

**Description:**

A triac is a solid state silicon AC switch which may be gate triggered from an off-state to an on-state for either polarity of applied voltage.

**Features:**

- Glass Passivation
- Selected for Inductive Loads

**Applications:**

- AC Switch
- Heating
- Motor Controls
- Lighting

**Ordering Information:**

Example: Select the complete seven, eight or nine digit part number you desire from the table - i.e. BCR5AM-8 is a 400 Volt, 5 Ampere Triac.

Outline Drawing (Conforms to TO-220)

Dimensions	Inches	Millimeters
A	0.63 Max.	16.0 Max.
B	0.49 Min.	12.5 Min.
C	0.41 Max.	10.5 Max.
D	0.28	7.0
E	0.18	4.5
F	0.15 Max.	3.8 Max.
G	0.142 ± 0.008 Dia.	3.6 ± 0.2 Dia.
H	0.13	3.2

Dimensions	Inches	Millimeters
J	0.99	2.54
K	0.10	2.6
L	0.051	1.3
M	0.051	1.3
N	0.039	1.0
P	0.031	0.8
Q	0.020	0.5

Type	V <sub>DRM</sub> Volts	Code	Inductive Load*
BCR5AM	400	-8	L
	600	-12	

\*For inductive load, add L.



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

**BCR5AM**

Triac

5 Amperes/400-600 Volts

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

Ratings	Symbol	BCR5AM-8	BCR5AM-12	Units
Repetitive Peak Off-state Voltage	$V_{DRM}$	400	600	Volts
Non-repetitive Peak Off-state Voltage	$V_{DSM}$	500	720	Volts
On-state Current, $T_c = 103^\circ\text{C}$	$I_{T(RMS)}$	5	5	Amperes
Non-repetitive Peak Surge, One Cycle (60 Hz)	$I_{TSM}$	50	50	Amperes
$I^2t$ for Fusing, $t = 8.3\text{ msec}$	$I^2t$	10.4	10.4	$\text{A}^2\text{sec}$
Peak Gate Power Dissipation, 20 $\mu\text{sec}$	$P_{GM}$	3	3	Watts
Average Gate Power Dissipation	$P_{G(avg)}$	0.3	0.3	Watts
Peak Gate Current	$I_{GM}$	2	2	Amperes
Peak Gate Voltage	$V_{GM}$	10	10	Volts
Storage Temperature	$T_{stg}$	-40 to 125	-40 to 125	$^\circ\text{C}$
Operating 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,  $T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	Test Conditions (Trigger Mode)				BCR5AM			Units
		$V_D$	$R_L$	$R_G$	$T_j$	Min.	Typ.	Max.	
Gate Parameters									
DC Gate Trigger Current									
MT2+ Gate+	I <sub>GT</sub>	6V	6 $\Omega$	330 $\Omega$	25 $^\circ\text{C}$	–	–	20	mA
MT2+ Gate–		6V	6 $\Omega$	330 $\Omega$	25 $^\circ\text{C}$	–	–	20	mA
MT2– Gate–		6V	6 $\Omega$	330 $\Omega$	25 $^\circ\text{C}$	–	–	20	mA
DC Gate Trigger Voltage									
MT2+ Gate+	V <sub>GT</sub>	6V	6 $\Omega$	330 $\Omega$	25 $^\circ\text{C}$	–	–	1.5	Volts
MT2+ Gate–		6V	6 $\Omega$	330 $\Omega$	25 $^\circ\text{C}$	–	–	1.5	Volts
MT2– Gate–		6V	6 $\Omega$	330 $\Omega$	25 $^\circ\text{C}$	–	–	1.5	Volts
DC Gate Non-trigger Voltage									
All	V <sub>GD</sub>	1/2 V <sub>DRM</sub>	–	–	125 $^\circ\text{C}$	0.2	–	–	Volts

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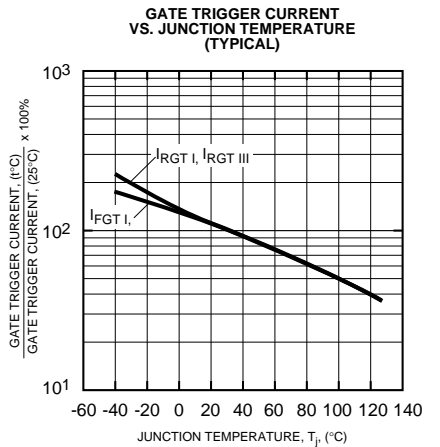
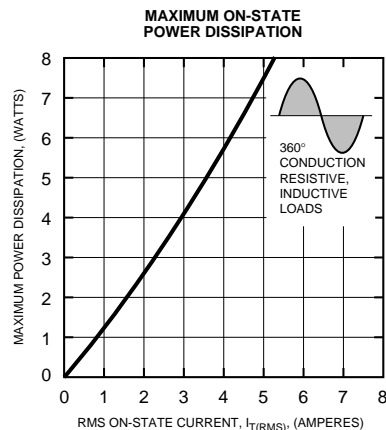
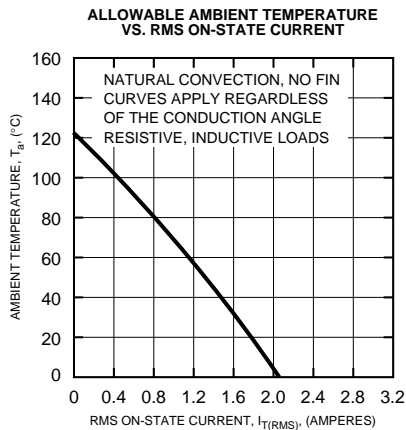
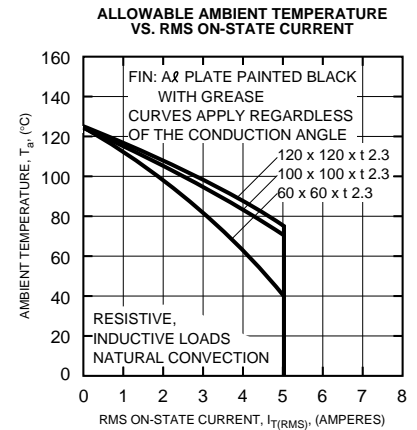
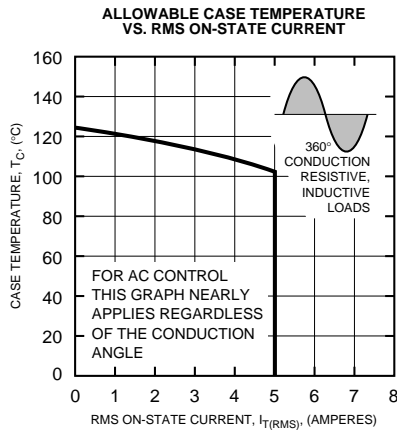
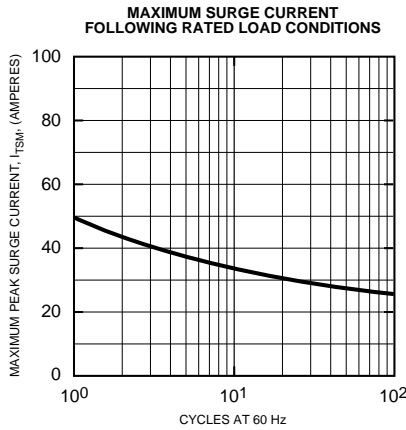
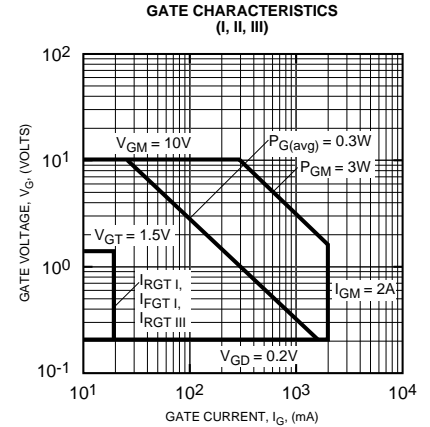
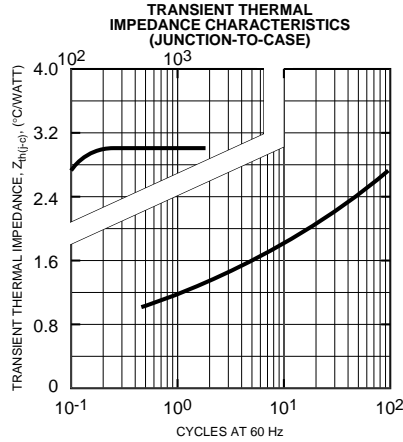
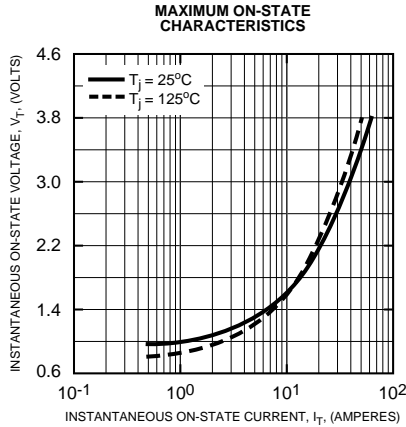
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction-to-case	$R_{th(j-c)}$	–	–	–	3.0	°C/W
Voltage – Blocking State Repetitive Off-state Current	$I_{DRM}$	Gate Open Circuited, $V_D = V_{DRM}$ , $T_j = 125^\circ\text{C}$	–	–	2	mA
Current – Conducting State Peak On-state Voltage	$V_{TM}$	$T_C = 25^\circ\text{C}$ , 8.3ms Pulsewidth Duty Cycle < 2%, $I_{TM} = 7\text{A Peak}$	–	–	1.8	Volts
Critical Rate-of-rise of Commutating Off-state Voltage (Commutating $dv/dt$ ) ▲ for inductive load (L) (Switching)	$(dv/dt)_C$	–	–	–	–	V/ $\mu\text{s}$

$\Delta$ Part Number	$V_{DRM}$ (Volts)	Commutating $dv/dt$ , $(dv/dt)_C$ (V/ $\mu\text{sec}$ )		Test Condition	Commutating Voltage & Current Waveform (Inductive Load)
		Minimum			
BCR5AM-8L	400	5		$T_j = 125^\circ\text{C}$ ,	
BCR5AM-12L	600	5		Rate of Decay On-state Commutating Current $(di/dt)_C = -2.5\text{A/msec}$ , Peak Off-state Voltage $V_D = 400\text{V}$	

## BCR5AM

### Triac

5 Amperes/400-600 Volts

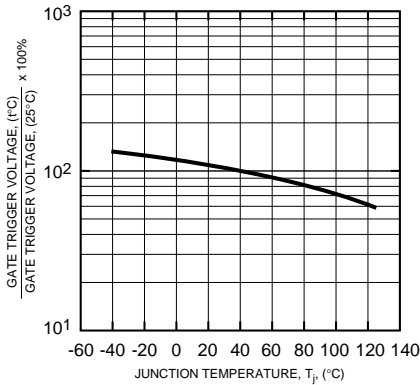


## BCR5AM

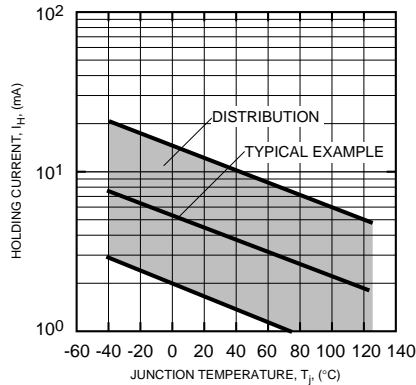
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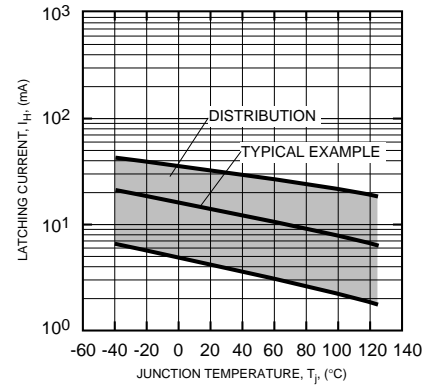
**GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)**



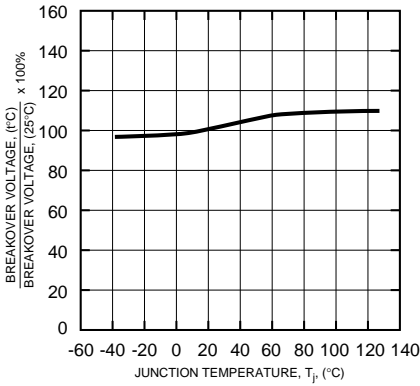
**HOLDING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)**



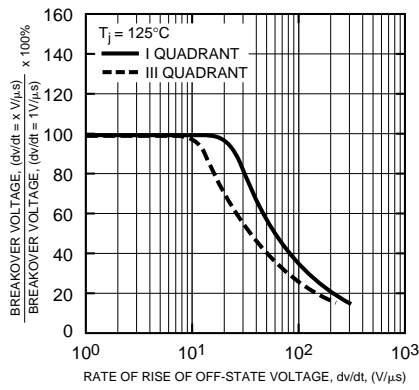
**LATCHING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)**



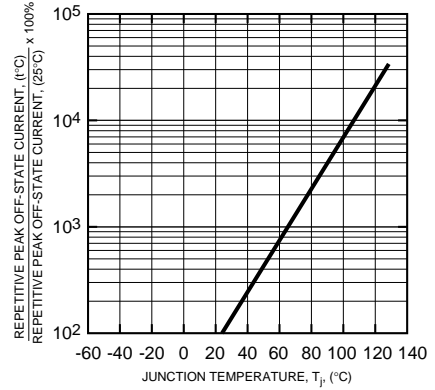
**BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)**



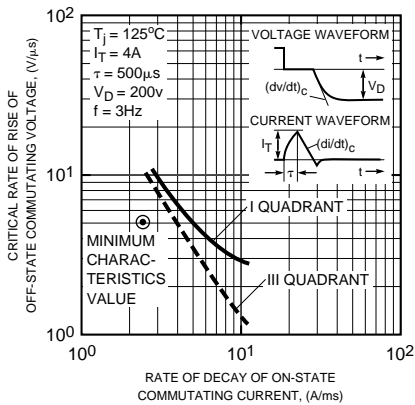
**BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE (TYPICAL)**



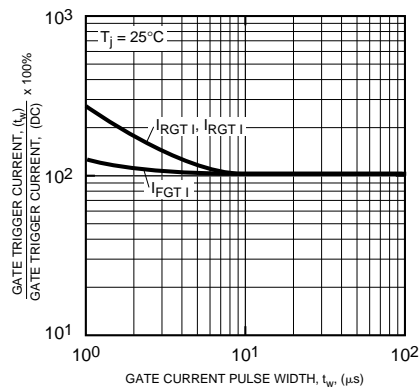
**REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)**



**COMMUTATION CHARACTERISTICS (TYPICAL)**



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



**GATE TRIGGER CHARACTERISTICS TEST CIRCUITS**

