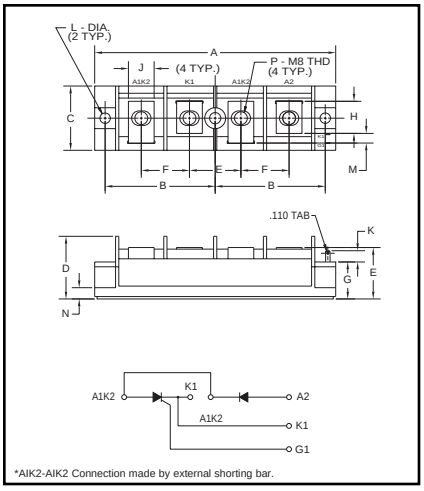
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724) 925-7272

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

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

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
130 Amperes/1200-1600 Volts

Absolute Maximum Ratings

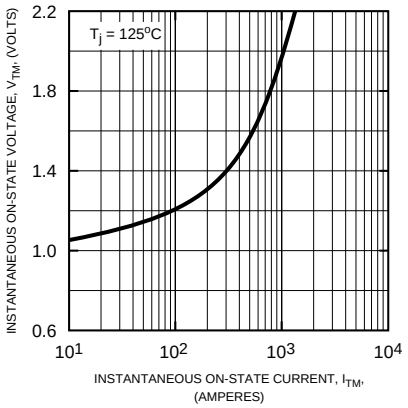
Characteristics	Symbol	CM521213	CM521613	Units
Peak Forward Blocking Voltage	V_{DRM}	1200	1600	Volts
Transient Peak Forward Blocking Voltage (Non-Repetitive), t < 5ms	V_{DSM}	1350	1700	Volts
DC Forward Blocking Voltage	$V_{D(DC)}$	960	1280	Volts
Peak Reverse Blocking Voltage	V_{RRM}	1200	1600	Volts
Transient 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°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/μs
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	°C
Operating Temperature	T_j	-40 to 125	-40 to 125	°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°C, I_G = 1.0A, V_D = 1/2 V_{DRM}

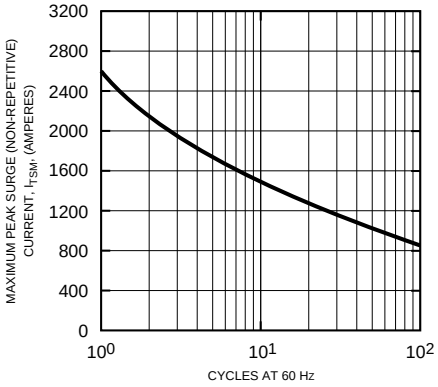
Electrical and Thermal Characteristics, T_j = 25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	CM521213/CM521613	Units
Blocking State Maximums				
Forward Leakage Current, Peak	I_{DRM}	T_j = 125°C, V_{DRM} = Rated	30	mA
Reverse Leakage Current, Peak	I_{RRM}	T_j = 125°C, V_{RRM} = Rated	30	mA
Conducting State Maximums				
Peak On-State Voltage	V_{FM}, V_{TM}	I_{FM} = 390A, I_{TM} = 390A	1.3	Volts
Switching Minimums				
Critical Rate-of-Rise of Off-State Voltage	dv/dt	T_j = 125°C, V_D = 2/3 V_{DRM}	500	Volts/μs
Thermal Maximums				
Thermal Resistance, Junction-to-Case	$R_{\theta(J-C)}$	Per Module	0.22	°C/Watt
Thermal Resistance, Case-to-Sink (Lubricated)	$R_{\theta(C-S)}$	Per Module	0.05	°C/Watt
Gate Parameters Maximums				
Gate Current-to-Trigger	I_{GT}	V_D = 6V, R_L = 2Ω	100	mA
Gate Voltage-to-Trigger	V_{GT}	V_D = 6V, R_L = 2Ω	3.0	Volts
Non-Triggering Gate Voltage	V_{GDM}	T_j = 125°C, V_D = 1/2 V_{DRM}	0.25	Volts

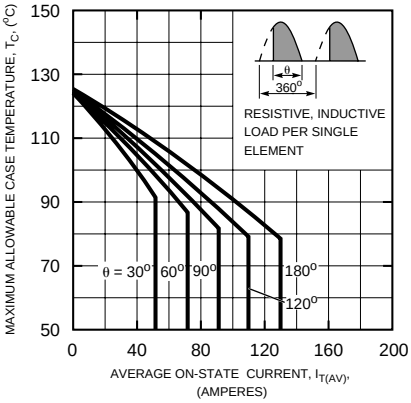
MAXIMUM ON-STATE CHARACTERISTICS



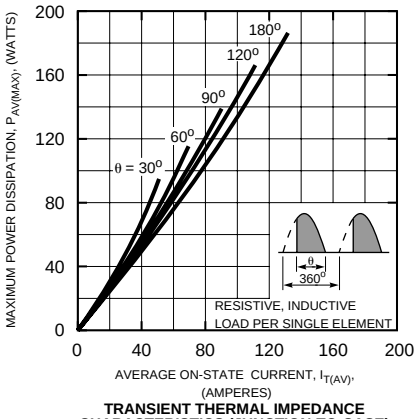
MAXIMUM ALLOWABLE PEAK SURGE (NON-REPETITIVE) CURRENT



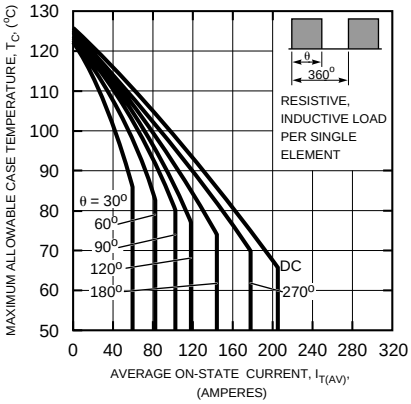
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)



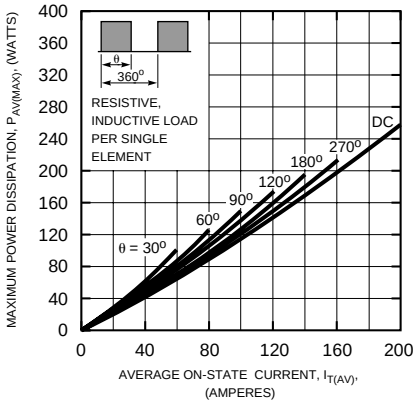
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



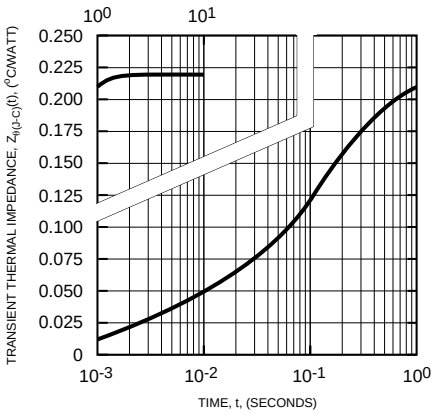
MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



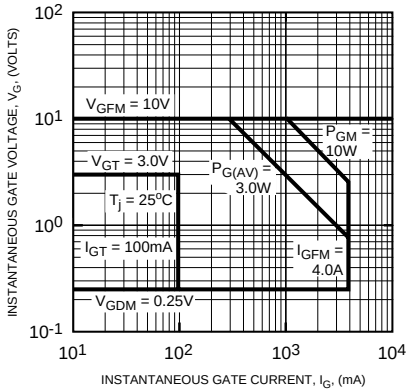
MAXIMUM AVERAGE ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION-TO-CASE)



TRIGGERING CHARACTERISTICS



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