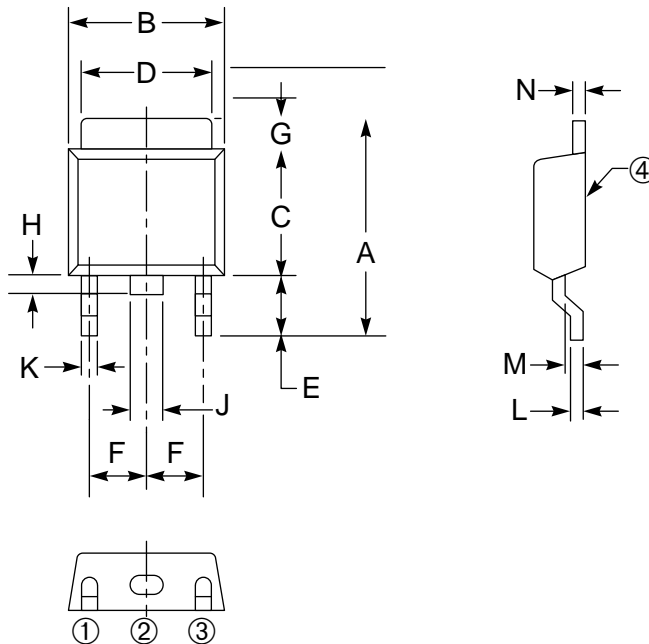


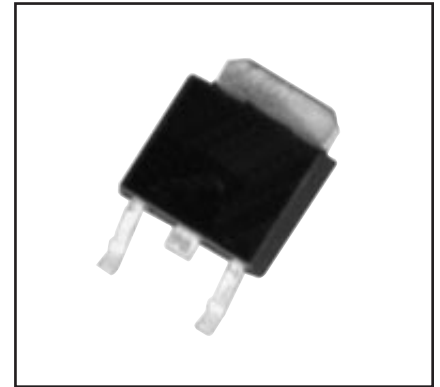
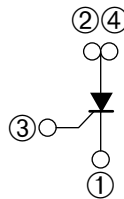
### Surface Mount, Phase Control SCR 5 Amperes/400-600 Volts

#### OUTLINE DRAWING



#### CONNECTION DIAGRAM

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



#### Description:

The Powerex CR5AS SCRs are surface mounted for use in medium power control and rectification. These devices are molded silicone plastic types.

#### Features:

- Surface Mount Type
- Glass Passivated
- Easy Application to Printed Circuits
- High Surge On-state Current

#### Applications:

- Static Switches
- Motor Control
- Strobe Flasher

#### Ordering Information:

Example: Select the complete six or seven digit part number you desire from the table - i.e. CR5AS-12 is a 600 Volt, 5 Ampere Phase Control SCR.

Outline Drawing (Conforms to MP-3)

Dimensions	Inches	Millimeters
A	0.39 Max.	10 Max.
B	0.26	6.5
C	0.22 ± 0.008	5.5 ± 0.2
D	0.20 ± 0.008	5.0 ± 0.2
E	0.18	4.6
F	0.09 Min.	2.3 Min.
G	0.09	2.3

Dimensions	Inches	Millimeters
H	0.06 ± 0.008	1.5 ± 0.2
J	0.040	1.01
K	0.035 Max.	0.9 Max.
L	0.035 Max.	0.9 Max.
M	0.31	0.8
N	0.020 ± 0.004	0.5 ± 0.1

Type	V <sub>DRM</sub> /V <sub>RRM</sub> Volts	Code
CR5AS	400	-8
	600	-12



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

**CR5AS**  
**Surface Mount, Phase Control SCR**  
5 Amperes/400-600 Volts

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

Ratings	Symbol	CR5AS-8	CR5AS-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	$I_{T(RMS)}$	7.8	7.8	Amperes
Average On-state Current (Nominal, See Graphs) $T_a = 88^\circ\text{C}$	$I_{T(avg)}$	5	5	Amperes
Non-repetitive Peak Surge, On-state Current One Cycle (60 Hz)	$I_{TSM}$	90	90	Amperes
$I^2t$ for Fusing, $t = 8.3$ msec	$I^2t$	33	33	$\text{A}^2\text{sec}$
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	-	0.26	0.26	Grams

**CR5AS**

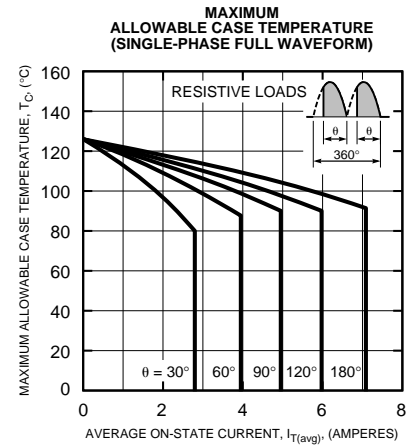
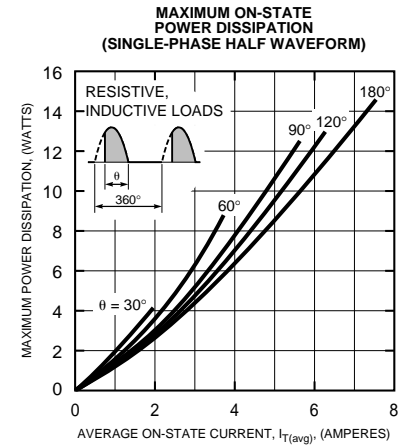
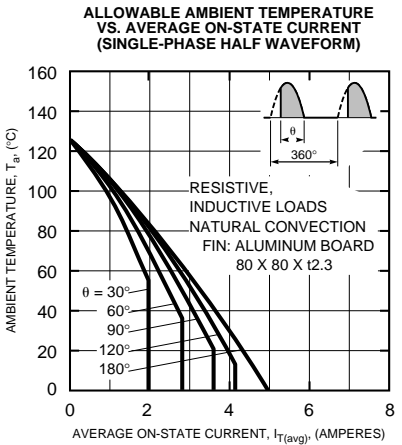
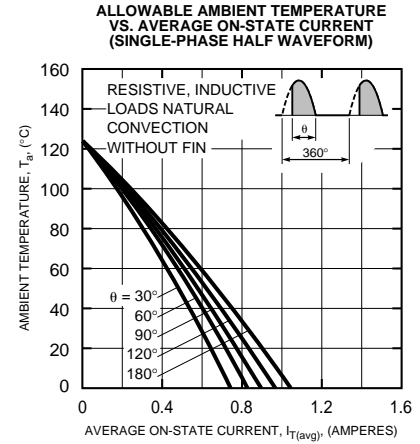
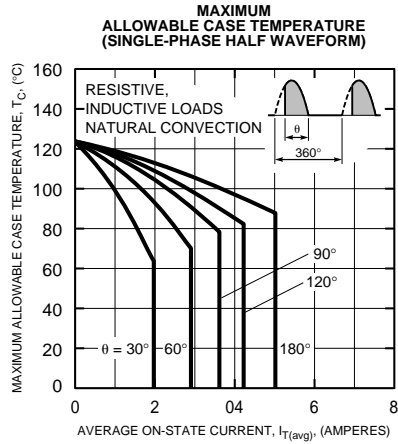
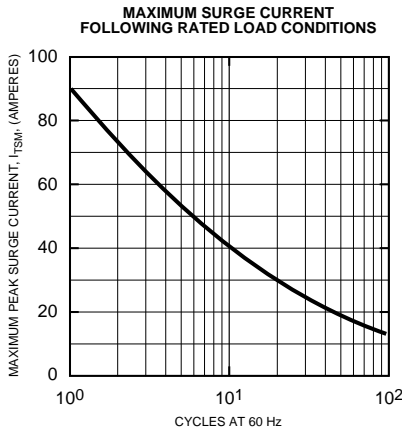
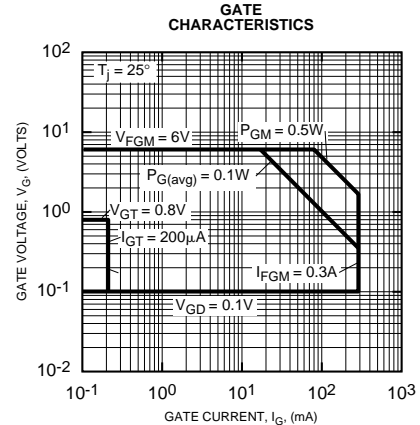
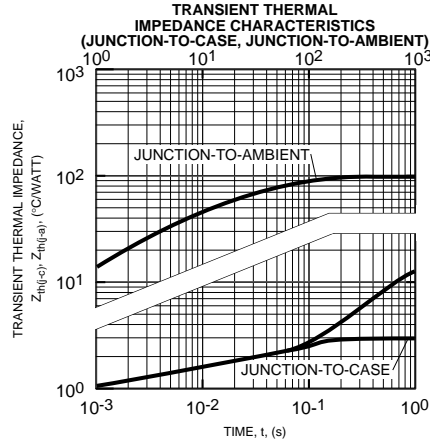
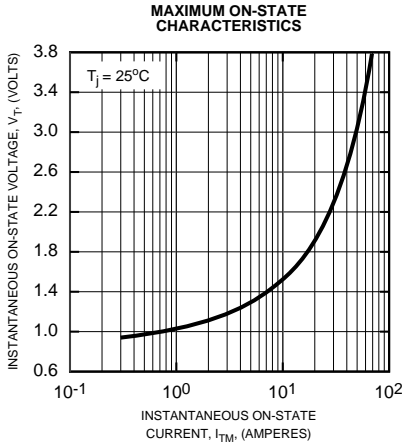
**Surface Mount, Phase Control SCR**

5 Amperes/400-600 Volts

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

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Voltage – Blocking State						
Peak Forward Leakage	$I_{DRM}$	$T_j = 125^\circ\text{C}, V_D = V_{DRM}$	–	–	2.0	mA
Peak Reverse Leakage	$I_{RRM}$	$T_j = 125^\circ\text{C}, V_R = V_{RRM}$	–	–	2.0	mA
Current – Conducting State						
Peak On-state Voltage	$V_{TM}$	$T_c = 25^\circ\text{C}, I_{TM} = 2.5\text{A}$	–	–	1.8	Volts
DC Holding Current	$I_H$	$V_D = 12\text{V}, R_{GK} = 1\text{K}\Omega, T_j = 25^\circ\text{C}$	–	3.5	–	mA
Maximum Thermal Resistance						
Junction-to-case	$R_{th(j-c)}$	–	–	–	3.0	$^\circ\text{C/W}$
Gate – Parameters						
Gate Current to Trigger	$I_{GT}$	$V_D = 6\text{V}, R_L = 60\Omega, T_j = 25^\circ\text{C}$	1	–	200	$\mu\text{A}$
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	$V_{GD}$	$V_D = 1/2V_{DRM}, R_{GK} = 1\text{k}\Omega, T_j = 125^\circ\text{C}$	0.1	–	–	Volts

**CR5AS**  
**Surface Mount, Phase Control SCR**  
 5 Amperes/400-600 Volts

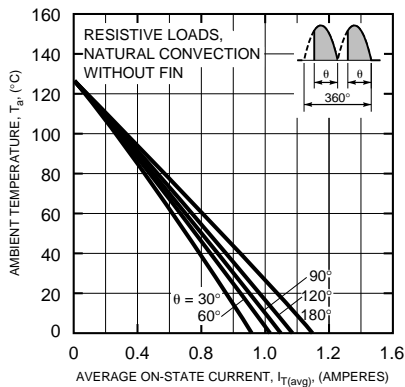


## CR5AS

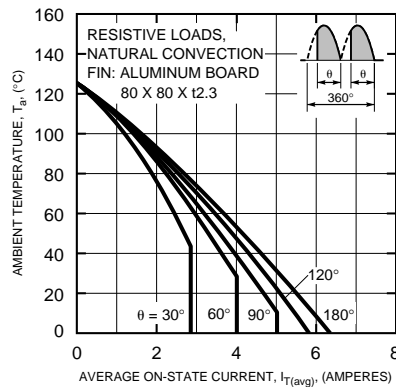
### Surface Mount, Phase Control SCR

5 Amperes/400-600 Volts

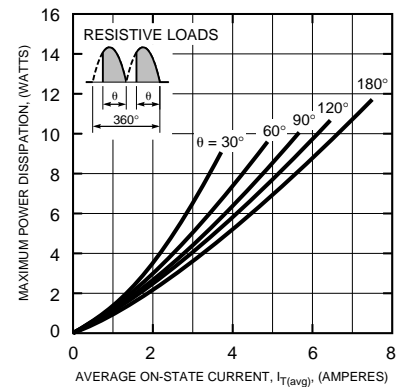
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVEFORM)



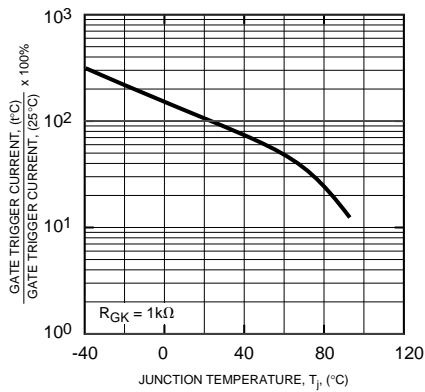
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVEFORM)



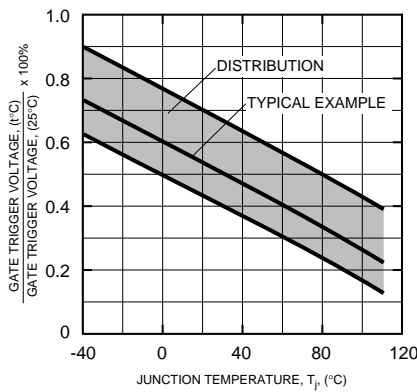
MAXIMUM ON-STATE POWER DISSIPATION (SINGLE-PHASE FULL WAVEFORM)



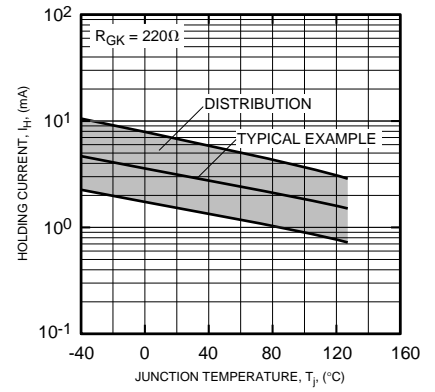
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



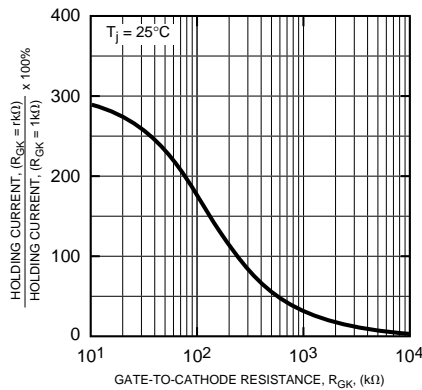
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



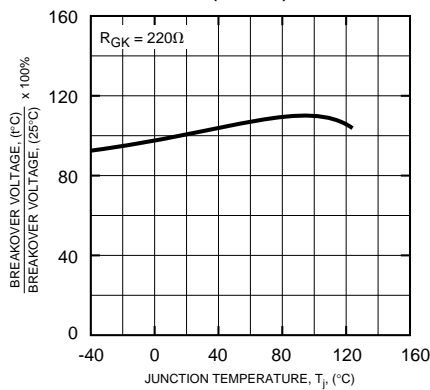
HOLDING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



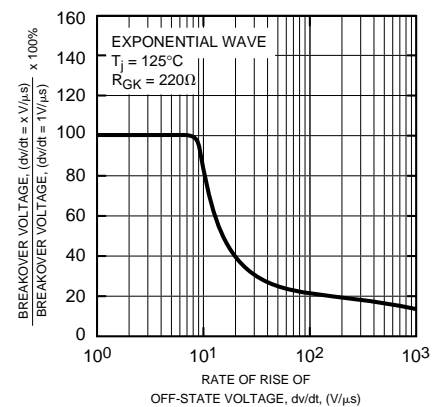
HOLDING CURRENT VS. GATE-TO-CATHODE RESISTANCE (TYPICAL)



BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



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



**CR5AS**  
**Surface Mount, Phase Control SCR**  
 5 Amperes/400-600 Volts

