

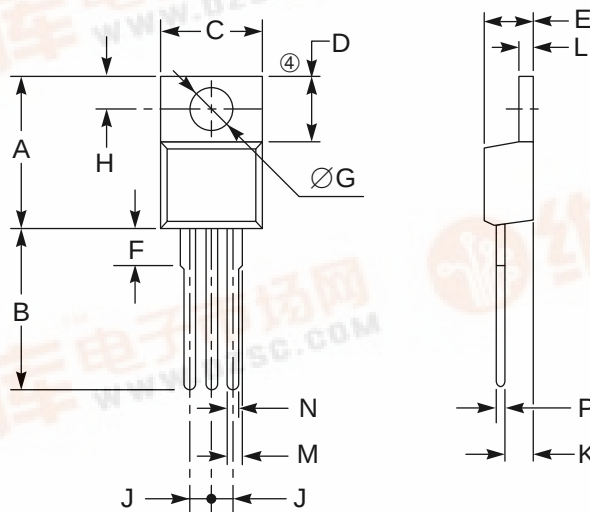


CR8AM

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

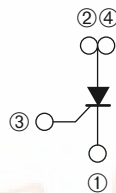
Lead-mount, Phase Control SCR 8 Amperes/400-600 Volts

OUTLINE DRAWING



CONNECTION DIAGRAM

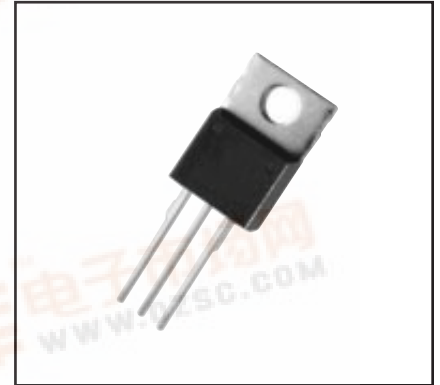
- ① CATHODE
- ② ANODE
- ③ GATE
- ④ ANODE



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



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

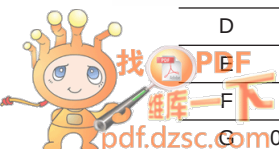
Applications:

- ☐ 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





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Absolute Maximum Ratings, $T_a = 25^\circ\text{C}$ 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	$V_{\text{R(DC)}}$	320	480	Volts
DC Forward Voltage	$V_{\text{D(DC)}}$	320	480	Volts
RMS On-state Current	$I_{\text{T(RMS)}}$	12.6	12.6	Amperes
Average On-state Current (Nominal, See Graphs) $T_C = 88^\circ\text{C}$	$I_{\text{T(avg)}}$	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	$P_{\text{G(avg)}}$	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	$^\circ\text{C}$
Operating Junction Temperature	T_j	-40 to 125	-40 to 125	$^\circ\text{C}$
Weight	—	2.3	2.3	Grams



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

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



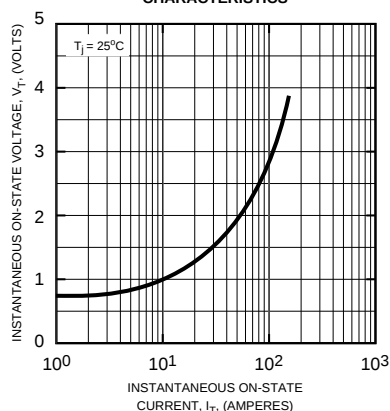
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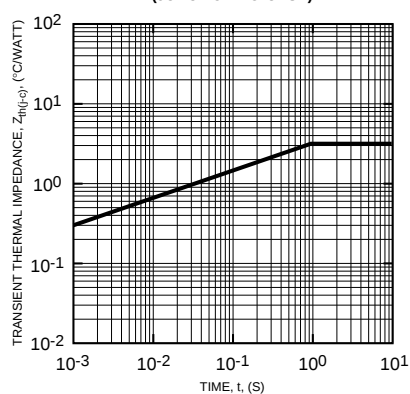
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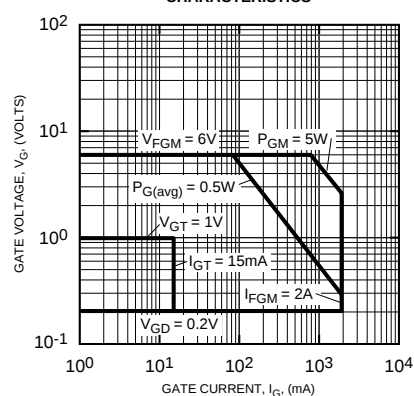
MAXIMUM ON-STATE CHARACTERISTICS



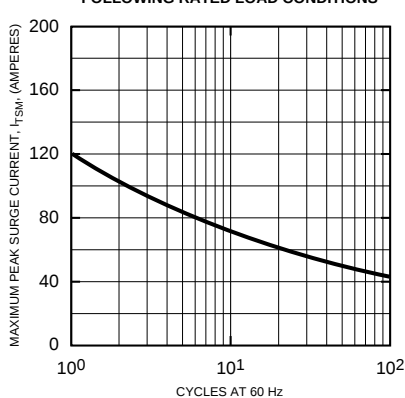
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION-TO-CASE)



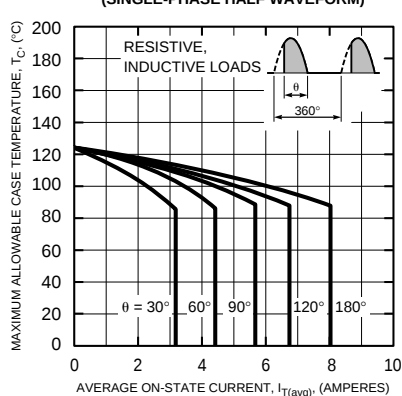
GATE CHARACTERISTICS



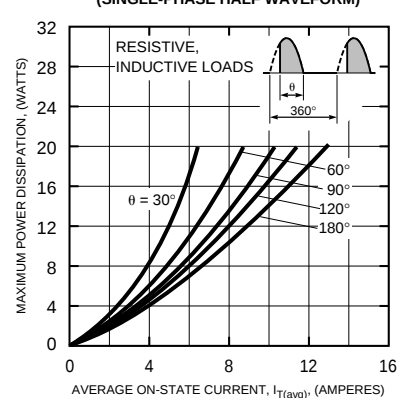
MAXIMUM SURGE CURRENT FOLLOWING RATED LOAD CONDITIONS



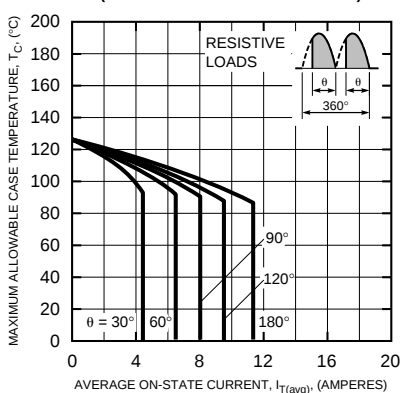
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINGLE-PHASE HALF WAVEFORM)



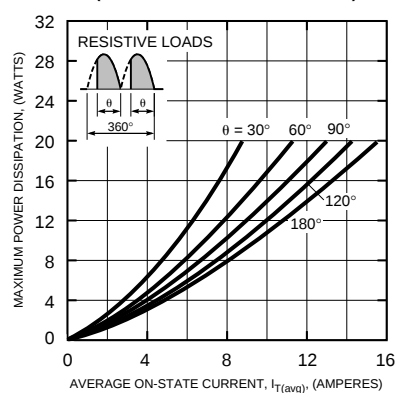
MAXIMUM ON-STATE POWER DISSIPATION (SINGLE-PHASE HALF WAVEFORM)



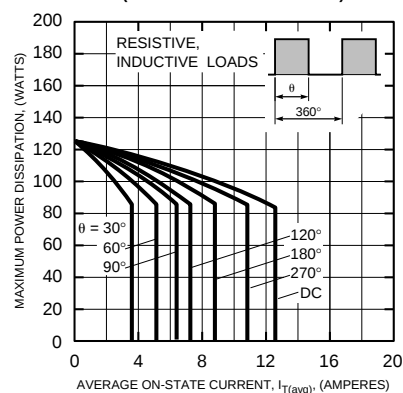
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINGLE-PHASE FULL WAVEFORM)



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



MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



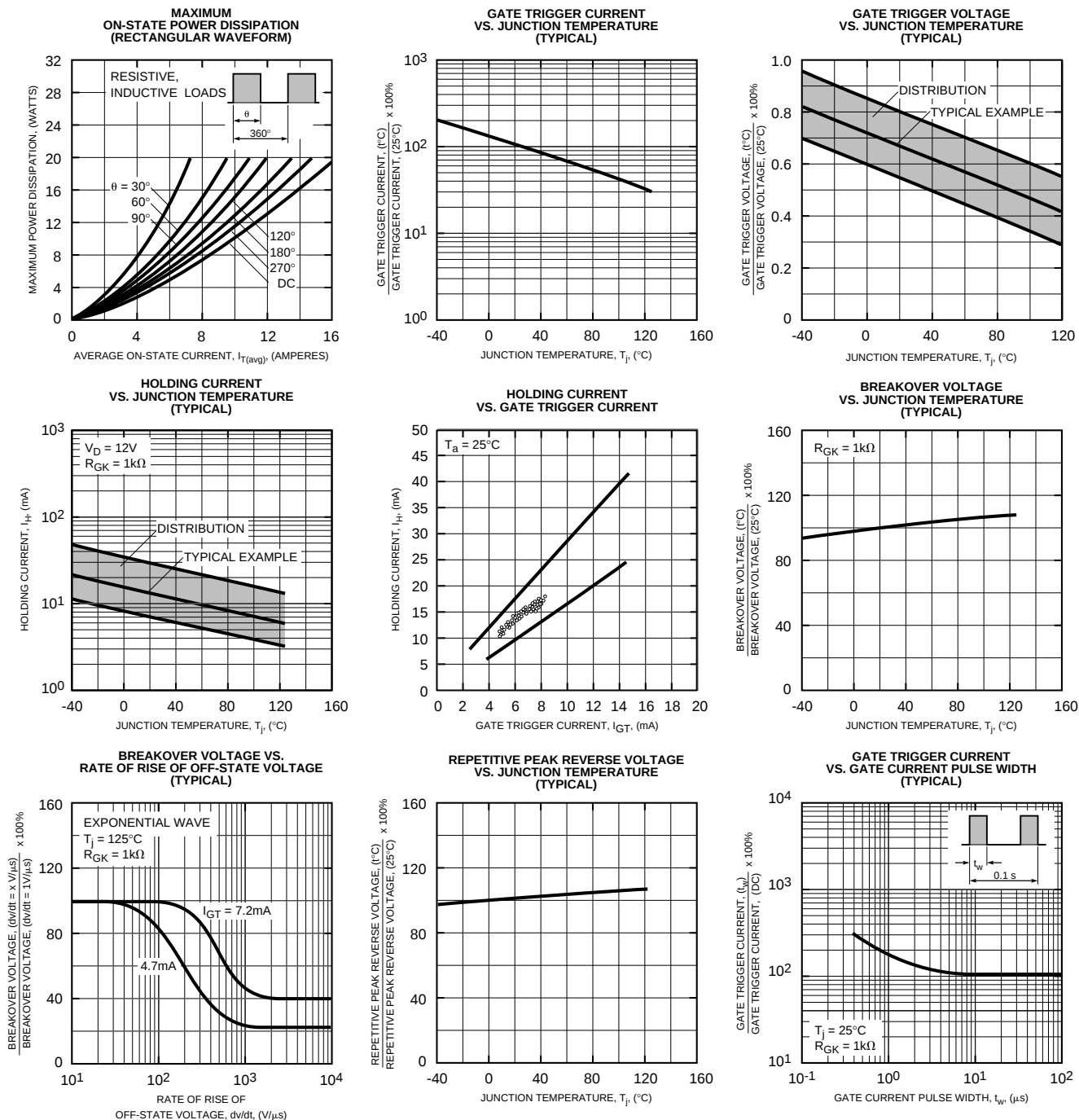


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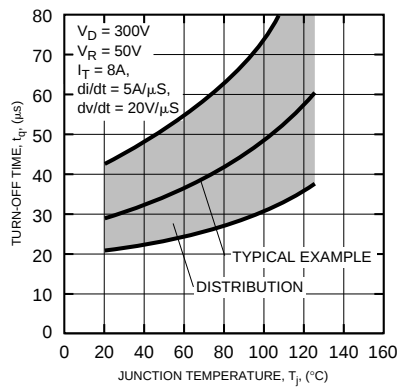
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CR8AM

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8 Amperes/400-600 Volts

TURN-OFF TIME
VS. JUNCTION TEMPERATURE
(TYPICAL)



TURN-ON TIME
VS. GATE CURRENT
(TYPICAL)

