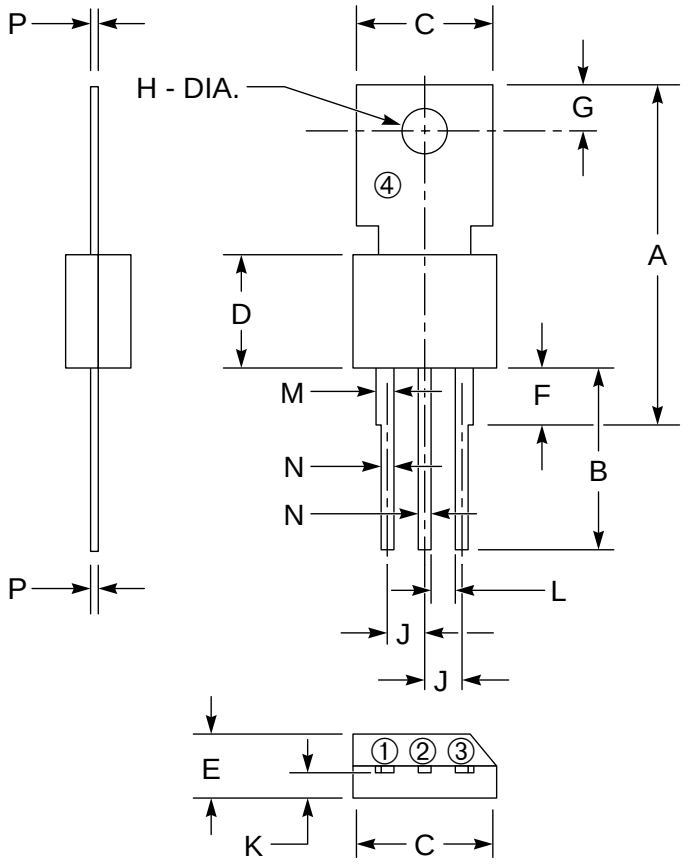
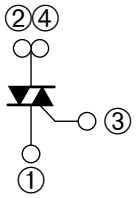
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272

Triac
3 Amperes/400-600 Volts

OUTLINE DRAWING



CONNECTION DIAGRAM

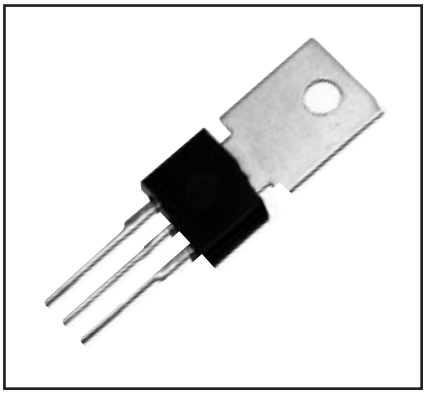


① T1 TERMINAL
② T2 TERMINAL
③ GATE TERMINAL
④ T2 TERMINAL

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

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BCR3AM
Triac
3 Amperes/400-600 Volts

Absolute Maximum Ratings, T_a = 25 °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, Tc = 86°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	°C
Operating Temperature	T_j	-40 to 125	-40 to 125	°C
Weight	–	1.6	1.6	Grams

Electrical and Thermal Characteristics, T_j = 25 °C unless otherwise specified

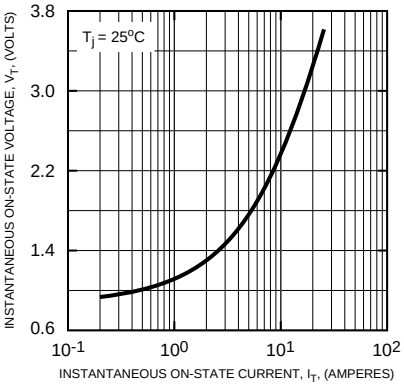
		Test Conditions (Trigger Mode)				BCR3AM			
Characteristics*	Symbol	V_D	R_L	R_G	T_j	Min.	Typ.	Max.	Units
Gate Parameters DC Gate Trigger Current									
MT2+ Gate+	I_{GT}	6V	6Ω	330Ω	25°C	–	–	30	mA
MT2+ Gate–		6V	6Ω	330Ω	25°C	–	–	30	mA
MT2– Gate–		6V	6Ω	330Ω	25°C	–	–	30	mA
DC Gate Trigger Voltage									
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.

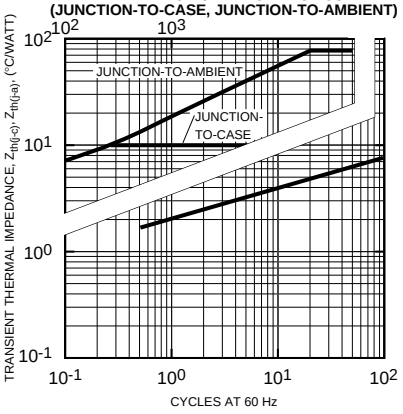
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction-to-case	$R_{th(j-c)}$	–	–	–	10	°C/W
Steady State Thermal Resistance, Junction-to-ambient	$R_{th(j-a)}$	–	–	–	80	°C/W
Voltage – Blocking State Repetitive Off-state Current	I_{DRM}	Gate Open Circuited, $V_D = V_{DRM}$, T_j = 125°C	–	–	2	mA
Current – Conducting State Peak On-state Voltage	V_{TM}	T_c = 25°C, I_{TM} = 4.5A	–	–	1.5	Volts
Critical Rate-of-rise of Commutating Off-state Voltage (Commutating dv/dt) (Switching)	$(dv/dt)_c$	T_j = 125°C, V_D = 400V, Gate Open Circuited, Commutating (di/dt) = -2A/ms	5	–	–	V/μs

BCR3AM
Triac
3 Amperes/400-600 Volts

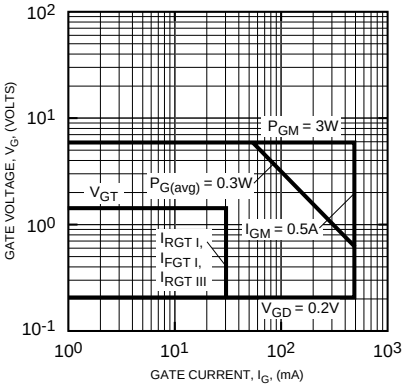
MAXIMUM ON-STATE CHARACTERISTICS



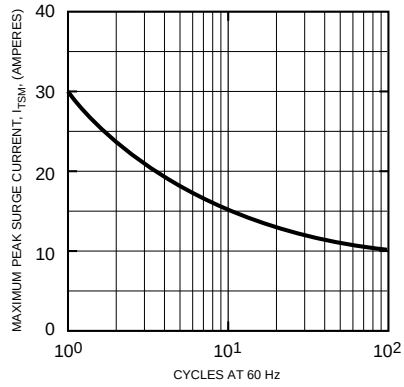
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION-TO-CASE, JUNCTION-TO-AMBIENT)



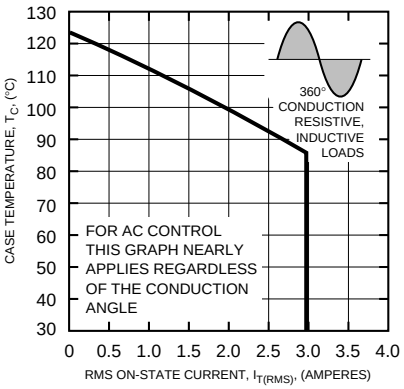
GATE CHARACTERISTICS (I, II, III)



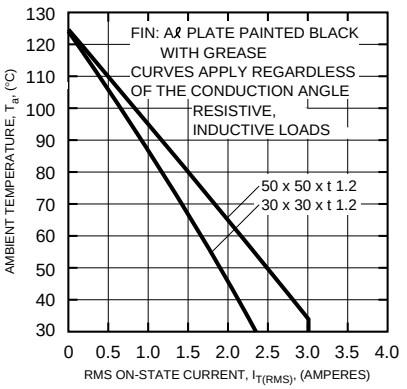
MAXIMUM SURGE CURRENT FOLLOWING RATED LOAD CONDITIONS



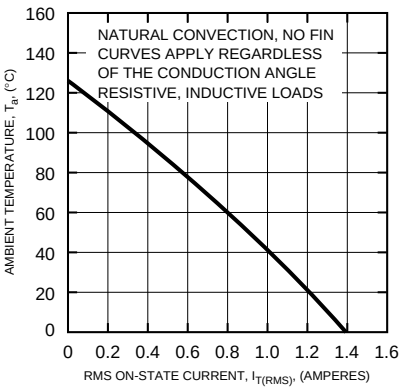
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



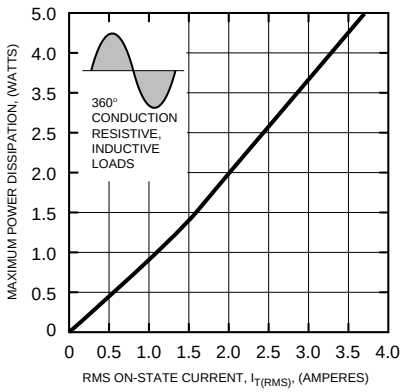
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



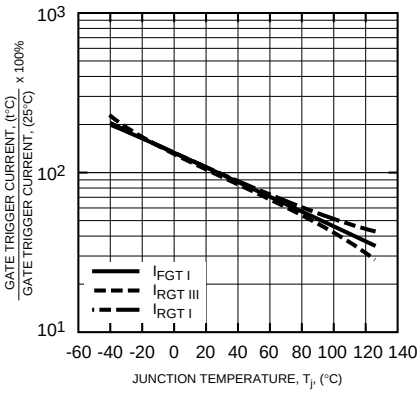
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



MAXIMUM ON-STATE POWER DISSIPATION



GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



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BCR3AM
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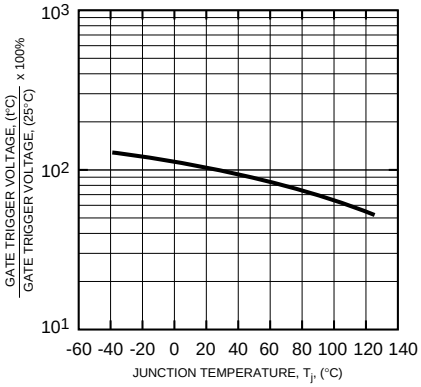
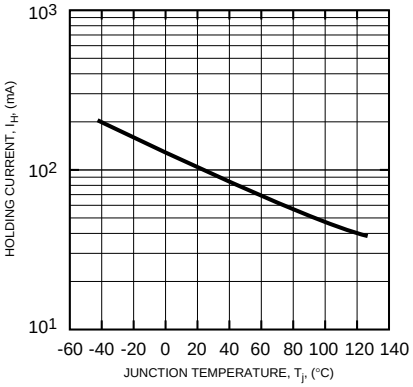
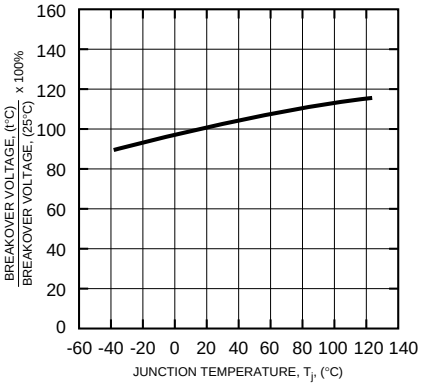
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



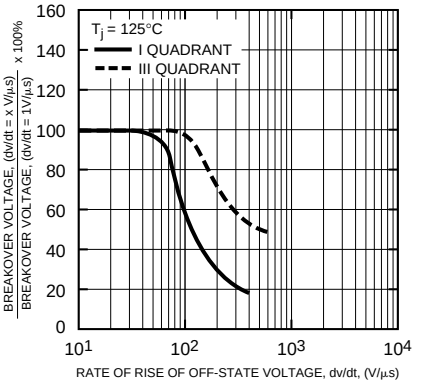
HOLDING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



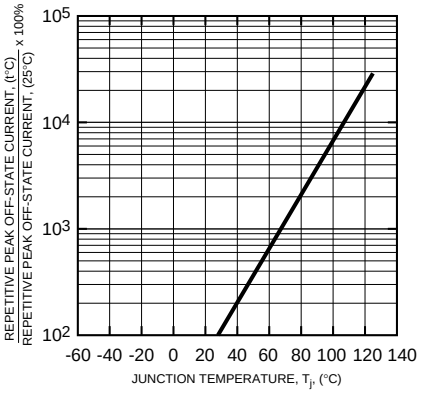
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



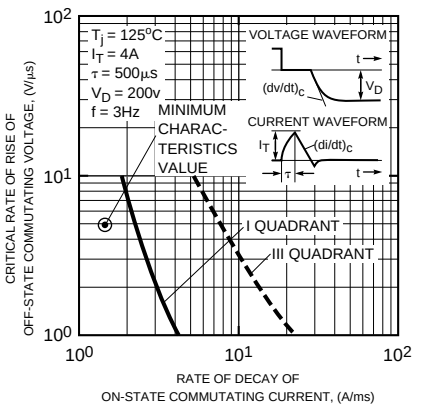
BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE (TYPICAL)



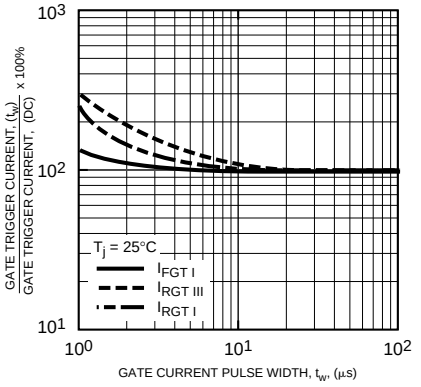
REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



COMMUTATION CHARACTERISTICS (TYPICAL)



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



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS