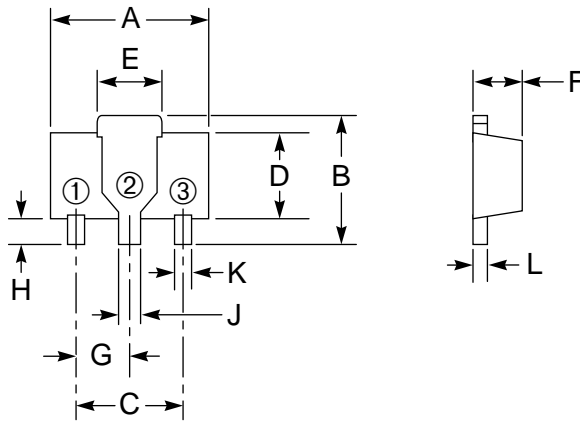


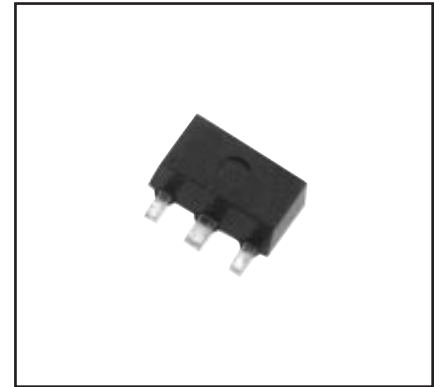
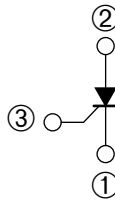
### Surface Mount, Phase Control SCR 0.8 Amperes/400-600 Volts

#### OUTLINE DRAWING



#### CONNECTION DIAGRAM

① CATHODE  
② ANODE  
③ GATE



#### Description:

The Powerex CR08AS Phase Control SCRs are glass passivated thyristors for use in low power control and rectification. These devices are molded epoxy plastic types.

#### Features:

- Surface Mount Type
- Glass Passivated
- Gate Trigger Current is Small
- Easy Application for Printed Circuits

#### Applications:

- Solid State Relay
- Static Switches
- Ignitors
- Strobe Flasher

#### Ordering Information:

Example: Select the complete seven or eight digit part number you desire from the table - i.e. CR08AS-8 is a 400 Volt, 0.8 Ampere Phase Control SCR.

Outline Drawing (Conforms to SOT-89)

Dimensions	Inches	Millimeters
A	0.18 Max.	4.6 Max.
B	0.17 Max.	4.2 Max.
C	0.12	3.0
D	0.10 ± 0.004	2.5 ± 0.1
E	0.06 ± 0.008	1.6 ± 0.2
F	0.06 ± 0.004	1.5 ± 0.1

Dimensions	Inches	Millimeters
G	0.06	1.5
H	0.031 Min.	0.8 Min.
J	0.021 Max.	0.58 Max.
K	0.019 Max.	0.48 Max.
L	0.016+0.001/-0.002	0.4+0.03/-0.05

Type	V <sub>DRM</sub> /V <sub>RRM</sub> Volts	Code
CR08AS	400	-8
	600	-12



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

**CR08AS**

**Surface Mount, Phase Control SCR**

0.8 Amperes/400-600 Volts

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

Ratings	Symbol	CR08AS-8 (Marked "AD")	CR08AS-12 (Marked "AF")	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	$I_T(RMS)$	1.26	1.26	Amperes
Average On-state Current (Nominal, See Graphs) $T_a = 51\text{ }^\circ\text{C}$	$I_T(avg)$	0.8	0.8	Amperes
Non-repetitive Peak Surge, On-state Current One Cycle (60 Hz)	$I_{TSM}$	10	10	Amperes
$I^2t$ for Fusing, $t = 8.3\text{ msec}$	$I^2t$	0.42	0.42	$A^2sec$
Peak Gate Power Dissipation	$P_{GM}$	0.5	0.5	Watts
Average Gate Power Dissipation	$P_{G(avg)}$	0.1	0.1	Watts
Peak Forward Gate Current	$I_{FGM}$	0.3	0.3	Amperes
Peak Forward Gate Voltage	$V_{FGM}$	6	6	Volts
Peak Reverse Gate Voltage	$V_{RGM}$	6	6	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	-	48	48	mg

**CR08AS**

**Surface Mount, Phase Control SCR**

0.8 Amperes/400-600 Volts

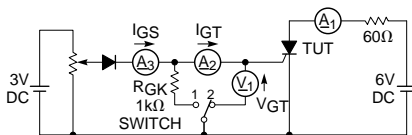
**Electrical and Thermal Characteristics,  $T_j = 25^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Voltage – Blocking State						
Peak Forward Leakage	$I_{DRM}$	$T_j = 125^\circ\text{C}, V_D = V_{DRM}$	–	–	0.5	mA
Peak Reverse Leakage	$I_{RRM}$	$T_j = 125^\circ\text{C}, V_R = V_{RRM}$	–	–	0.5	mA
Current – Conducting State						
Peak On-state Voltage	$V_{TM}$	$T_c = 25^\circ\text{C}, I_{TM} = 2.5\text{A}$	–	–	1.5	Volts
DC Holding Current	$I_H$	$V_D = 12\text{V}, R_{GK} = 1\text{k}\Omega, T_j = 25^\circ\text{C}$	–	1.5	3.0	mA
Thermal Resistance, Junction-to-ambient						
	$R_{th(j-a)}$	–	–	–	65	$^\circ\text{C/Watt}$
Gate – Parameters						
Gate Current to Trigger†*	$I_{GT}$	$V_D = 6\text{V}, R_L = 60\Omega, T_j = 25^\circ\text{C}$	–	–	100	$\mu\text{A}$
Gate Voltage to Trigger†	$V_{GT}$	$V_D = 6\text{V}, R_L = 60\Omega, T_j = 25^\circ\text{C}$	–	–	0.8	Volts
Non-triggering Gate Voltage	$V_{GD}$	$V_D = 1/2V_{DRM}, R_{GK} = 1\text{k}\Omega, T_j = 125^\circ\text{C}$	0.3	–	–	Volts

†  $I_{GT}, V_{GT}$  Measurement Circuit

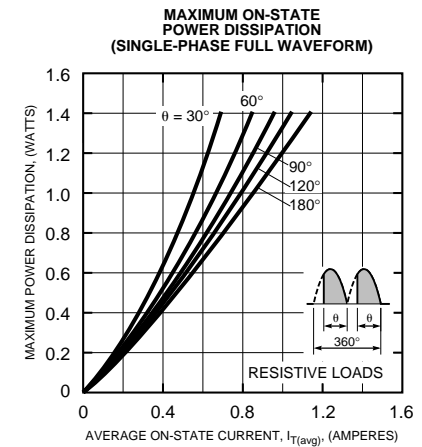
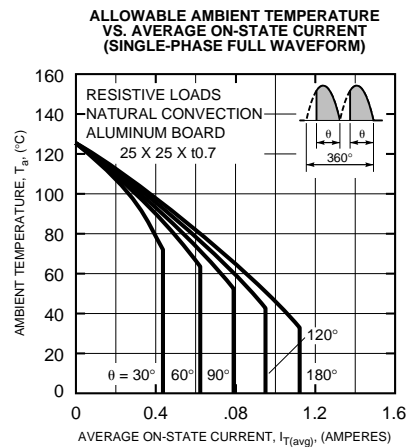
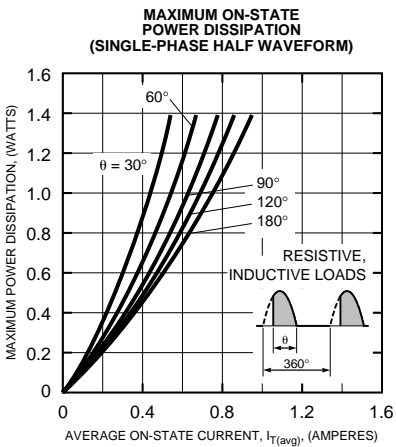
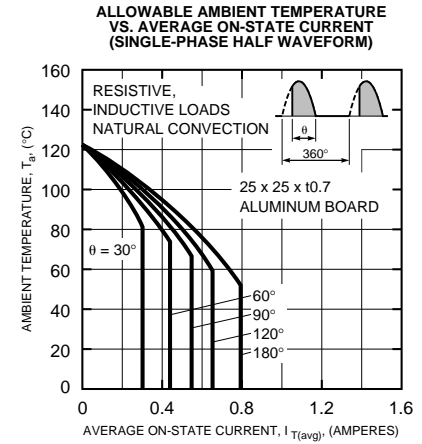
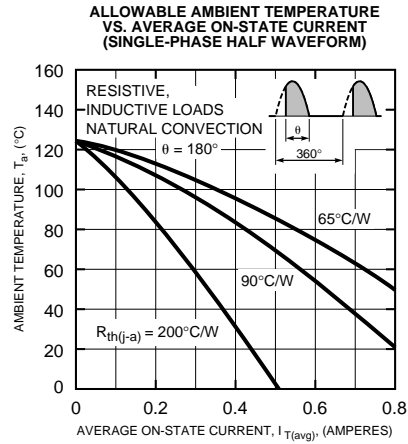
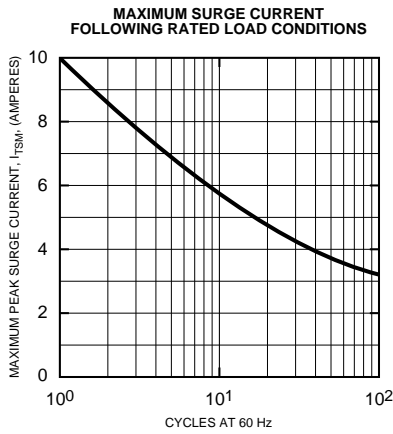
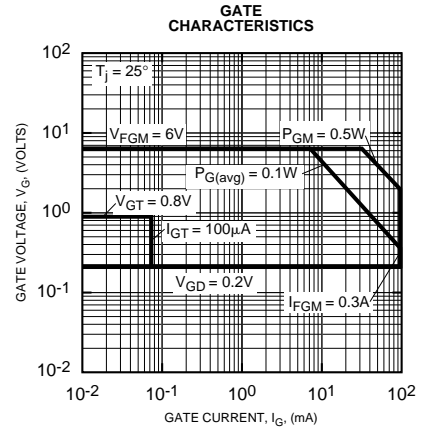
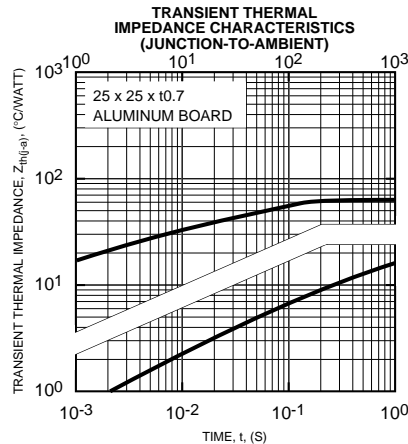
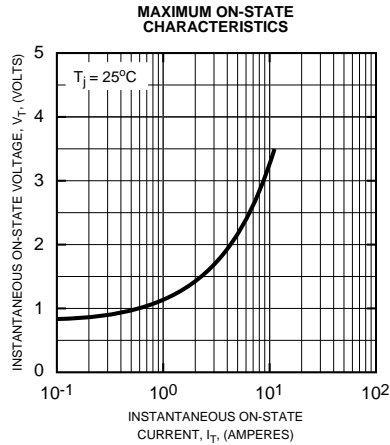
\* If special values of  $I_{GT}$  are required, choose at least two items from those listed in the table below; i.e. A-B or B-C.

Item	A	B	C
$I_{GT} (\mu\text{A})$	1-30	20-50	40-100

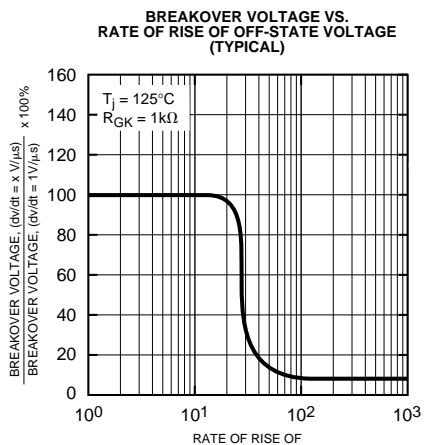
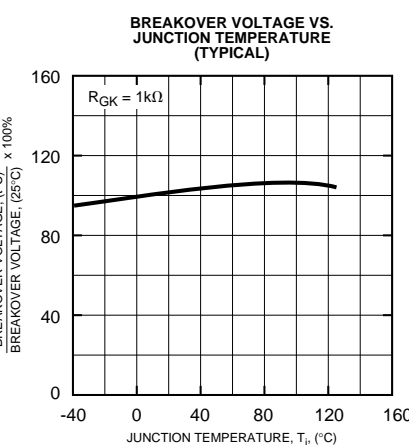
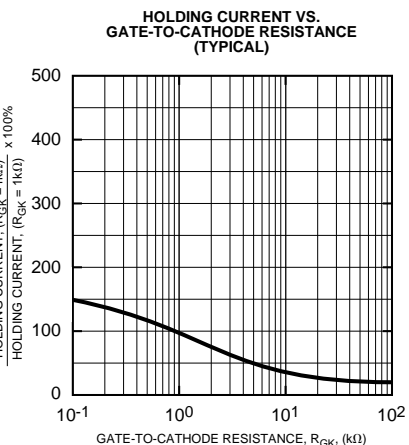
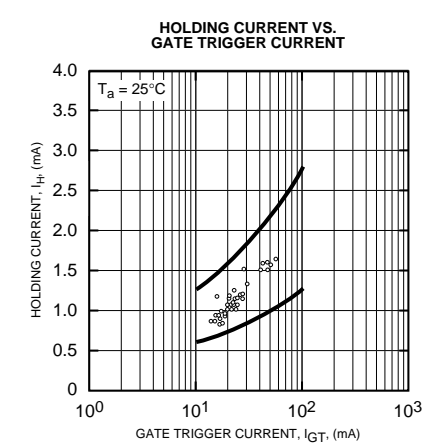
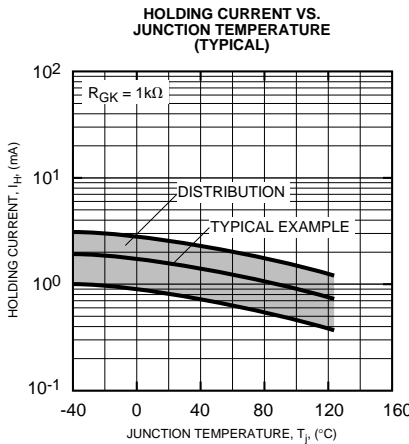
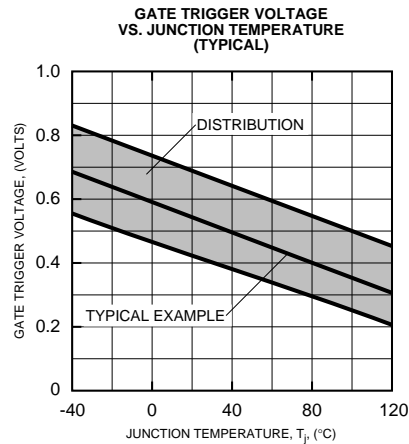
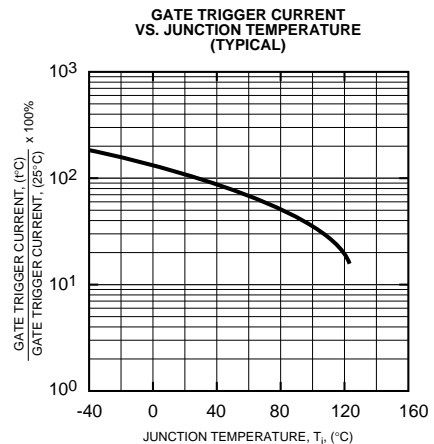
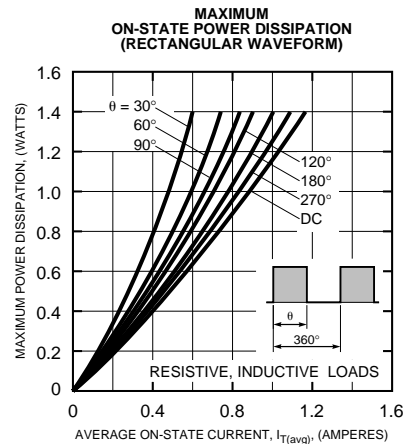
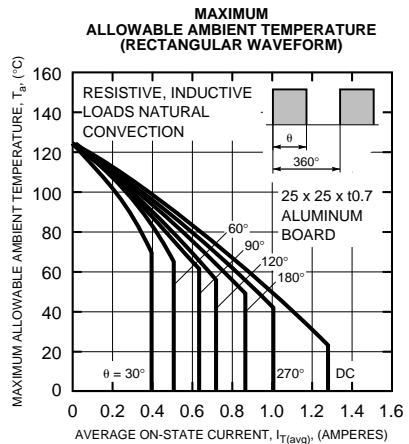


SWITCH 1:  $I_{GT}$  Measurement  
 SWITCH 2:  $V_{GT}$  Measurement  
 (Inner resistance of voltage meter is about 1k $\Omega$ )

**CR08AS**  
**Surface Mount, Phase Control SCR**  
 0.8 Amperes/400-600 Volts



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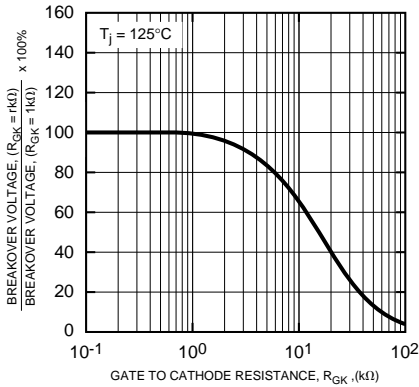


## CR08AS

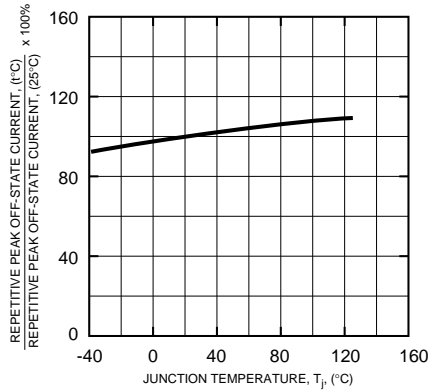
### Surface Mount, Phase Control SCR

0.8 Amperes/400-600 Volts

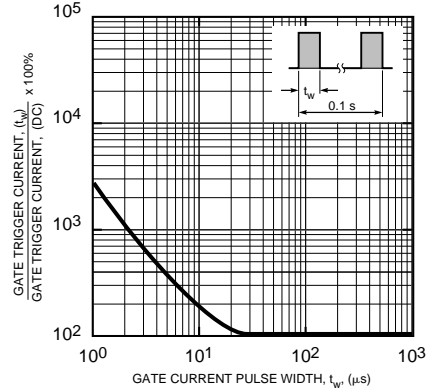
**BREAKOVER VOLTAGE VS. GATE TO CATHODE RESISTANCE (TYPICAL)**



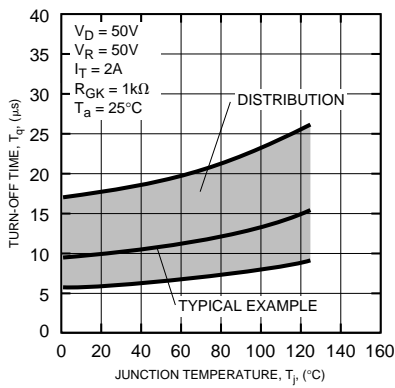
**REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)**



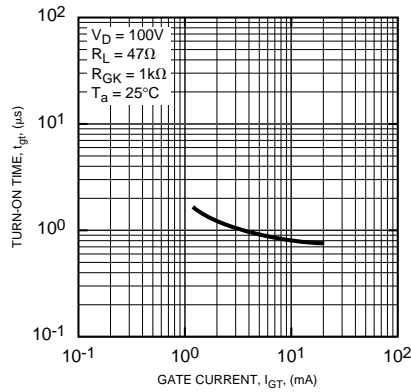
**GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH (TYPICAL)**



**TURN-OFF TIME VS. JUNCTION TEMPERATURE (TYPICAL)**



**TURN-ON TIME VS. GATE CURRENT (TYPICAL)**



**THERMAL IMPEDANCE VS. BOARD DIMENSIONS**

