time (Typical)	t _{off}	T _J = 25°C, I _T = 2A V _r = 50V, -dI/dt=10 A/μs Re-Applied dV/dt = 200 V/μs, Linear to 900 V	40 - 100	(Typical)	μs
Gate Trigger Current	I _{GT}	T _J = 25°C, V _D =6V, Resistive Load		150	mA
Gate Trigger Voltage	V _{GT}	T _J = 25°C, V _D =6V, Resistive Load		3.0	Volts
Non-Triggering Gate Voltage	V _{GDM}	T _J =125°C, V _D =V _{DRM}		0.25	Volts
Non-Triggering Gate Current	I _{GDM}	T _J =125°C, V _D =V _{DRM}		6	mA
Holding Current	I _H	T _J = 25°C		150	mA
Latching Current	I _L	T _J = 25°C		300	mA

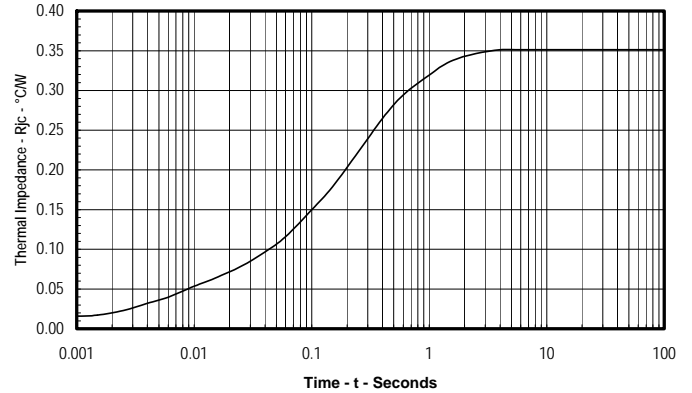
Thermal Characteristics

Characteristics	Symbol		Max.	Units
Thermal Resistance, Junction to Case DC Operation	R _{ΘJ-C}	Per Module, both conducting Per Junction, both conducting	0.18 0.35	°C/W °C/W
Thermal Resistance, Case to Sink Lubricated	R _{ΘC-S}	Per Module	0.1	°C/W

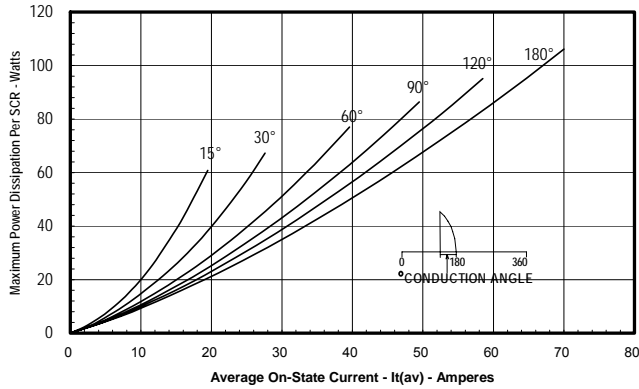
Maximum On-State Forward Voltage Drop
 (T_j = 125 °C)



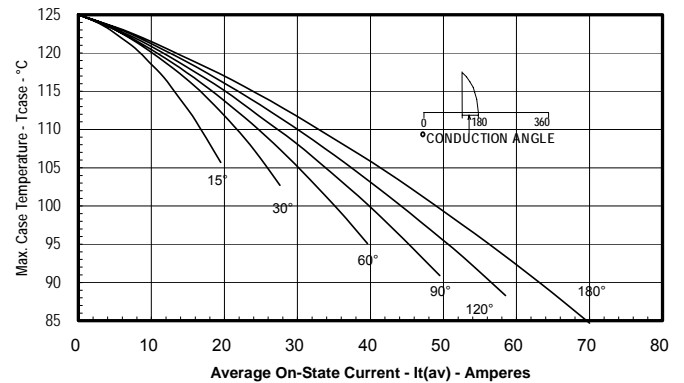
Maximum Transient Thermal Impedance
 (Junction to Case)



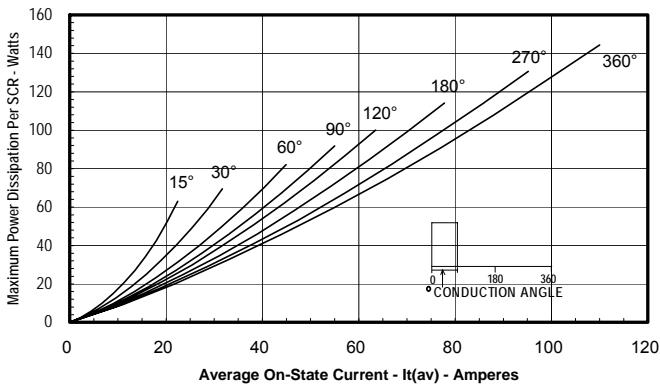
Maximum On-State Power Dissipation
 (Sinusoidal Waveform)



Maximum Allowable Case Temperature
 (Sinusoidal Waveform)



Maximum On-State Power Dissipation
 (Rectangular Waveform)



Maximum Allowable Case Temperature
 (Rectangular Waveform)

