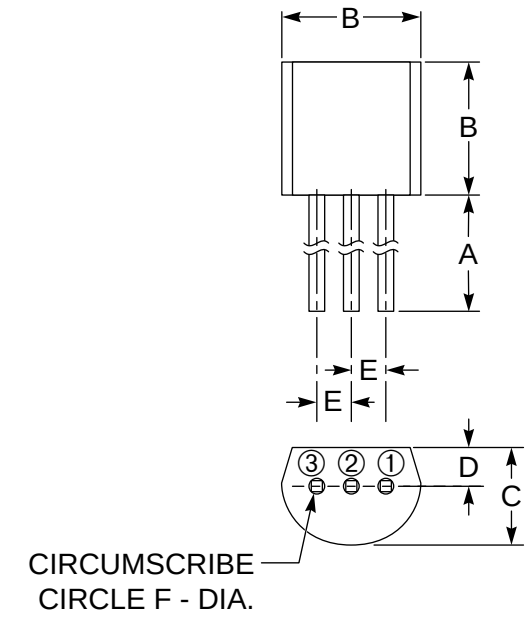
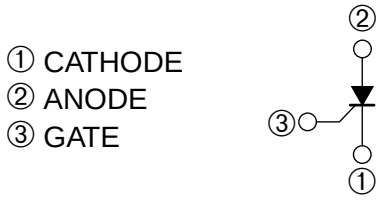
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272

Lead-Mount, Phase Control SCR
0.3 Amperes/400 Volts

OUTLINE DRAWING



CONNECTION DIAGRAM



Outline Drawing (Conforms to JEDEC TO-92)

Dimensions	Inches	Millimeters
A	0.49 Min.	12.5 Min.
B	0.20 Max.	5.0 Max.
C	0.15 Max.	3.9 Max.
D	0.05	1.3
E	0.049	1.25
F	0.028 Dia.	0.7 Dia.

Description:
The Powerex CR02AM Phase Control SCRs are planar passivated thyristors for use in low power control and rectification. These devices are molded silicone plastic types.

Features:
- ☐ Planar Passivation
- ☐ Short Turn-on Time – Suitable to Pulse Use

Applications:
- ☐ Phase Control
- ☐ Triggering of High Power Thyristors, Pulse Generators and Counters
- ☐ Static Switch
- ☐ Motor Control
- ☐ Strobe Flasher

Ordering Information:
Example: Select the complete seven digit part number you desire from the table - i.e. CR02AM-8 is a 400 Volt, 0.3 Ampere Phase Control SCR.

Type	V_{DRM}/V_{RRM} Volts	Code
CR02AM	400	-8

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CR02AM
Lead-Mount, Phase Control SCR
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Absolute Maximum Ratings, T_a = 25 °C unless otherwise specified

Ratings	Symbol	CR02AM-8	Units
Repetitive Peak Off-state Voltage	V_{DRM}	400	Volts
Repetitive Peak Reverse Voltage	V_{RRM}	400	Volts
Non-repetitive Peak Reverse Voltage	V_{RSM}	500	Volts
DC Reverse Voltage	$V_{R(DC)}$	320	Volts
DC Forward Voltage	$V_{D(DC)}$	320	Volts
RMS On-state Current	$I_{T(RMS)}$	0.47	Amperes
Average On-state Current (Nominal, See Graphs) T_a = 30°C	$I_{T(avg)}$	0.3	Amperes
Non-repetitive Peak Surge, On-state Current One Cycle (60 Hz)	I_{TSM}	10	Amperes
I^2t for Fusing, t = 8.3 msec	I^2t	0.4	A^2sec
Peak Gate Power Dissipation	P_{GM}	0.1	Watts
Average Gate Power Dissipation	$P_{G(avg)}$	0.01	Watts
Peak Forward Gate Current	I_{FGM}	0.1	Amperes
Peak Forward Gate Voltage	V_{FGM}	6	Volts
Peak Reverse Gate Voltage	V_{RGM}	6	Volts
Storage Temperature	T_{stg}	-40 to 125	°C
Operating Temperature	T_j	-40 to 125	°C
Weight	–	0.23	Grams

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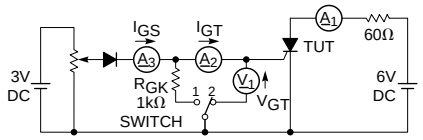
Electrical and Thermal Characteristics, T_j = 25 °C unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Voltage – Blocking State						
Peak Forward Leakage	I_{DRM}	T_j = 125°C, $V_D = V_{DRM}$	–	–	0.1	mA
Peak Reverse Leakage	I_{RRM}	T_j = 125°C, $V_R = V_{RRM}$	–	–	0.1	mA
Current – Conducting State						
Peak On-state Voltage	V_{TM}	T_a = 25°C, I_{TM} = 0.6A	–	–	1.6	Volts
DC Holding Current	I_H	V_D = 12V, R_{GK} = 1kΩ, T_j = 25°C	–	–	3.0	mA
Thermal Resistance, Junction-to-ambient	$R_{th(j-a)}$	–	–	–	180	°C/W
Gate – Parameters						
Gate Current to Trigger†	I_{GT}	V_D = 6V, R_L = 60Ω, T_j = 25°C	1	–	100	μA
Gate Voltage to Trigger†	V_{GT}	V_D = 6V, R_L = 60Ω, T_j = 25°C	–	–	0.8	Volts
Non-triggering Gate Voltage	V_{GD}	$V_D = 1/2V_{DRM}$, R_{GK} = 1kΩ, T_j = 125°C	0.2	–	–	Volts

† I_{GT}, V_{GT} measurement circuit



SWITCH 1: I_{GT} Measurement
SWITCH 2: V_{GT} Measurement
(Inner resistance of voltage meter is about 1kΩ)

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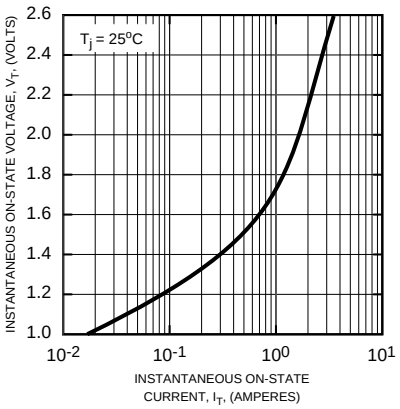
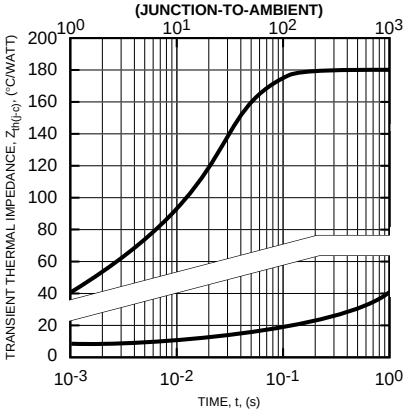
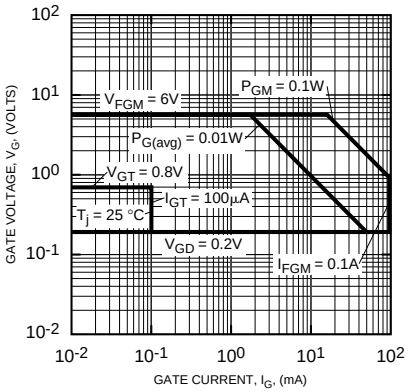
MAXIMUM ON-STATE CHARACTERISTICS



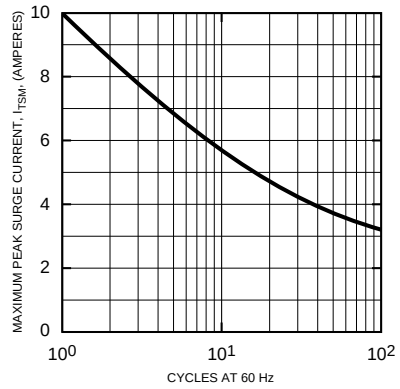
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION-TO-AMBIENT)



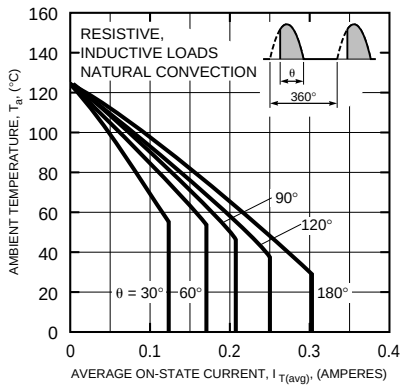
GATE CHARACTERISTICS



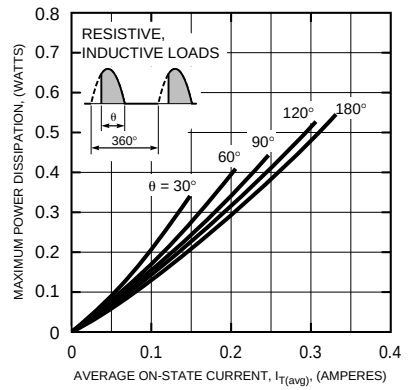
MAXIMUM SURGE CURRENT FOLLOWING RATED LOAD CONDITIONS



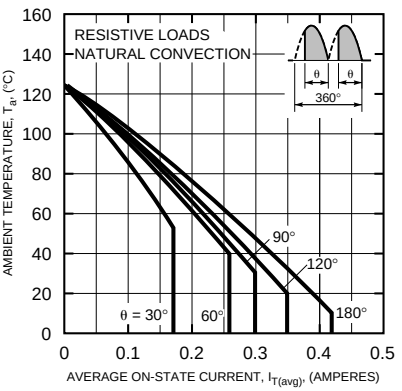
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVEFORM)



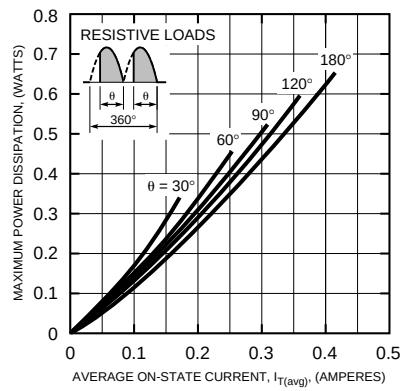
MAXIMUM ON-STATE POWER DISSIPATION (SINGLE-PHASE HALF WAVEFORM)



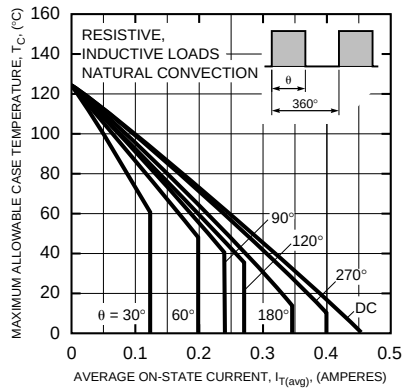
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVEFORM)



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



MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



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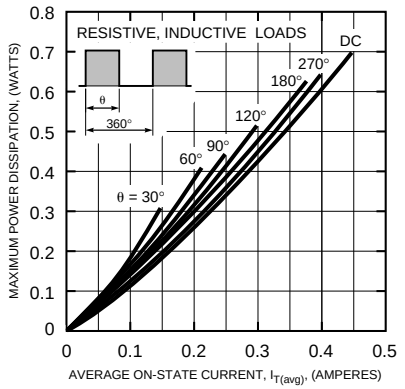
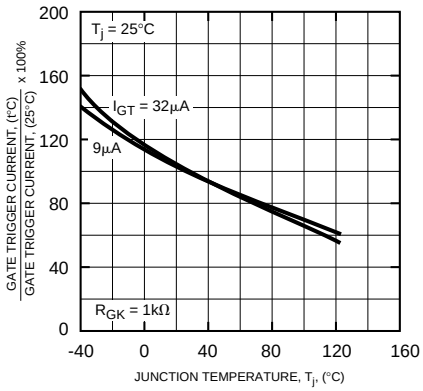
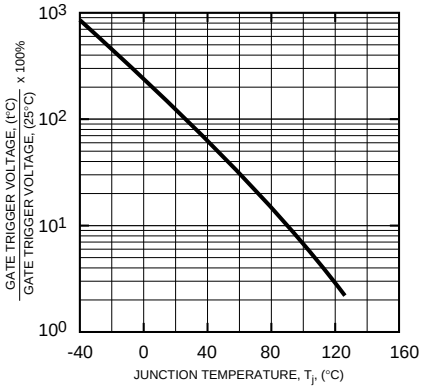
MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



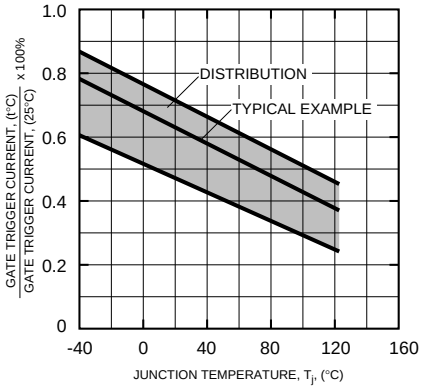
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



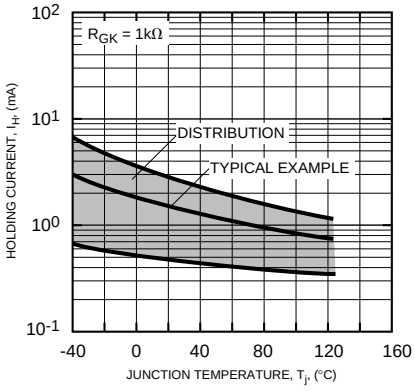
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



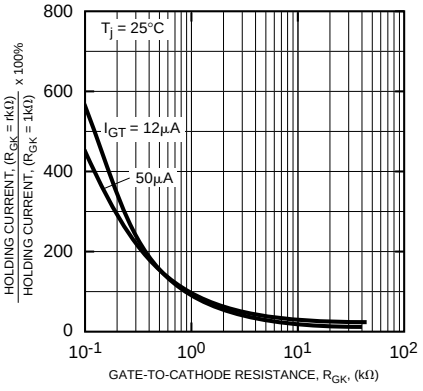
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



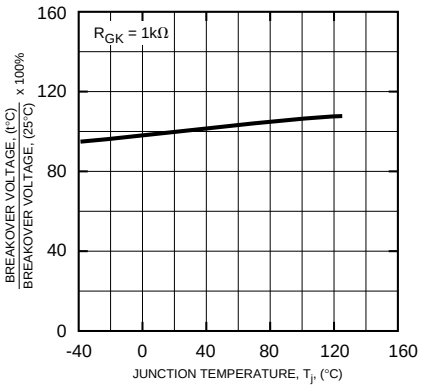
HOLDING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



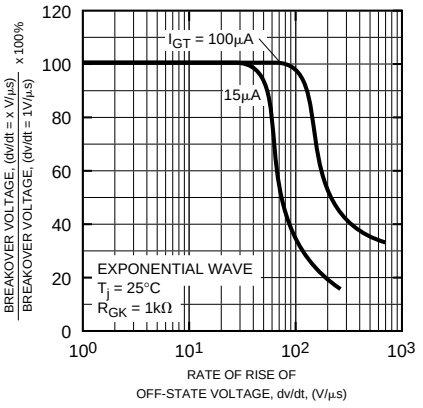
HOLDING CURRENT VS. GATE-TO-CATHODE RESISTANCE (TYPICAL)



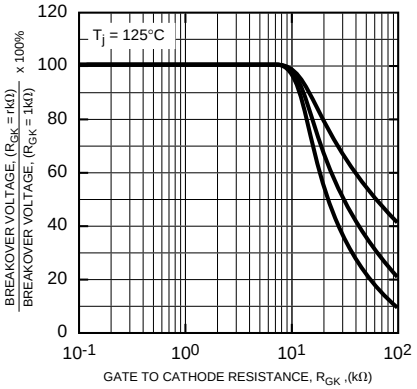
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



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



BREAKOVER VOLTAGE VS. GATE TO CATHODE RESISTANCE (TYPICAL)



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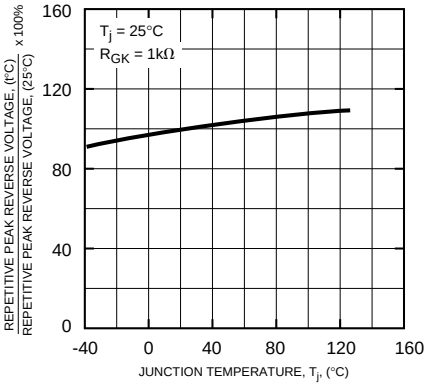
REPETITIVE PEAK REVERSE VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



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