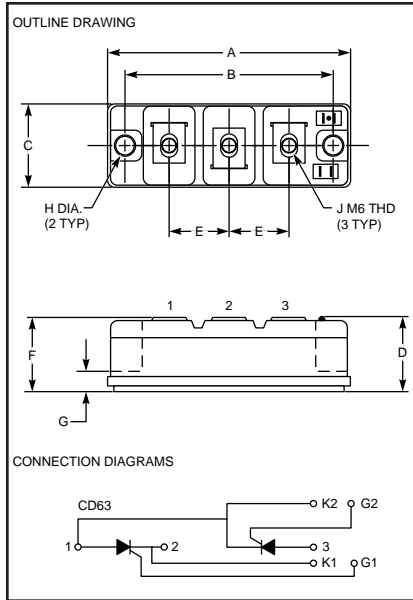


**Dual SCR  
POW-R-BLOK™ Module  
150 Amperes/1600 Volts**



Outline Drawing

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	1.181	1.240	30.00	31.50
E	0.901	0.911	22.88	23.14
F	1.161	1.201	29.49	30.51
G	0.305	0.325	7.75	8.26
HØ	0.251	0.261	6.38	6.63
J	—	—	M6 x 1.0	



**CD63\_\_15  
Dual SCR POW-R-BLOK™ Module  
150 Amperes/1600 Volts**

**Ordering Information:**

Select the complete eight digit module part number you desire from the table below.

Example: CD631215 is a 1200 Volt, 150 Ampere Dual SCR POW-R-BLOK™ Module.

Type	Voltage Volts (x100)	Current Rating Amperes (x10)
CD63	08	15
	12	
	14	
	16	

**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 (QQX2 Power Semiconductors).

**Features:**

- Electrically Isolated Heatsinking
- Compression Bonded Elements
- Metal Baseplate
- Low Thermal Impedance
- Quick Connect Gate Terminal with Provision for Keyed Mating Plug
- UL Recognized

**Applications:**

- Battery Supplies
- Bridge Circuits
- AC and DC Motor Control
- Tap Changers
- Lighting Control



Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724) 925-7272

CD63 \_15  
**Dual SCR POW-R-BLOK™ Module**  
 150 Amperes/1600 Volts

**Absolute Maximum Ratings**

Characteristics	Symbol	Conditions	CD63 _15	Units
Repetitive Peak Forward Blocking Voltage	$V_{DRM}$	—	1600	Volts
Repetitive Peak Reverse Blocking Voltage	$V_{RRM}$	—	1600	Volts
Non-Repetitive Peak Forward Blocking Voltage	$V_{DRM}$	—	$V_{DRM} + 100$	Volts
Non-Repetitive Peak Reverse Blocking Voltage	$V_{RSM}$	—	$V_{RRM} + 100$	Volts
RMS Forward Current	$I_{T(RMS)}$	—	250	Amperes
Average Forward Current	$I_{T(AV)}$	180° Conduction, $T_C = 89^\circ\text{C}$	150	Amperes
Peak Half-Cycle Surge (Non-Repetitive) On-State Current	$I_{TSM}$	$t = 8.3\text{ms}$ , 100% $V_{RRM}$ Reapplied	4500	Amperes
		$t = 10\text{ms}$ , 100% $V_{RRM}$ Reapplied	4300	Amperes
$i^2t$ (for Fusing) for One-Cycle	$i^2t$	$t = 8.3\text{ms}$ , 100% $V_{RRM}$ Reapplied	84400	$\text{A}^2\text{sec}$
		$t = 10\text{ms}$ , 100% $V_{RRM}$ Reapplied	92500	$\text{A}^2\text{sec}$
Maximum Rate-of-Rise of On-State Current (Non-Repetitive)*	$di/dt$	$I_{TM} = \pi I_{T(AV)}$ , $t_r < 0.5\mu\text{s}$ , $t_p > 6\mu\text{s}$	500	Amperes/ $\mu\text{s}$
Storage Temperature	$T_{STG}$	—	-40 to 150	$^\circ\text{C}$
Operating Temperature	$T_j$	—	-40 to 125	$^\circ\text{C}$
Maximum Mounting Torque M6 Mounting Screw	—	—	4 to 6	Nm
Maximum Mounting Torque M6 Terminal Screw	—	—	4 to 6	Nm
Module Weight (Typical)	—	—	500	Grams
			17.8	oz.
V Isolation	$V_{RMS}$	—	3000	Volts

\* $T_j = 125^\circ\text{C}$ ,  $I_G = 500\text{mA}$ ,  $V_D = 0.67 V_{DRM}$  (Rated)

**CD63 \_15**  
**Dual SCR POW-R-BLOK™ Module**  
 150 Amperes/1600 Volts

**Electrical and Thermal Characteristics,  $T_j = 25^\circ\text{C}$  unless otherwise specified**

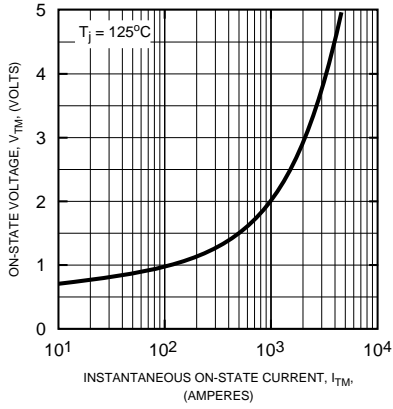
Characteristics	Symbol	Test Conditions	CD63 _15			Units
			Min.	Typ.	Max.	
<b>Blocking State Maximums</b>						
Forward Off-State Current, Peak	$I_{\text{DRM}}$	$T_j = 125^\circ\text{C}, V_D = V_{\text{DRM}}$	—	—	50	mA
Reverse Off-State Current, Peak	$I_{\text{RRM}}$	$T_j = 125^\circ\text{C}, V_R = V_{\text{RRM}}$	—	—	50	mA
<b>Conducting State Maximums</b>						
Peak On-State Voltage	$V_{\text{TM}}$	$T_j = 125^\circ\text{C}, I_{\text{TM}} = 500\text{A},$ Duty Cycle < 0.1%	—	—	1.50	Volts
Peak On-State Voltage Coefficients, Full Range	$V_{\text{TM}}$	$T_j = 125^\circ\text{C},$ $I = 15\% I_{\text{T(AV)}} \text{ to } I_{\text{TSM}}$ $V_T =$ $A + B \text{ Ln } I_T + C I_T + D \text{ Sqrt } I_T$	$A = 0.873$ $B = -0.0776$ $C = 0.000434$ $D = 0.0409$			
Threshold Voltage, Low-Level	$V_{\text{(TO)1}}$	$T_j = 125^\circ\text{C},$	—	—	0.837	Volts
Slope Resistance, Low-Level	$r_{\text{T1}}$	$I = 15\% I_{\text{T(AV)}} \text{ to } \pi I_{\text{T(AV)}}$	—	—	1.34	$\text{m}\Omega$
Threshold Voltage, High-Level	$V_{\text{(TO)2}}$	$T_j = 125^\circ\text{C},$	—	—	1.20	Volts
Slope Resistance, High-Level	$r_{\text{T2}}$	$I = \pi I_{\text{T(AV)}} \text{ to } I_{\text{TSM}}$	—	—	0.818	$\text{m}\Omega$
<b>Switching Minimums</b>						
Critical Rate-of-Rise of Off-State Voltage	dv/dt	$T_j = 125^\circ\text{C},$ Gate Open, Linear to $0.67 V_{\text{DRM}}$	1000			Volts/ $\mu\text{s}$
<b>Thermal Maximums</b>						
Thermal Resistance, Junction-to-Case	$R_{\theta(\text{J-C})}$	Per Module, Both Conducting	—	—	0.085	$^\circ\text{C/Watt}$
		Per SCR, Both Conducting	—	—	0.17	$^\circ\text{C/Watt}$
Thermal Resistance, Case-to-Sink (Lubricated)	$R_{\theta(\text{C-S})}$	Per Module	—	—	0.05	$^\circ\text{C/Watt}$
<b>Gate Parameters Maximums</b>						
Gate Current-to-Trigger	$I_{\text{GT}}$	$T_j = 25^\circ\text{C}, V_D = 12\text{V}$	—	200	—	mA
Gate Voltage-to-Trigger	$V_{\text{GT}}$	$T_j = 25^\circ\text{C}, V_D = 12\text{V}$	—	3.0	—	Volts
Non-Triggering Gate Voltage	$V_{\text{GDM}}$	$T_j = 125^\circ\text{C}, V_D = V_{\text{DRM}}$	—	0.30	—	Volts
Peak Forward Gate Current	$I_{\text{GTM}}$	—	—	3.0	—	Amperes
Peak Reverse Gate Voltage	$V_{\text{GRM}}$	—	—	5.0	—	Volts

**WARNING:**

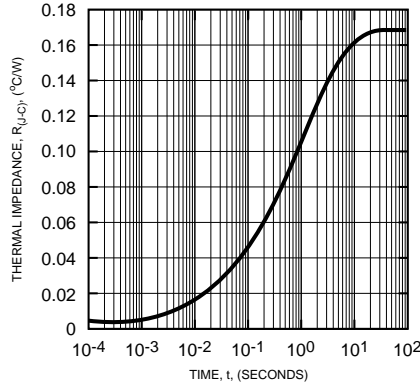
Internal insulation used is Beryllium Oxide.  
 User should avoid grinding, crushing, or abrading these portions.  
 Care must be exercised in properly disposing of unwanted devices.

**CD63 \_\_15**  
**Dual SCR POW-R-BLOK™ Module**  
 150 Amperes/1600 Volts

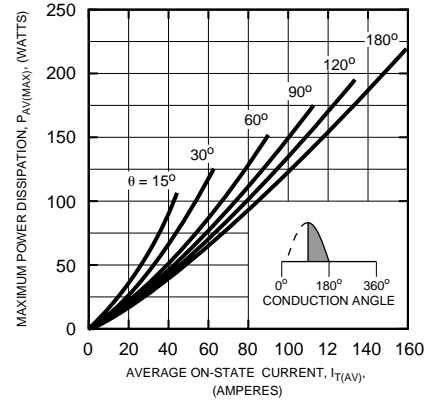
**MAXIMUM ON-STATE FORWARD VOLTAGE DROP**



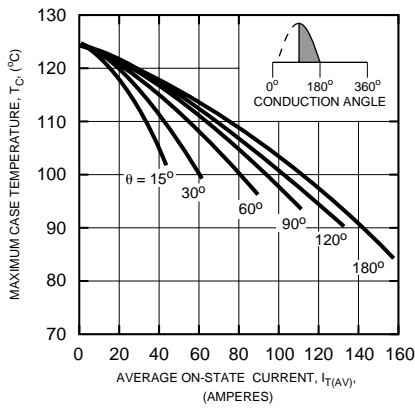
**MAXIMUM TRANSIENT THERMAL IMPEDANCE (JUNCTION-TO-CASE)**



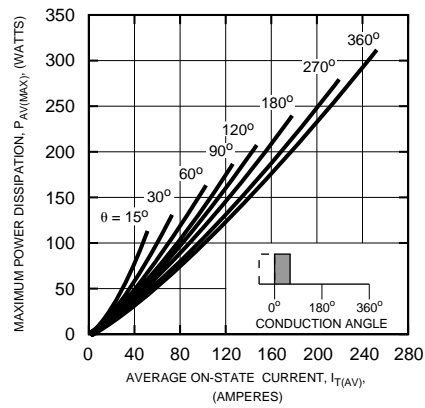
**MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)**



**MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)**



**MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)**



**MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)**

