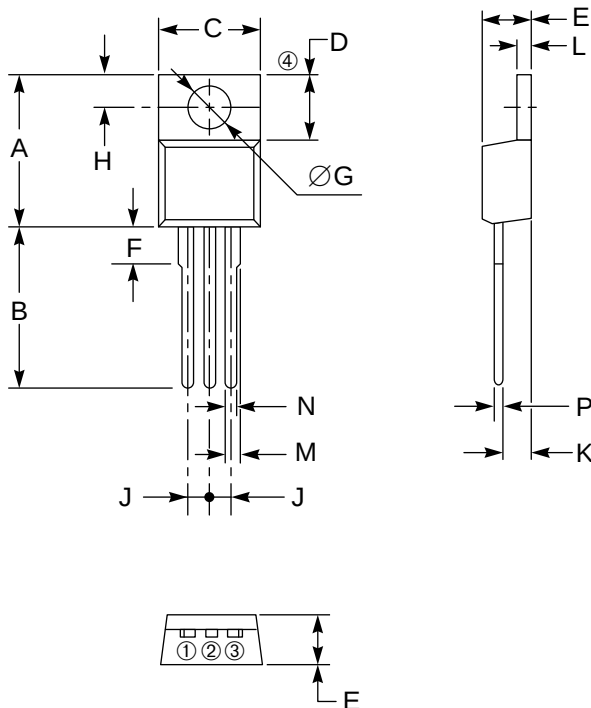


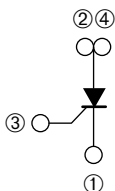
### Lead-mount, Phase Control SCR 8 Amperes/400-600 Volts

#### OUTLINE DRAWING



#### CONNECTION DIAGRAM

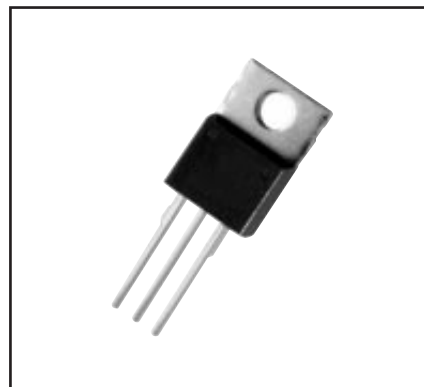
- ① CATHODE
- ② ANODE
- ③ GATE
- ④ ANODE



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 <sub>DRM</sub> /V <sub>RRM</sub><br>Volts | Code |
|-------|---------------------------------------------|------|
| CR8AM | 400                                         | -8   |
|       | 600                                         | -12  |



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

**CR8AM**

**Lead-mount, Phase Control SCR**

8 Amperes/400-600 Volts

**Absolute Maximum Ratings,  $T_a = 25^\circ\text{C}$  unless otherwise specified**

| Ratings                                                                 | Symbol              | CR8AM-8    | CR8AM-12   | Units                  |
|-------------------------------------------------------------------------|---------------------|------------|------------|------------------------|
| Repetitive Peak Off-state Voltage                                       | $V_{\text{DRM}}$    | 400        | 600        | Volts                  |
| Repetitive Peak Reverse Voltage                                         | $V_{\text{RRM}}$    | 400        | 600        | Volts                  |
| Non-repetitive Peak Reverse Voltage                                     | $V_{\text{RSM}}$    | 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)           | $I_{\text{TSM}}$    | 120        | 120        | Amperes                |
| $I^2t$ for Fusing, $t = 8.3$ msec                                       | $I^2t$              | 60         | 60         | $\text{A}^2\text{sec}$ |
| Peak Gate Power Dissipation                                             | $P_{\text{GM}}$     | 5          | 5          | Watts                  |
| Average Gate Power Dissipation                                          | $P_{\text{G(avg)}}$ | 0.5        | 0.5        | Watts                  |
| Peak Forward Gate Current                                               | $I_{\text{FGM}}$    | 2          | 2          | Amperes                |
| Peak Forward Gate Voltage                                               | $V_{\text{FGM}}$    | 6          | 6          | Volts                  |
| Peak Reverse Gate Voltage                                               | $V_{\text{RGM}}$    | 10         | 10         | Volts                  |
| Storage Temperature                                                     | $T_{\text{stg}}$    | -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                  |



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

**CR8AM**

**Lead-mount, Phase Control SCR**

8 Amperes/400-600 Volts

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

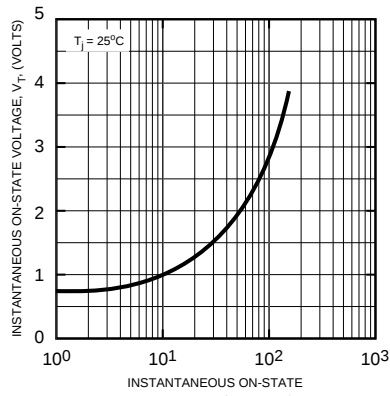
| Characteristics             | Symbol               | Test Conditions                                                | Min. | Typ. | Max. | Units              |
|-----------------------------|----------------------|----------------------------------------------------------------|------|------|------|--------------------|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

## CR8AM

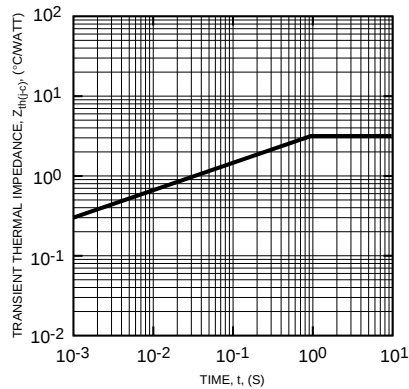
### Lead-mount, Phase Control SCR

8 Amperes/400-600 Volts

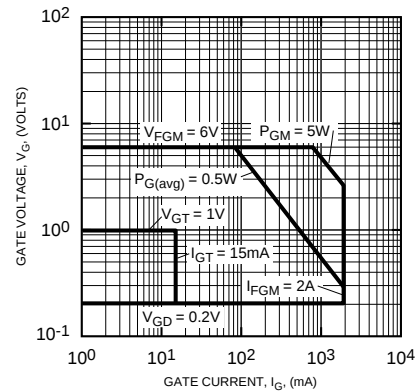
**MAXIMUM ON-STATE CHARACTERISTICS**



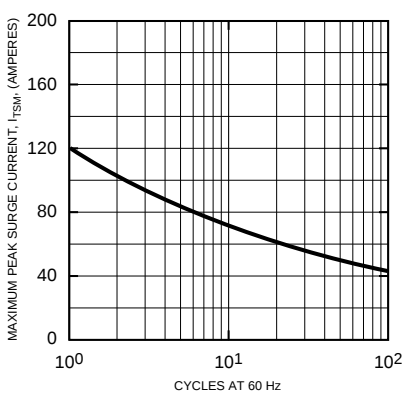
**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION-TO-CASE)**



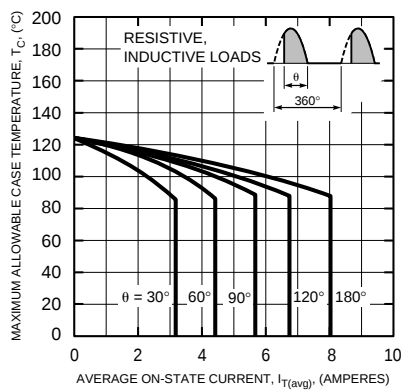
**GATE CHARACTERISTICS**



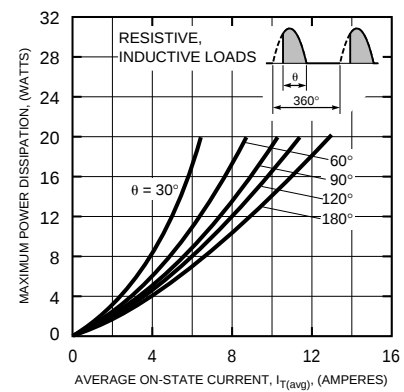
**MAXIMUM SURGE CURRENT FOLLOWING RATED LOAD CONDITIONS**



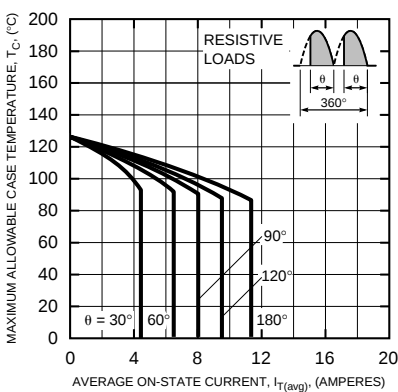
**MAXIMUM ALLOWABLE CASE TEMPERATURE (SINGLE-PHASE HALF WAVEFORM)**



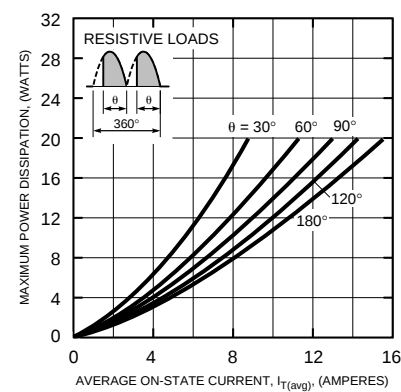
**MAXIMUM ON-STATE POWER DISSIPATION (SINGLE-PHASE HALF WAVEFORM)**



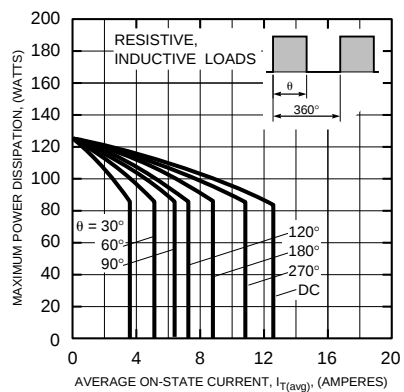
**MAXIMUM ALLOWABLE CASE TEMPERATURE (SINGLE-PHASE FULL WAVEFORM)**



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

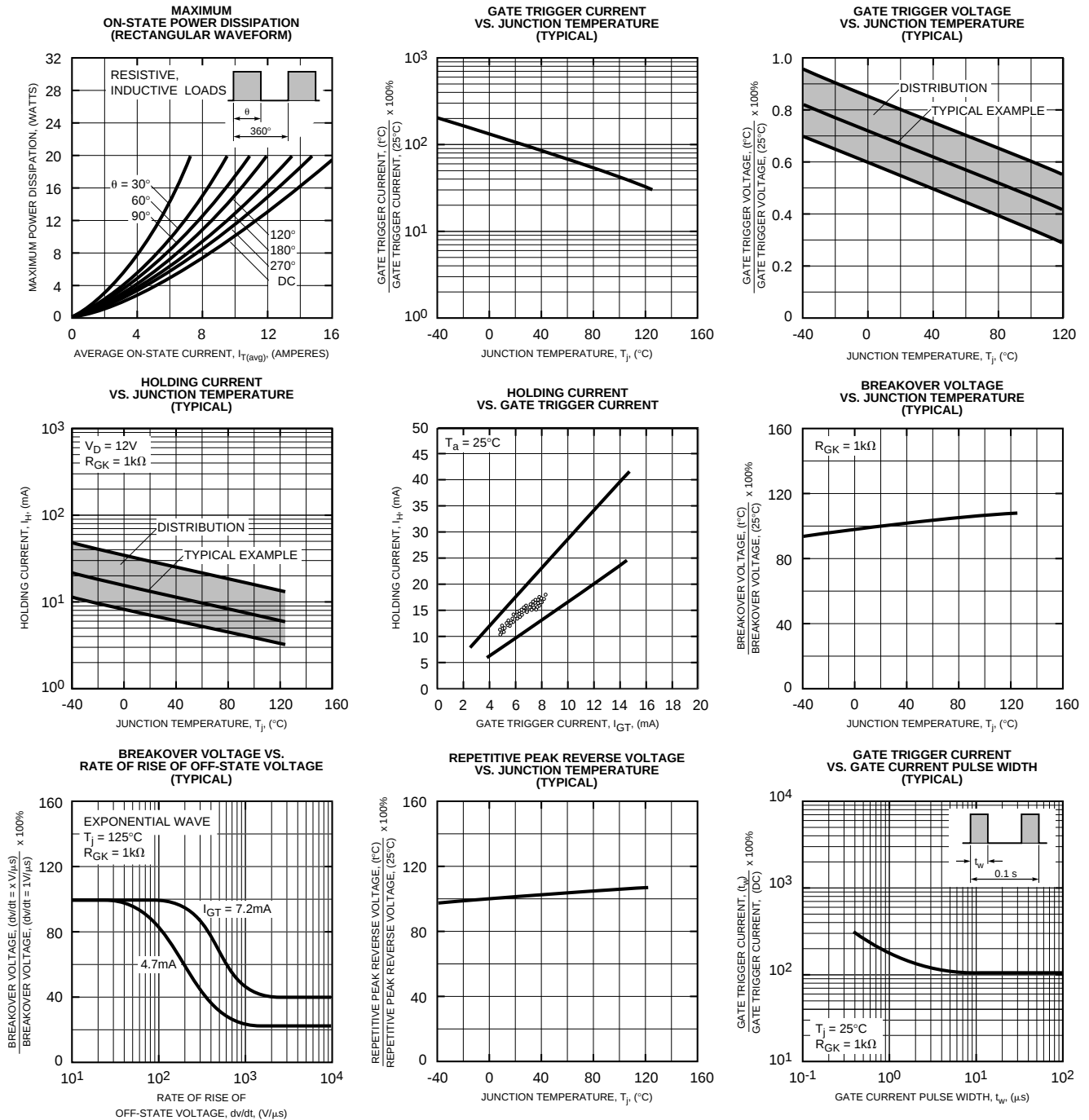


**MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)**



## CR8AM

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



## CR8AM

### Lead-mount, Phase Control SCR

8 Amperes/400-600 Volts

