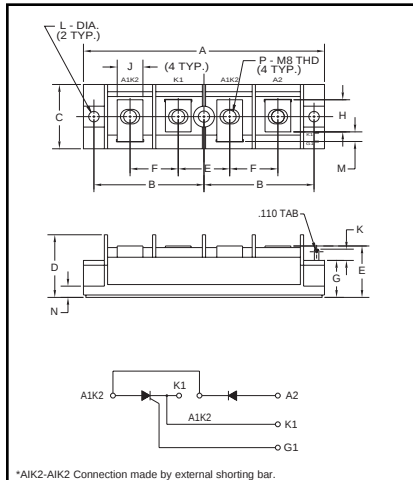


SCR/Diode POW-R-BLOK™ Modules 130 Amperes/800 Volts



Outline Drawing

Dimension	Inches	Millimeters
A	5.906	150.0
B	2.697±0.02	68.5±0.2
C	1.575	40.0
D	1.535	39.0
E	1.260	32.0
F	1.181	30.0
G	0.906	23.0
H	0.787	20.0
J	0.630	16.0
K	0.276	7.0
L	0.256±0.008 Dia.	Dia. 6.5±0.2
M	0.236	6.0
N	0.197	5.0
P	M8 Metric	M8



CM520813
SCR/Diode
POW-R-BLOK™ Modules
130 Amperes/800 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: CM420813 is a 800 Volt, 130 Ampere SCR/Diode POW-R-BLOK™ Module.

Type	Voltage Volts (x100)	Current Rating Amperes (x10)
CM52	08	13

CM520813

SCR/Diode POW-R-BLOK™ Modules

130 Amperes/800 Volts

Absolute Maximum Ratings

Characteristics	Symbol	CM520813	Units
Peak Forward Blocking Voltage	V_{DRM}	800	Volts
Transient Peak Forward Blocking Voltage (Non-Repetitive), $t < 5ms$	V_{DSM}	960	Volts
DC Forward Blocking Voltage	$V_{D(DC)}$	640	Volts
Peak Reverse Blocking Voltage	V_{RRM}	800	Volts
Transient Peak Reverse Blocking Voltage (Non-Repetitive), $t < 5ms$	V_{RSM}	960	Volts
DC Reverse Blocking Voltage	$V_{R(DC)}$	640	Volts
RMS On-State Current	$I_{T(RMS)}, I_{F(RMS)}$	205	Amperes
Average On-State Current, $T_C = 85^\circ C$	$I_{T(AV)}, I_{F(AV)}$	130	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	I_{TSM}, I_{FSM}	2600	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	I_{TSM}, I_{FSM}	2365	Amperes
I^2t (for Fusing), 8.3 milliseconds	I^2t	28000	A ² sec
Critical Rate-of-Rise of On-State Current*	di/dt	100	Amperes/ μs
Peak Gate Power Dissipation	P_{GM}	10.0	Watts
Average Gate Power Dissipation	$P_{G(AV)}$	3.0	Watts
Peak Forward Gate Voltage	V_{GFM}	10	Volts
Peak Reverse Gate Voltage	V_{GRM}	5.0	Volts
Peak Forward Gate Current	I_{GFM}	4.0	Amperes
Storage Temperature	T_{STG}	-40 to 125	$^\circ C$
Operating Temperature	T_j	-40 to 125	$^\circ C$
Maximum Mounting Torque M6 Mounting Screw	—	26	in.-lb.
Maximum Mounting Torque M5 Terminal Screw	—	72	in.-lb.
Module Weight (Typical)	—	300	Grams
V Isolation	V_{RMS}	2000	Volts

* $T_j = 125^\circ C$, $I_G = 0.5A$, $V_D = 1/2 V_{DRM}$

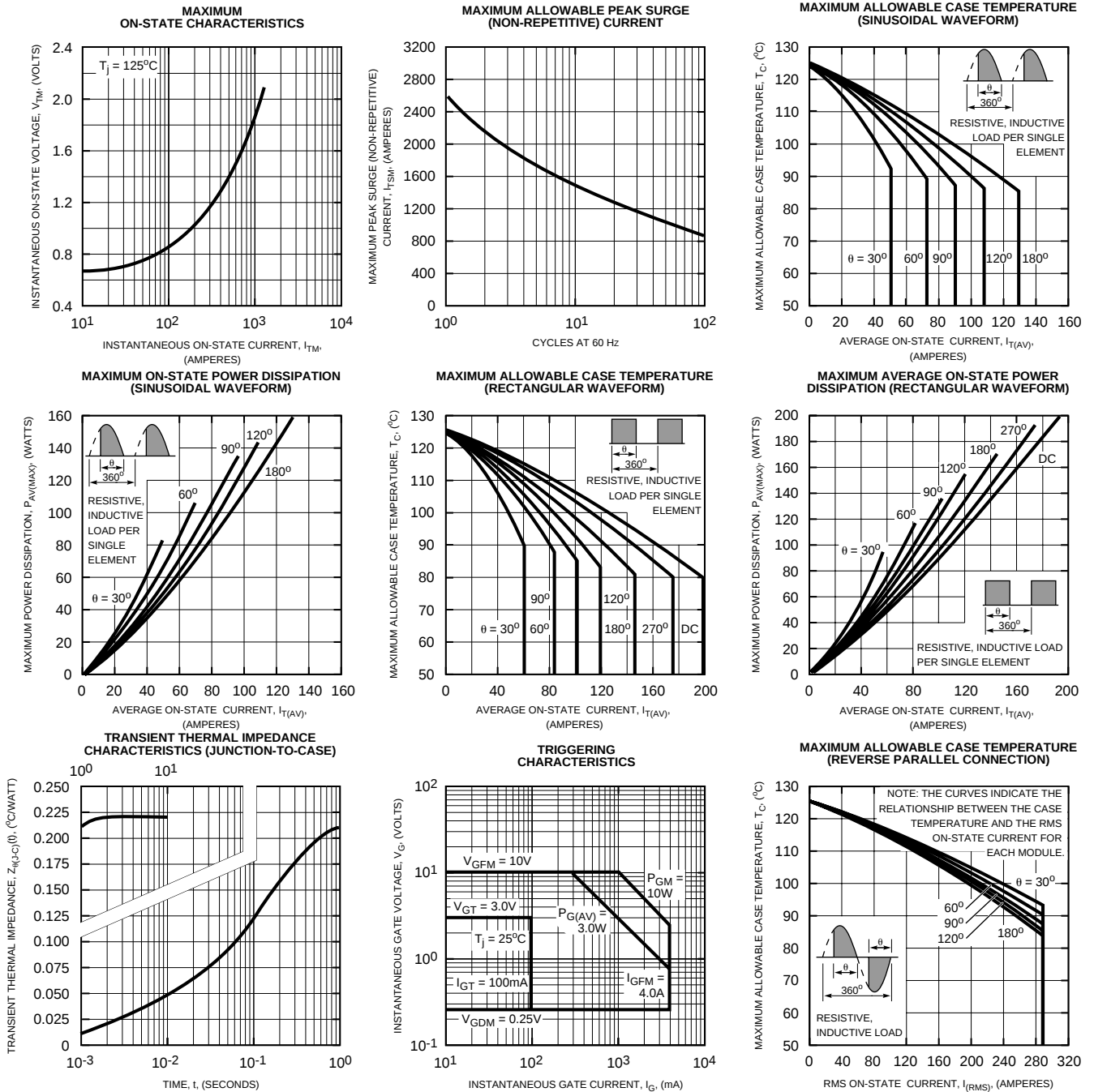
Electrical and Thermal Characteristics, $T_j = 25^\circ C$ unless otherwise specified

Characteristics	Symbol	Test Conditions	CM520813	Units
Blocking State Maximums				
Forward Leakage Current, Peak	I_{DRM}	$T_j = 125^\circ C$, $V_{DRM} = \text{Rated}$	30	mA
Reverse Leakage Current, Peak	I_{RRM}	$T_j = 125^\circ C$, $V_{RRM} = \text{Rated}$	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	$T_j = 125^\circ C$, $V_D = 2/3 V_{DRM}$	500	Volts/ μs
Thermal Maximums				
Thermal Resistance, Junction-to-Case	$R_{\theta(J-C)}$	Per Module	0.22	$^\circ C/\text{Watt}$
Thermal Resistance, Case-to-Sink (Lubricated)	$R_{\theta(C-S)}$	Per Module	0.05	$^\circ C/\text{Watt}$
Gate Parameters Maximums				
Gate Current-to-Trigger	I_{GT}	$V_D = 6V$, $R_L = 2\Omega$	100	mA
Gate Voltage-to-Trigger	V_{GT}	$V_D = 6V$, $R_L = 2\Omega$	3.0	Volts

CM520813

SCR/Diode POW-R-BLOK™ Modules

130 Amperes/800 Volts

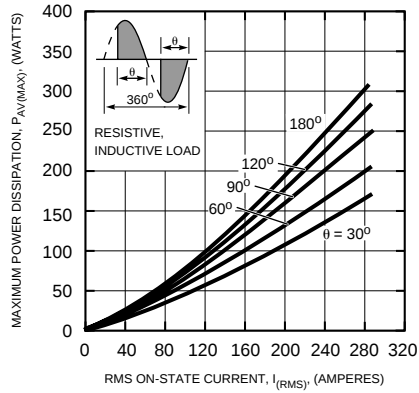


CM520813

SCR/Diode POW-R-BLOK™ Modules

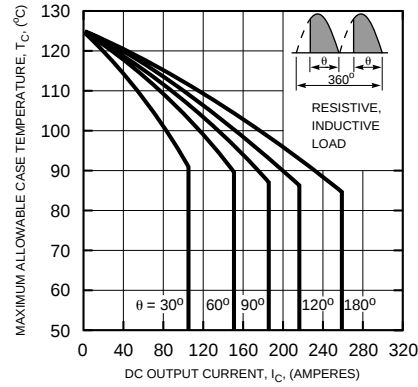
130 Amperes/800 Volts

**MAXIMUM ON-STATE POWER DISSIPATION
(REVERSE PARALLEL CONNECTION)**



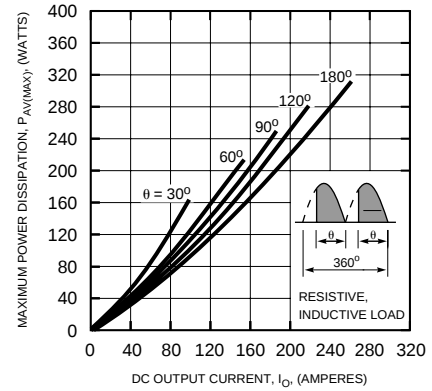
NOTE: THE CURVES INDICATE THE RELATIONSHIP BETWEEN THE AVERAGE ON-STATE POWER DISSIPATION PER MODULE AND THE RMS ON-STATE CURRENT.

**MAXIMUM ALLOWABLE CASE TEMPERATURE
(SINGLE PHASE BRIDGE CONNECTION)**



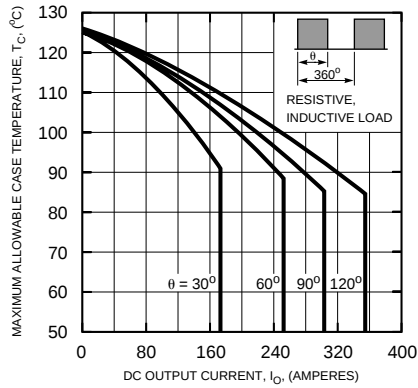
NOTE: THE CURVES INDICATE THE RELATIONSHIP BETWEEN THE CASE TEMPERATURE AND THE DC OUTPUT CURRENT (FOR TWO ELEMENTS) WHEN USED IN THE SINGLE PHASE BRIDGE CONFIGURATION.

**MAXIMUM ON-STATE POWER DISSIPATION
(SINGLE PHASE BRIDGE CONNECTION)**



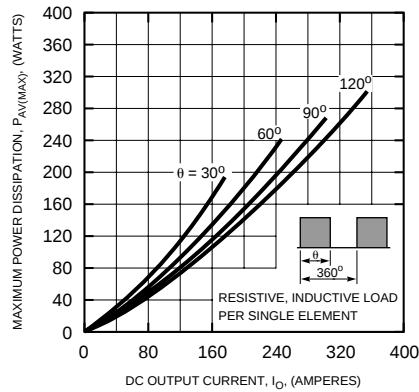
NOTE: THE CURVES INDICATE THE RELATIONSHIP BETWEEN THE AVERAGE ON-STATE POWER DISSIPATION AND THE DC OUTPUT CURRENT FOR THE SINGLE PHASE BRIDGE CONFIGURATION (POWER DISSIPATION EXPRESSED FOR EACH MODULE AND DC OUTPUT CURRENT EXPRESSED FOR THE PAIR)

**MAXIMUM ALLOWABLE CASE TEMPERATURE
(THREE PHASE BRIDGE CONNECTION)**



NOTE: THE CURVES INDICATE THE RELATIONSHIP BETWEEN THE CASE TEMPERATURE AND THE DC OUTPUT CURRENT (FOR THREE MODULES) IN THE THREE PHASE CONFIGURATION.

**MAXIMUM ON-STATE POWER DISSIPATION
(THREE PHASE BRIDGE CONNECTION)**



NOTE: THE CURVES INDICATE THE RELATIONSHIP BETWEEN THE ON-STATE POWER DISSIPATION (PER MODULE) AND THE DC OUTPUT CURRENT (FOR THREE MODULES) IN THE THREE PHASE BRIDGE CONFIGURATION.