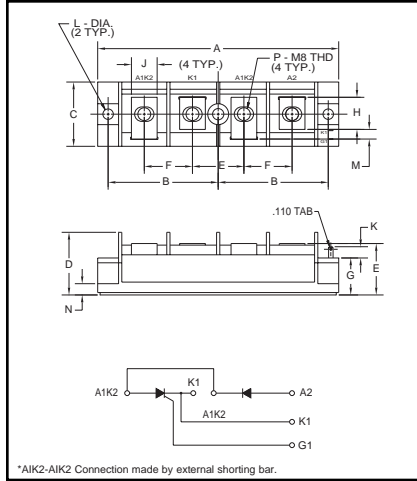


**SCR/Diode**  
**POW-R-BLOK™ Modules**  
130 Amperes/1200-1600 Volts



**CM521213, CM521613**  
**SCR/Diode**  
**POW-R-BLOK™ Modules**  
130 Amperes/1200-1600 Volts

**Outline Drawing**

Dimension	Inches	Millimeters
A	5.906	150
B	2.697±0.02	68.5±0.2
C	1.575	40
D	1.535	39
E	1.260	32
F	1.181	30
G	0.906	23
H	0.787	20
J	0.630	16
K	0.276	7
L	0.256±0.008 Dia.	Dia. 6.5±0.2
M	0.236	6
N	0.197	5
P	M8 Metric	M8

**Description:**

Powerex SCR/Diode POW-R-BLOK™ Modules are designed for use in applications requiring Half-Control and isolated packaging. The modules are isolated for easy mounting with other components on common heatsinks.

**Features:**

- Isolated Mounting
- Glass Passivated Chips
- Metal Baseplate
- Low Thermal Impedance

**Applications:**

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

**Ordering Information:**

Select the complete eight digit module part number you desire from the table below. Example: CM521613 is a 1600 Volt, 130 Ampere SCR/Diode POW-R-BLOK™ Module.

Type	Voltage Volts (x100)	Current Rating Amperes (x10)
CM52	12	13
	16	



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CM521213, CM521613  
 SCR/Diode POW-R-BLOK™ Modules  
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### Absolute Maximum Ratings

Characteristics	Symbol	CM521213	CM521613	Units
Peak Forward Blocking Voltage	$V_{DRM}$	1200	1600	Volts
Transient Peak Forward Blocking Voltage (Non-Repetitive), $t < 5ms$	$V_{DSM}$	1350	1700	Volts
DC Forward Blocking Voltage	$V_{D(DC)}$	960	1280	Volts
Peak Reverse Blocking Voltage	$V_{RRM}$	1200	1600	Volts
Transient Peak Reverse Blocking Voltage (Non-Repetitive), $t < 5ms$	$V_{RSM}$	1350	1700	Volts
DC Reverse Blocking Voltage	$V_{R(DC)}$	960	1280	Volts
RMS On-State Current	$I_{T(RMS)}, I_{F(RMS)}$	205	205	Amperes
Average On-State Current, $T_C = 78^\circ C$	$I_{T(AV)}, I_{F(AV)}$	130	130	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	$I_{TSM}, I_{FSM}$	2600	2600	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	$I_{TSM}, I_{FSM}$	2365	2365	Amperes
$I^2t$ (for Fusing), 8.3 milliseconds	$I^2t$	28000	28000	$A^2sec$
Critical Rate-of-Rise of On-State Current*	$di/dt$	100	100	Amperes/ $\mu s$
Peak Gate Power Dissipation	$P_{GM}$	10	10	Watts
Average Gate Power Dissipation	$P_{G(AV)}$	3.0	3.0	Watts
Peak Forward Gate Voltage	$V_{GFM}$	10	10	Volts
Peak Reverse Gate Voltage	$V_{GRM}$	5.0	5.0	Volts
Peak Forward Gate Current	$I_{GFM}$	4.0	4.0	Amperes
Storage Temperature	$T_{STG}$	-40 to 125	-40 to 125	$^\circ C$
Operating Temperature	$T_j$	-40 to 125	-40 to 125	$^\circ C$
Maximum Mounting Torque M6 Mounting Screw	—	26	26	in.-lb.
Maximum Mounting Torque M8 Terminal Screw	—	72	72	in.-lb.
Module Weight (Typical)	—	300	300	Grams
V Isolation	$V_{RMS}$	2500	2500	Volts

\* $T_j = 125^\circ C, I_G = 1.0A, V_D = 1/2 V_{DRM}$



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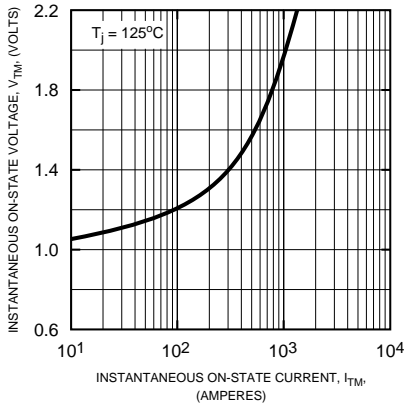
CM521213, CM521613  
SCR/Diode POW-R-BLOK™ Modules  
130 Amperes/1200-1600 Volts

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

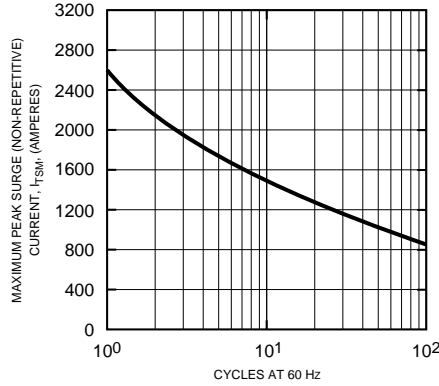
Characteristics	Symbol	Test Conditions	CM521213/CM521613	Units
<b>Blocking State Maximums</b>				
Forward Leakage Current, Peak	$I_{\text{DRM}}$	$T_j = 125^\circ\text{C}$ , $V_{\text{DRM}} = \text{Rated}$	30	mA
Reverse Leakage Current, Peak	$I_{\text{RRM}}$	$T_j = 125^\circ\text{C}$ , $V_{\text{RRM}} = \text{Rated}$	30	mA
<b>Conducting State Maximums</b>				
Peak On-State Voltage	$V_{\text{FM}}$ , $V_{\text{TM}}$	$I_{\text{FM}} = 390\text{A}$ , $I_{\text{TM}} = 390\text{A}$	1.3	Volts
<b>Switching Minimums</b>				
Critical Rate-of-Rise of Off-State Voltage	dv/dt	$T_j = 125^\circ\text{C}$ , $V_{\text{D}} = 2/3 V_{\text{DRM}}$	500	Volts/ $\mu\text{s}$
<b>Thermal Maximums</b>				
Thermal Resistance, Junction-to-Case	$R_{\theta(\text{J-C})}$	Per Module	0.22	$^\circ\text{C/Watt}$
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	$I_{\text{GT}}$	$V_{\text{D}} = 6\text{V}$ , $R_{\text{L}} = 2\Omega$	100	mA
Gate Voltage-to-Trigger	$V_{\text{GT}}$	$V_{\text{D}} = 6\text{V}$ , $R_{\text{L}} = 2\Omega$	3.0	Volts
Non-Triggerring Gate Voltage	$V_{\text{GDM}}$	$T_j = 125^\circ\text{C}$ , $V_{\text{D}} = 1/2 V_{\text{DRM}}$	0.25	Volts

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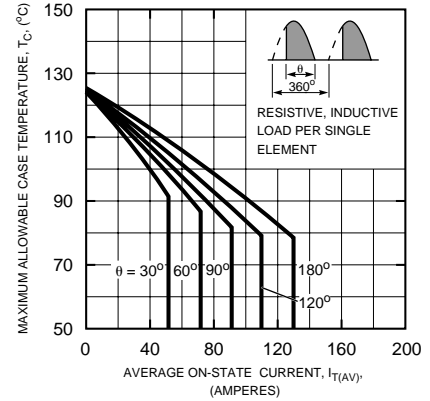
**MAXIMUM ON-STATE CHARACTERISTICS**



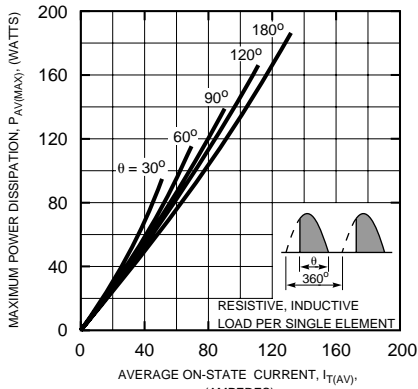
**MAXIMUM ALLOWABLE PEAK SURGE (NON-REPETITIVE) CURRENT**



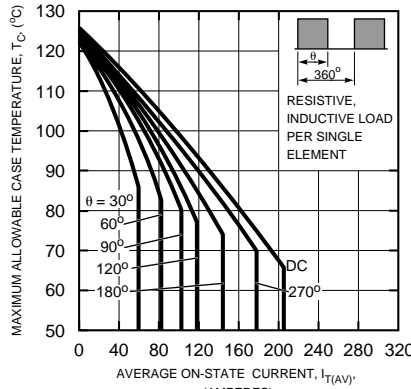
**MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)**



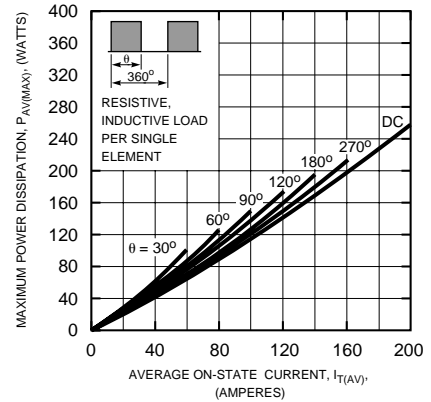
**MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)**



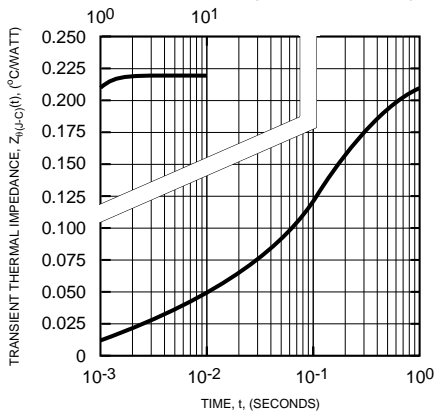
**MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)**



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



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



**TRIGGERING CHARACTERISTICS**

