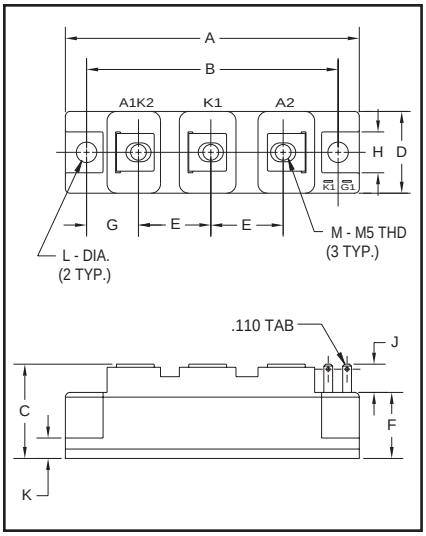
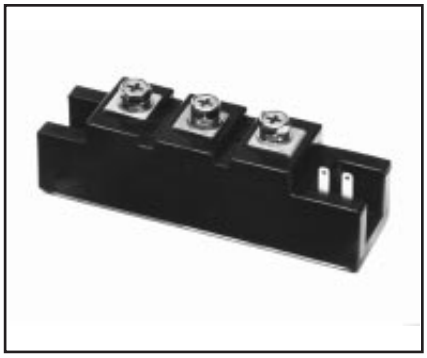
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724) 925-7272

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



Outline Drawing

Dimension	Inches	Millimeters
A	3.681 Max.	93.5 Max.
B	3.150	80
C	1.181 Max.	30 Max.
D	1.024 Max.	26 Max.
E	0.906	23
F	0.827	21
G	0.650	16.5
H	0.512	13
J	0.354	9
K	0.256	6.5
L	0.256 Dia.	Dia. 6.5
M	M5 Metric	M5



CM4212A2, CM4216A2
SCR/Diode
POW-R-BLOK™ Modules
25 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: CM4212A2 is a 1200 Volt, 25 Ampere SCR/Diode POW-R-BLOK™ Module.

Type	Voltage Volts (x100)	Current Rating Amperes (25)
CM42	12	A2
	16	

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

Absolute Maximum Ratings

Characteristics	Symbol	CM4212A2	CM4216A2	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	$I_{T(RMS)}$, $I_{F(RMS)}$	39	39	Amperes
Average On-State Current, T_C = 87°C	$I_{T(AV)}$, $I_{F(AV)}$	25	25	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	I_{TSM}, I_{FSM}	490	490	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	I_{TSM}, I_{FSM}	445	445	Amperes
I^2t (for Fusing), 8.3 milliseconds	I^2t	1000	1000	A^2sec
Critical Rate-of-Rise of On-State Current*	di/dt	100	100	Amperes/μs
Peak Gate Power Dissipation	P_{GM}	5.0	5.0	Watts
Average Gate Power Dissipation	$P_{G(AV)}$	0.5	0.5	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}	2.0	2.0	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 M5 Terminal Screw	—	17	17	in.-lb.
Module Weight (Typical)	—	160	160	Grams
V Isolation	V_{RMS}	2500	2500	Volts

*T_j = 125°C, I_G = 0.5A, V_D = 1/2 V_{DRM}

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

Characteristics	Symbol	Test Conditions	CM4212A2/CM4216A2	Units
Blocking State Maximums				
Forward Leakage Current, Peak	I_{DRM}	T_j = 125°C, V_{DRM} = Rated	10	mA
Reverse Leakage Current, Peak	I_{RRM}	T_j = 125°C, V_{RRM} = Rated	10	mA
Conducting State Maximums				
Peak On-State Voltage	V_{FM}, V_{TM}	I_{FM} = 75A, I_{TM} = 75A	1.8	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	0.8	°C/Watt
Thermal Resistance, Case-to-Sink (Lubricated)	$R_{\theta(C-S)}$	Per Module	0.2	°C/Watt
Gate Parameters Maximums				
Gate Current-to-Trigger	I_{GT}	V_D = 6V, R_L = 2Ω	50	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

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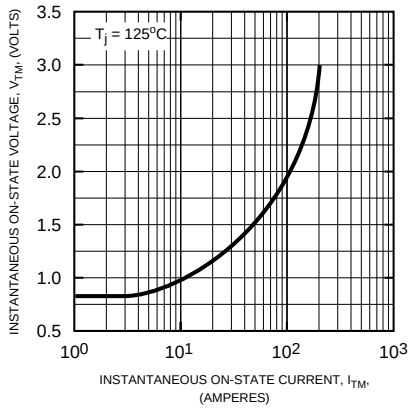
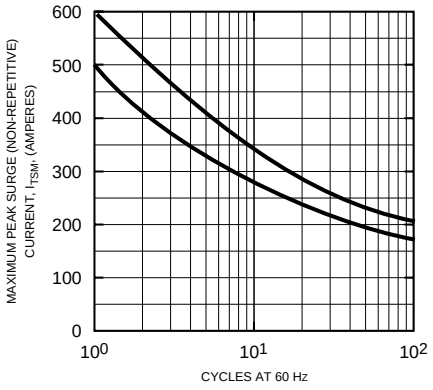
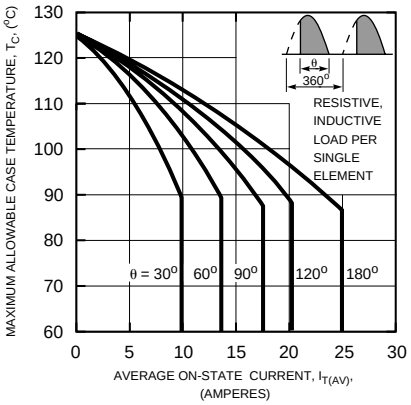
MAXIMUM ON-STATE CHARACTERISTICS



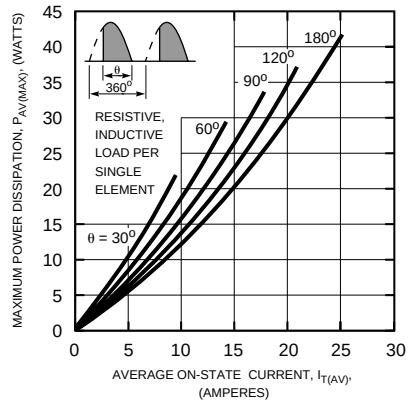
MAXIMUM ALLOWABLE PEAK SURGE (NON-REPETITIVE) CURRENT



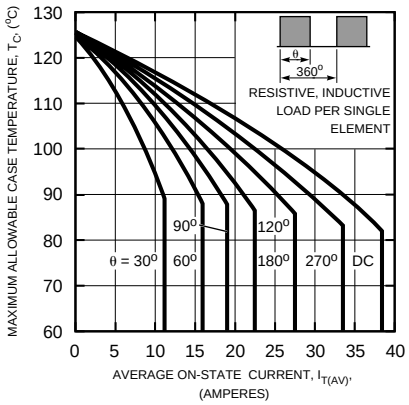
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)



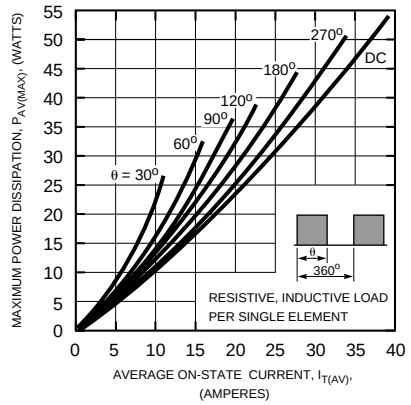
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



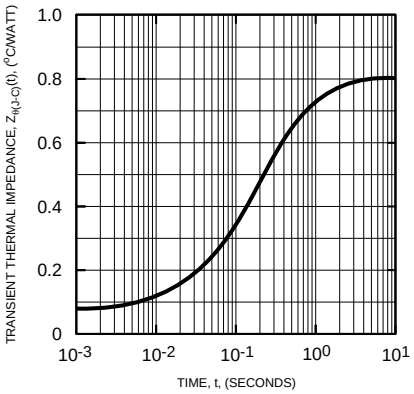
MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



MAXIMUM AVERAGE ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION-TO-CASE)



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