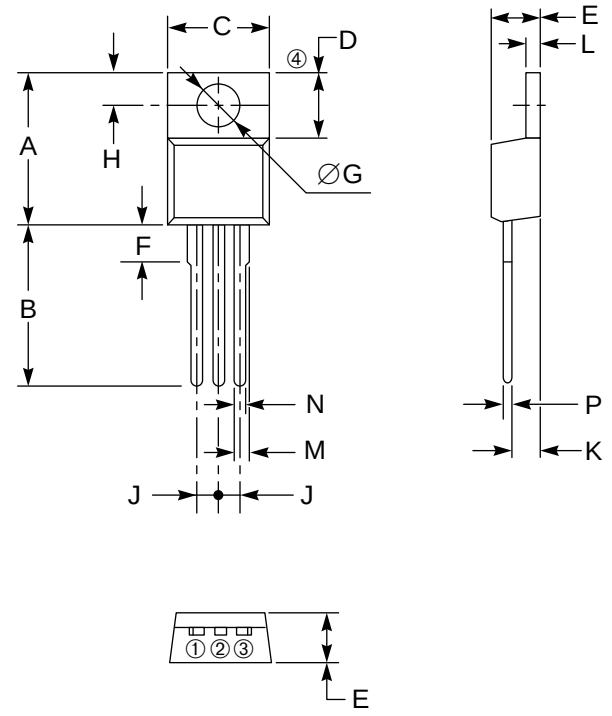
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272

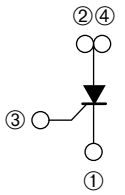
Lead-mount, Phase Control SCR
8 Amperes/400-600 Volts

OUTLINE DRAWING



CONNECTION DIAGRAM

① CATHODE
② ANODE
③ GATE
④ ANODE



Description:
The Powerex CR8AM Lead-mount Phase Control SCRs are planar passivated thyristors for use in low power control and rectification. These devices are molded silicone plastic types.

Features:
- ☐ Easy Application for Printed Circuits
- ☐ Glass Passivated
- ☐ High Surge Current

Applications:
- ☐ Heater Control
- ☐ Motor Control
- ☐ Switching Mode Power Supply
- ☐ Regulator for Motorcycles

Ordering Information:
Example: Select the complete six or seven digit part number you desire from the table - i.e. CR8AM-8 is a 400 Volt, 8 Ampere Phase Control SCR.

Type	V_{DRM}/V_{RRM} Volts	Code
CR8AM	400	-8
	600	-12

Outline Drawing (Conforms to TO-220)

Dimensions	Inches	Millimeters
A	0.63 Max.	16 Max.
B	0.49 Min.	12.5 Min.
C	0.41	10.5
D	0.28	7
E	0.18	4.5
F	0.15 Max.	3.8 Max.
G	0.142 ± 0.008 Dia.	3.6 ± 0.2 Dia.

Dimensions	Inches	Millimeters
H	0.125 ± 0.008	3.2 ± 0.2
J	0.102 ± 0.016	2.6 ± 0.4
K	0.10	2.5
L	0.051	1.3
M	0.039	1.0
N	0.031	0.8
P	0.020	0.5

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Absolute Maximum Ratings, T_a = 25 °C unless otherwise specified

Ratings	Symbol	CR8AM-8	CR8AM-12	Units
Repetitive Peak Off-state Voltage	V_{DRM}	400	600	Volts
Repetitive Peak Reverse Voltage	V_{RRM}	400	600	Volts
Non-repetitive Peak Reverse Voltage	V_{RSM}	500	720	Volts
DC Reverse Voltage	$V_{R(DC)}$	320	480	Volts
DC Forward Voltage	$V_{D(DC)}$	320	480	Volts
RMS On-state Current	$I_{T(RMS)}$	12.6	12.6	Amperes
Average On-state Current (Nominal, See Graphs) T_C = 88°C	$I_{T(avg)}$	8	8	Amperes
Non-repetitive Peak Surge, On-state Current One Cycle (60 Hz)	I_{TSM}	120	120	Amperes
I^2t for Fusing, t = 8.3 msec	I^2t	60	60	A^2sec
Peak Gate Power Dissipation	P_{GM}	5	5	Watts
Average Gate Power Dissipation	$P_{G(avg)}$	0.5	0.5	Watts
Peak Forward Gate Current	I_{FGM}	2	2	Amperes
Peak Forward Gate Voltage	V_{FGM}	6	6	Volts
Peak Reverse Gate Voltage	V_{RGM}	10	10	Volts
Storage Temperature	T_{stg}	-40 to 125	-40 to 125	°C
Operating Junction Temperature	T_j	-40 to 125	-40 to 125	°C
Weight	–	2.3	2.3	Grams

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

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Voltage – Blocking State						
Peak Forward Leakage	I_{DRM}	T_j = 125°C, $V_D = V_{DRM}$	–	–	2	mA
Peak Reverse Leakage	I_{RRM}	T_j = 125°C, $V_R = V_{RRM}$	–	–	2	mA
Current – Conducting State						
Peak On-state Voltage	V_{TM}	T_c = 25°C, I_{TM} = 25A	–	–	1.4	Volts
DC Holding Current	I_H	V_D = 12V, T_j = 25°C	–	15	–	mA
Thermal Resistance						
Junction-to-case	$R_{th(j-c)}$	–	–	–	3	°C/W
Gate – Parameters						
Gate Current to Trigger	I_{GT}	V_D = 6V, R_L = 6Ω, T_j = 25°C	–	–	15	mA
Gate Voltage to Trigger	V_{GT}	V_D = 6V, R_L = 6Ω, T_j = 25°C	–	–	1.0	Volts
Non-triggering Gate Voltage	V_{GD}	$V_D = 1/2V_{DRM}$, T_j = 125°C	0.2	–	–	Volts

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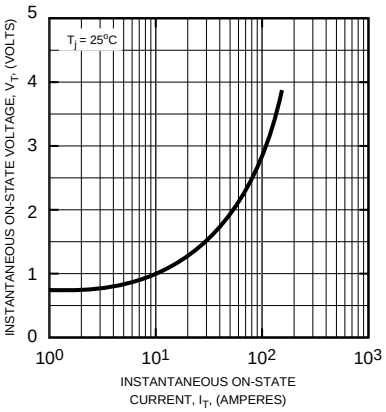
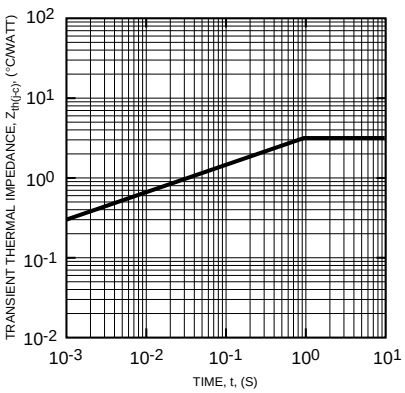
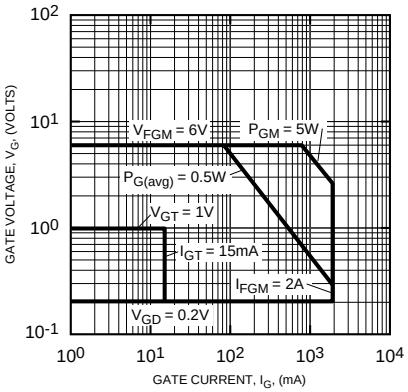
MAXIMUM ON-STATE CHARACTERISTICS



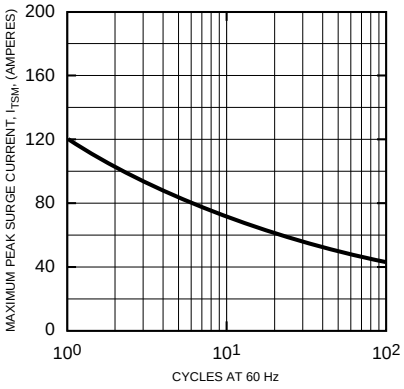
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION-TO-CASE)



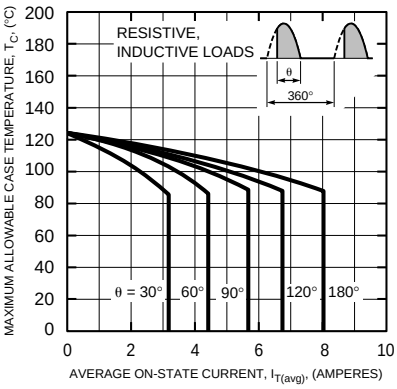
GATE CHARACTERISTICS



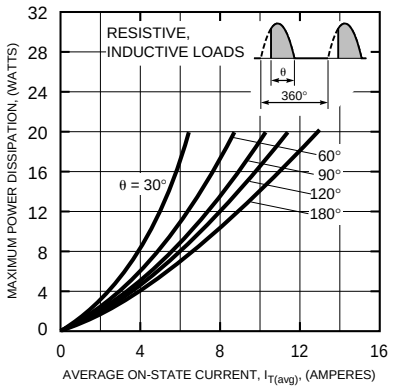
MAXIMUM SURGE CURRENT FOLLOWING RATED LOAD CONDITIONS



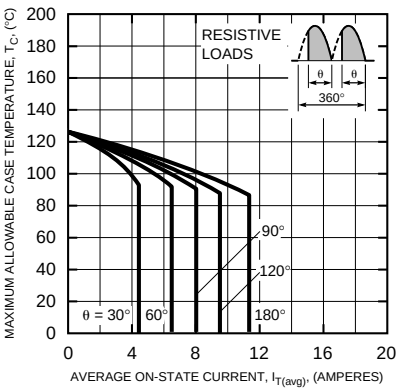
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINGLE-PHASE HALF WAVEFORM)



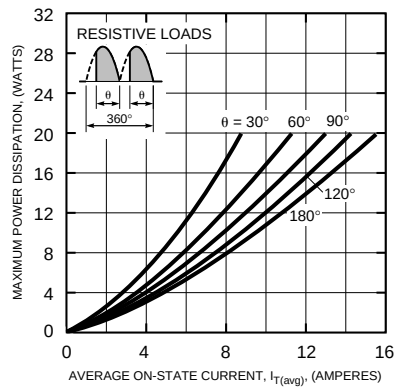
MAXIMUM ON-STATE POWER DISSIPATION (SINGLE-PHASE HALF WAVEFORM)



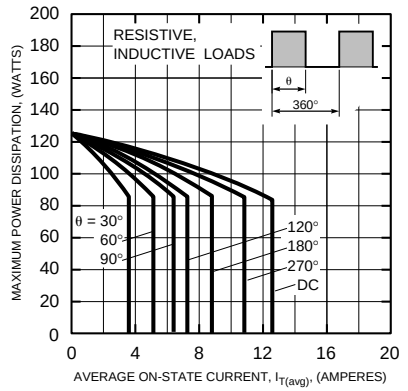
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINGLE-PHASE FULL WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (SINGLE-PHASE FULL WAVEFORM)

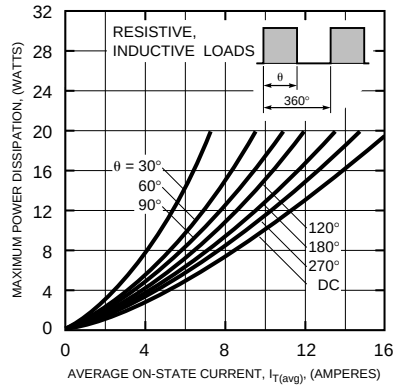


MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)

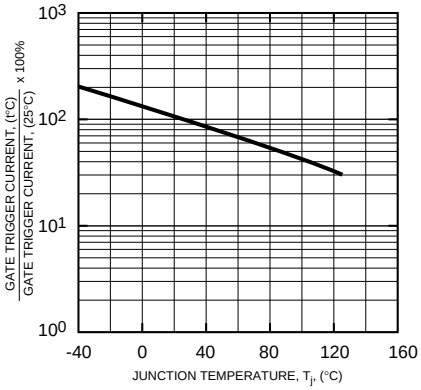


CR8AM
Lead-mount, Phase Control SCR
8 Amperes/400-600 Volts

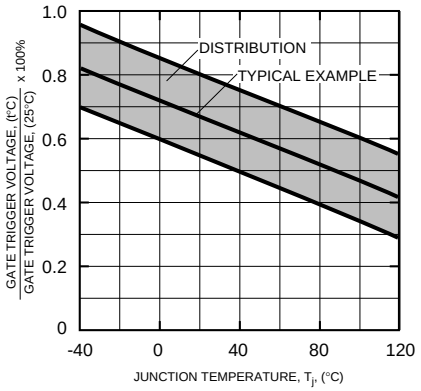
MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



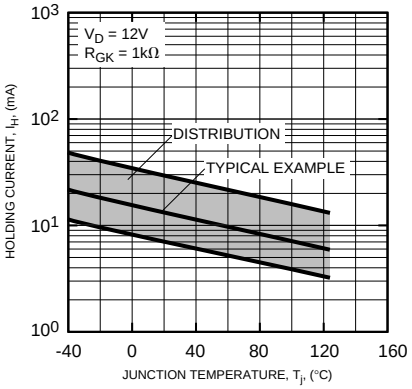
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



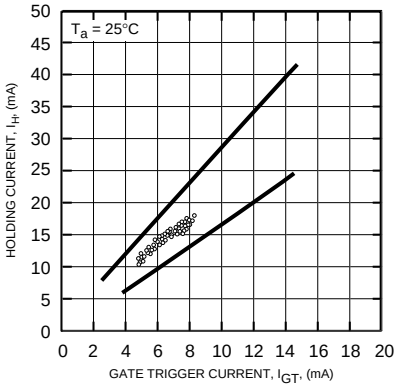
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



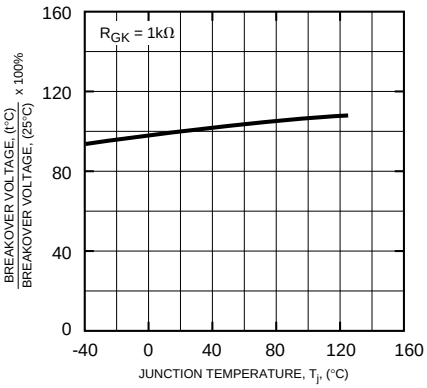
HOLDING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



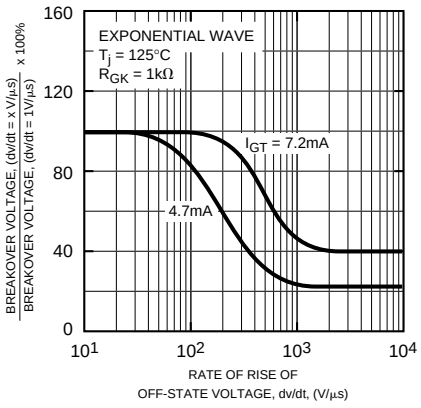
HOLDING CURRENT VS. GATE TRIGGER CURRENT



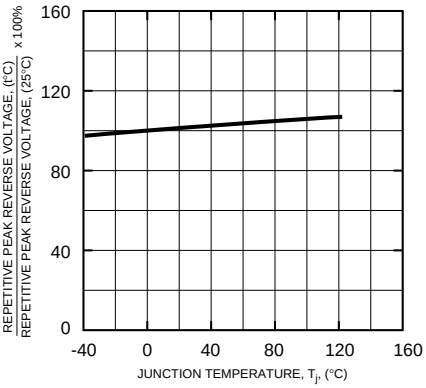
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



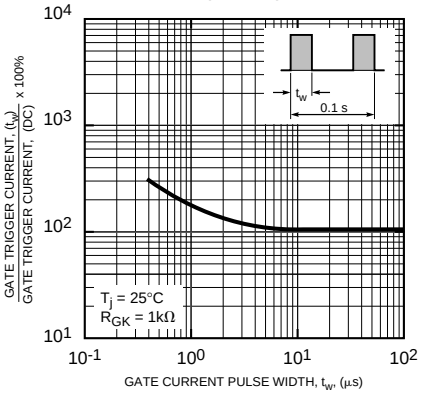
BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE (TYPICAL)



REPETITIVE PEAK REVERSE VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH (TYPICAL)



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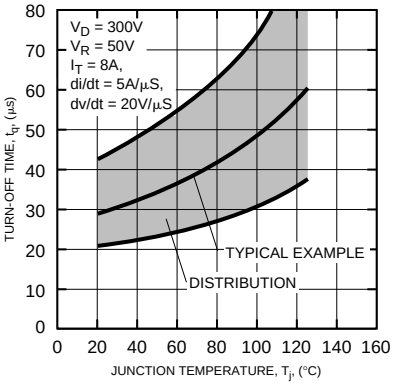
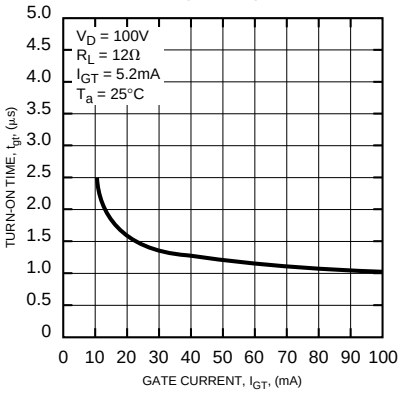
TURN-OFF TIME VS. JUNCTION TEMPERATURE (TYPICAL)



TURN-ON TIME VS. GATE CURRENT (TYPICAL)



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