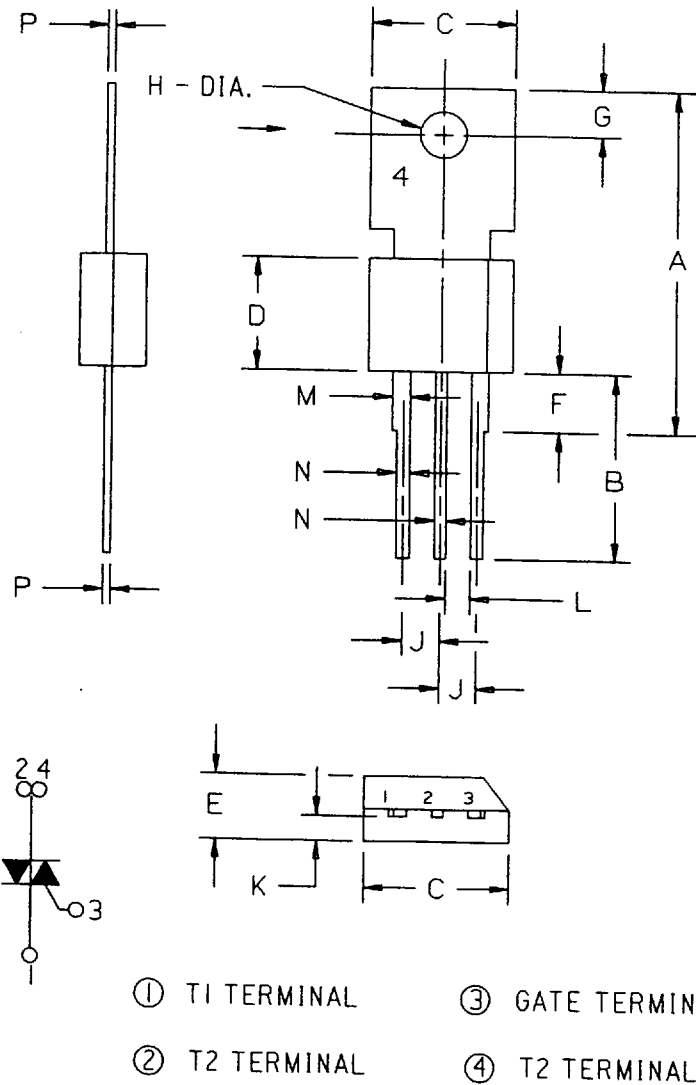


Triac 3 Amperes/400-600 Volts

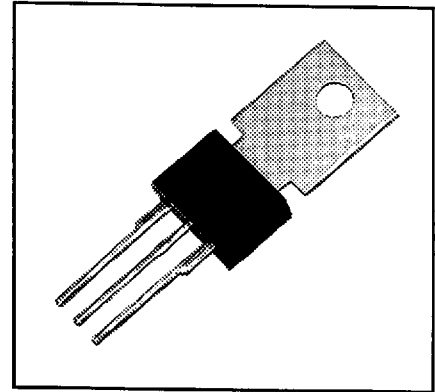
OUTLINE DRAWING



Outline Drawing (Conforms to TO-202)

Dimensions	Inches	Millimeters
A	0.93 ± 0.02	23.7 ± 0.5
B	0.47 Min.	12.0 Min.
C	0.39 Max.	10.0 Max.
D	0.31 Max.	8.0 Max.
E	0.18	4.5
F	0.16 Max.	4.0 Max.
G	0.126 ± 0.008	3.2 ± 0.2

Dimensions	Inches	Millimeters
H	0.126 ± 0.004 Dia.	3.2 ± 0.1 Dia.
J	0.10	2.5
K	0.061	1.55
L	0.059 Max.	1.5 Max.
M	0.047	1.2
N	0.035	0.8
P	0.02	0.5



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

Applications:

- ☐ AC Switch
- ☐ Motor Controls
- ☐ Lighting
- ☐ Solid State Relay

Ordering Information:

Example: Select the complete seven or eight digit part number you desire from the table - i.e. BCR3AM-8 is a 400 Volt, 3 Ampere Triac.

Type	V _{DRM} Volts	Code
BCR3AM	400	-8
	600	-12



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

BCR3AM

Triac

3 Amperes/400-600 Volts

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

Ratings	Symbol	BCR3AM-8	BCR3AM-12	Units
Repetitive Peak Off-state Voltage	VDRM	400	600	Volts
Non-repetitive Peak Off-state Voltage	VDSM	500	720	Volts
On-state Current, $T_c = 86^\circ\text{C}$	IT(RMS)	3	3	Amperes
Non-repetitive Peak Surge, One Cycle (60 Hz)	ITSM	30	30	Amperes
I^2t for Fusing, $t = 8.3$ msec	I^2t	3.7	3.7	A2sec
Peak Gate Power Dissipation, 20 msec	PGM	3	3	Watts
Average Gate Power Dissipation	PG(avg)	0.3	0.3	Watts
Peak Gate Current	IGM	0.5	0.5	Amperes
Peak Gate Voltage	VGM	6	6	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	—	1.6	1.6	Grams

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

Characteristics*	Symbol	Test Conditions (Trigger Mode)				BCR3AM			Units
		V _D	R _L	R _G	T _J	Min.	Typ.	Max.	
Gate Parameters									
DC Gate Trigger Current									
MT2+ Gate+	I _{GT}	6V	6Ω	330Ω	25°C	—	—	30	mA
MT2+ Gate–		6V	6Ω	330Ω	25°C	—	—	30	mA
MT2– Gate–		6V	6Ω	330Ω	25°C	—	—	30	mA
DC Gate Trigger Voltage									
MT2+ Gate+	V _{GT}	6V	6Ω	330Ω	25°C	—	—	1.5	Volts
MT2+ Gate–		6V	6Ω	330Ω	25°C	—	—	1.5	Volts
MT2– Gate–		6V	6Ω	330Ω	25°C	—	—	1.5	Volts
DC Gate Non-trigger Voltage									
All	V _{GD}	1/2 V _{DRM}	—	—	125°C	0.2	—	—	Volts

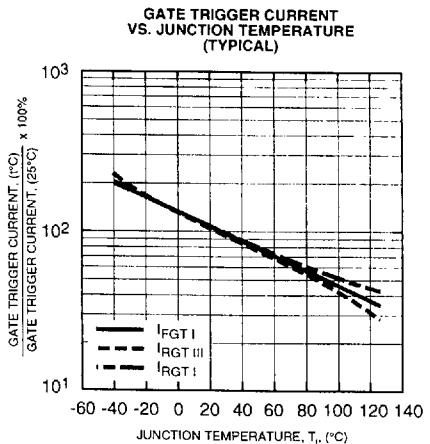
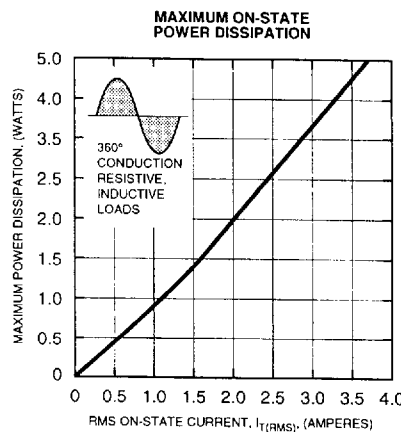
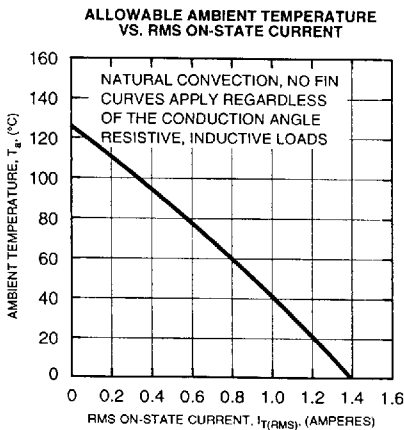
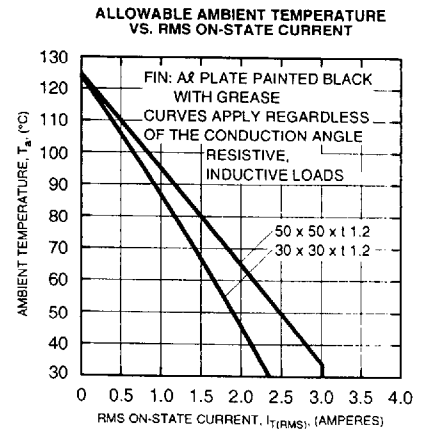
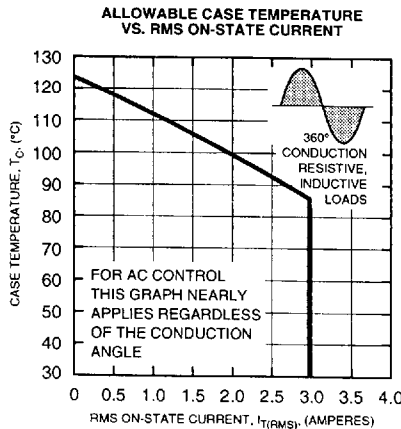
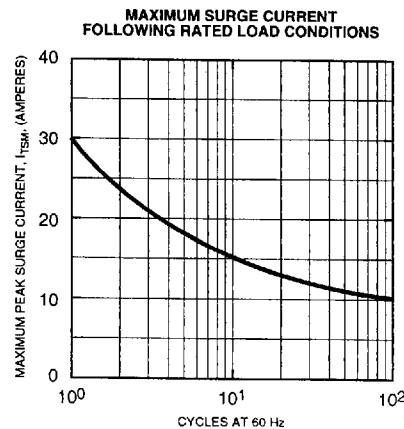
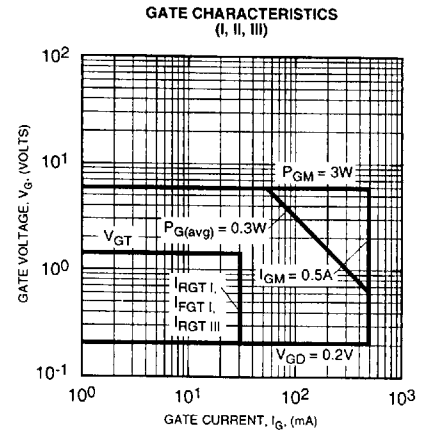
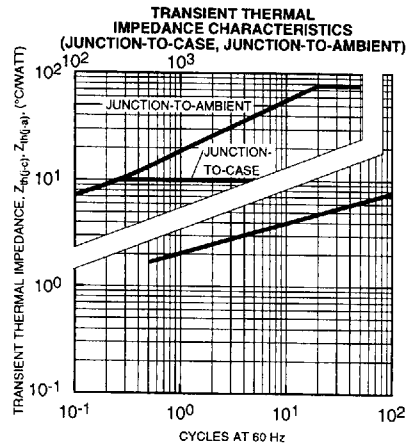
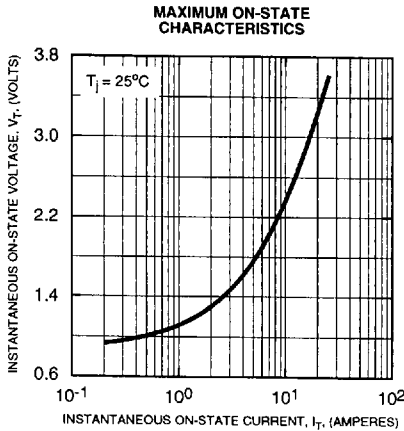
*Characteristic values apply for either polarity of Main Terminal 2 referenced to Main Terminal 1.

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction-to-case	$R_{th(j-c)}$	—	—	—	10	$^\circ\text{C/W}$
Steady State Thermal Resistance, Junction-to-ambient	$R_{th(j-a)}$	—	—	—	80	$^\circ\text{C/W}$
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}	$T_c = 25^\circ\text{C}$, $I_{TM} = 4.5\text{A}$	—	—	1.5	Volts
Critical Rate-of-rise of Commutating Off-state Voltage (Commutating dv/dt) (Switching)	$(dv/dt)_c$	$T_j = 125^\circ\text{C}$, $V_D = 400\text{V}$, Gate Open Circuited, Commutating $(di/dt) = -2\text{A/ms}$	5	—	—	$\text{V}/\mu\text{s}$

BCR3AM

Triac

3 Amperes/400-600 Volts

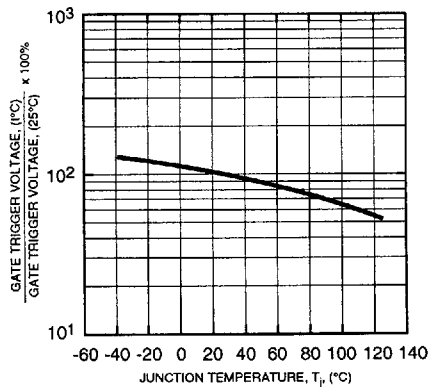


BCR3AM

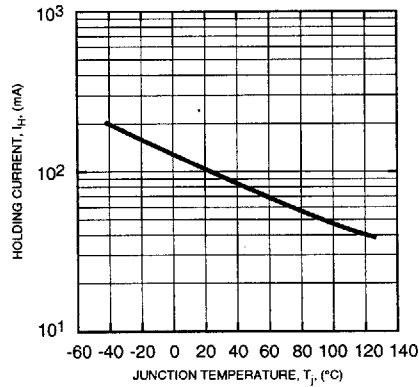
Triac

3 Amperes/400-600 Volts

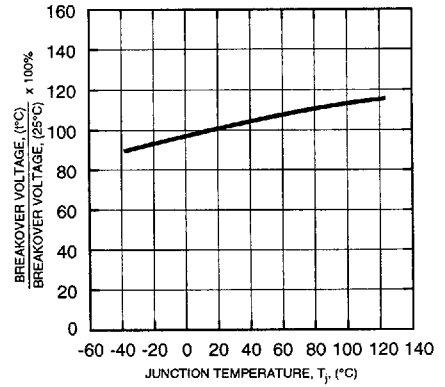
GATE TRIGGER VOLTAGE
VS. JUNCTION TEMPERATURE
(TYPICAL)



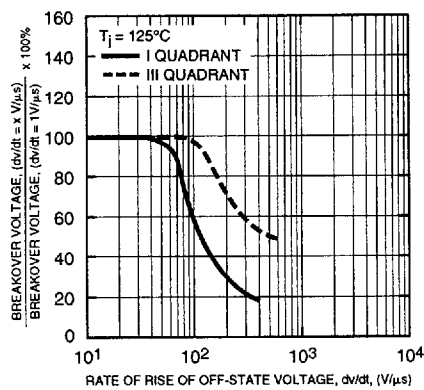
HOLDING CURRENT
VS. JUNCTION TEMPERATURE
(TYPICAL)



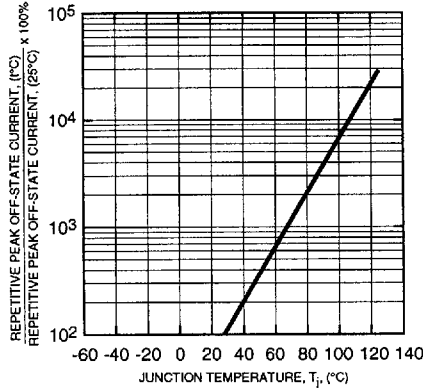
BREAKOVER VOLTAGE
VS. JUNCTION TEMPERATURE
(TYPICAL)



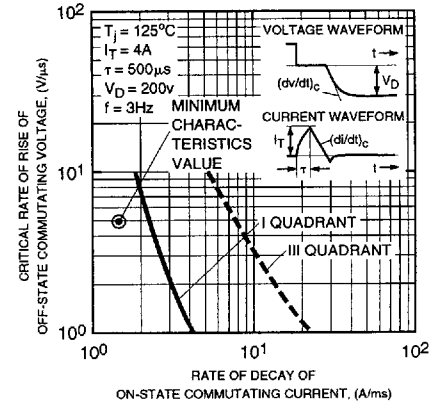
BREAKOVER VOLTAGE VS.
RATE OF RISE OF OFF-STATE VOLTAGE
(TYPICAL)



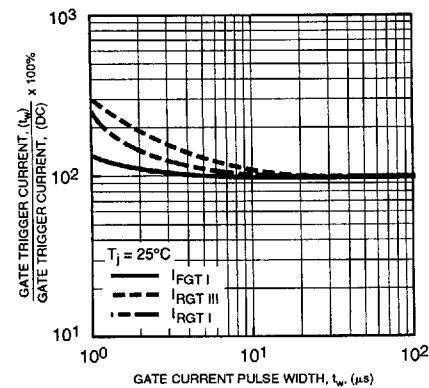
REPETITIVE PEAK OFF-STATE CURRENT
VS. JUNCTION TEMPERATURE
(TYPICAL)



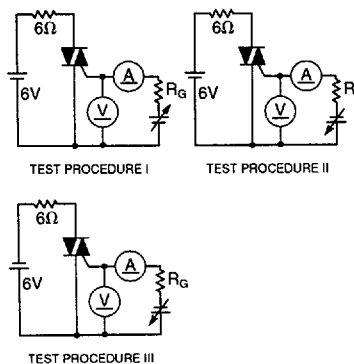
COMMUTATION CHARACTERISTICS
(TYPICAL)



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



GATE TRIGGER CHARACTERISTICS
TEST CIRCUITS





T-91-01

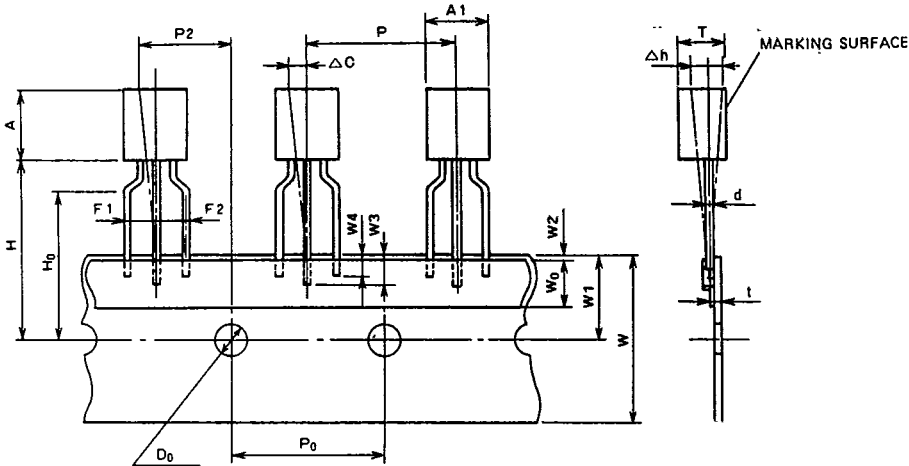
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Powerex Europe, S.A., 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Taping

STANDARD SPECIFICATIONS
FOR TAPING OF MOLDED
PACKAGE THYRISTORS AND
TRIACS

TO-92 Package

Thyristor
CR02AM, CR03AM, CR04AM
Triac
BCR1AM



Taping dimensions

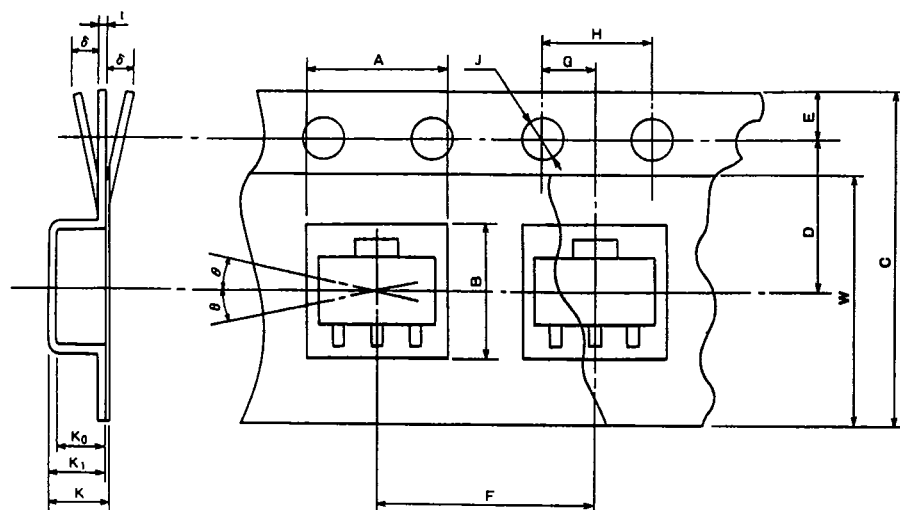
Description of symbol	Symbol	Dimensions (Unit:mm)	Remark
Product width	A1	5.0 MAX	
Product height	A	5.0 MAX	
Product thickness	T	3.7 MAX	
Lead wire diameter	d	0.6 MAX	
Sticker lead wire length (1)	W3	2.5 MIN	
Sticker lead wire length (2)	W4	2.0 MIN	
Pitch between products	P	12.7 ± 1.0	
Feed hole pitch	P0	12.7 ± 0.3	The cumulative pitch error is ± 1mm per 20 pitches.
Feed hole deviation (1)	P2	6.35 ± 1.3	
Distance between lead wires	F1, F2	2.5 ± 0.4	
Defective product (1)	Δh	0 ± 2.0	
Tape width	W	18.0 ± ^{1.0} _{0.5}	
Sticker tape width	W0	6.0 ± 0.5	
Feed hole deviation (2)	W1	9.0 ± 0.5	
Sticker tape deviation	W2	0.5 MAX	
Position of product bottom surface	H	17.5 MIN	
Lynch height of lead wire	H0	16.0 ± 0.5	
Feed hole diameter	D0	4.0 ± 0.2	
Tape thickness	t	0.7 ± 0.2	
Defective product (2)	ΔC	0 ± 1.0	



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Powerex Semiconductor Data Book
Taping



SOT-89 Package

Thyristor
CR08AS

Taping dimensions

Description of symbol		Symbol	Dimensions/angles Unit:mm	Remark
Parts Insertion	Height	A	5.0 ± 0.1	Cross-section of the surface 0.5mm above the inner bottom
	Width	B	4.6 ± 0.1	Cross-section of the surface 0.5mm above the inner bottom
Concave square hole	Depth	K ₀	1.8 ± 0.1	Inner space
	Pitch	F	8.0 ± 0.1	Cumulative error +0.1/-0.3 MAX/10 pitches
Round feed hole	Diameter	J	$\phi 1.5 \pm 0.05$	
	Pitch	H	4.0 ± 0.1	Cumulative error +0.1/-0.3 MAX/10 pitches
	Position	E	1.5 ± 0.1	Distance between the tape edge and the hole center
Distance between center lines	Vertical	G	2.0 ± 0.5	Center line of concave square hole and round feed hole
	Horizontal	D	5.65 ± 0.05	Center line of concave square hole and round feed hole
Cover tape	Width	W	$9.5 + 0.3/-0$	Thickness: 0.1 MAX
Carrier tape	Width	C	12 ± 0.2	Warp ± 0.3 MAX
	Thickness	t	0.3 ± 0.05	
	Package hole depth	K ₁	2.1 ± 0.1	
Device	Package dimensions	—	—	As shown in (e)
	Inclination	θ	30° MAX.	
Total Thickness		K	2.3 ± 0.1	Total thickness including cover and carrier tapes