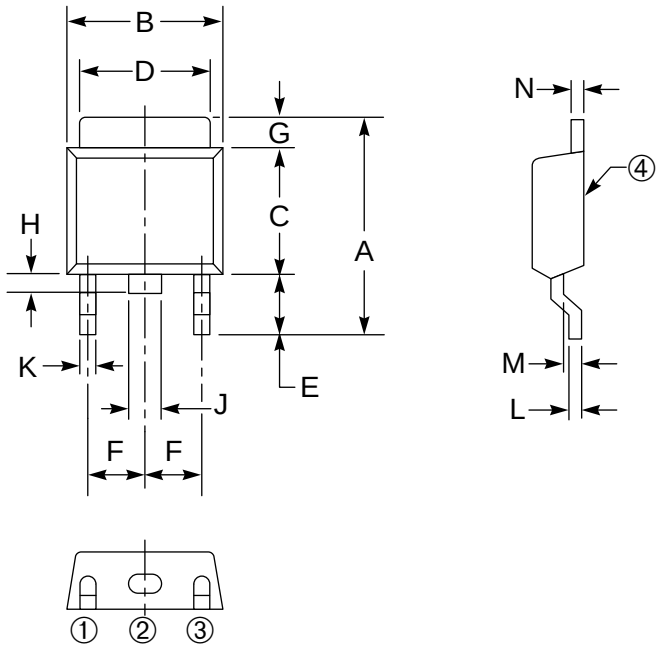
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272

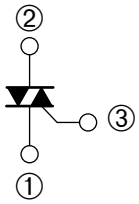
Surface Mount Triac
5 Amperes/400-600 Volts

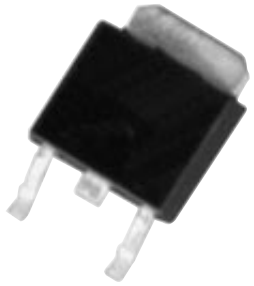
OUTLINE DRAWING



CONNECTION DIAGRAM

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





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:
- ☐ Surface Mount Type
- ☐ Glass Passivation
- ☐ Selected for Inductive Loads

Applications:
- ☐ AC Switch
- ☐ Heating
- ☐ Motor Controls
- ☐ Lighting

Ordering Information:
Example: Select the complete eight or nine digit part number you desire from the table - i.e. BCR5AS-8L is a 400 Volt, 5 Ampere Triac.

Type	V_{DRM} Volts	Code	Inductive Load
BCR5AS	400	-8	L
	600	-12	

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	0.9 Min.	2.3 Min.
F	0.9	2.3
G	0.06 ± 0.008	1.5 ± 0.2

Dimensions	Inches	Millimeters
H	0.040 Min.	1.0 Min.
J	0.040	1.0
K	0.4 Max.	0.9 Max.
L	0.03	0.8
M	0.020 ± 0.01	0.5 ± 0.2
N	0.020	0.5 ± 0.1

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BCR5AS
Surface Mount Triac
5 Amperes/400-600 Volts

Absolute Maximum Ratings, T_a = 25 °C unless otherwise specified

Ratings	Symbol	BCR5AS-8L	BCR5AS-12L	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°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 msec	I^2t	10.4	10.4	A^2sec
Peak Gate Power Dissipation, 20 μsec	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	°C
Operating Temperature	T_j	-40 to 125	-40 to 125	°C
Weight	–	0.26	0.26	mg

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BCR5AS
Surface Mount Triac
5 Amperes/400-600 Volts

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

		Test Conditions (Trigger Mode)				BCR5AS			
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	–	–	125°C	0.2	–	–	Volts

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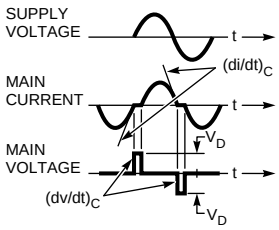
Electrical and Thermal Characteristics, T_j = 25 °C unless otherwise specified

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}	V_{DRM} = Maximum Allowable Repetitive Off-state Voltage Rating, Gate Open Circuited, T_j = 125°C	–	–	2.0	mA
Current – Conducting State Peak On-state Current	V_{TM}	T_C = 25°C, 8.3ms Pulsewidth Duty Cycle < 2%, I_{TM} = 7A	–	–	1.8	Volts
Critical Rate-of-rise of Commutating Off-state Voltage (Commutating dv/dt) ▲ for Inductive Load (Switching)	$(dv/dt)_c$	–	–	–	–	V/μs

Δ Part Number	V_{DRM} (Volts)	Commutating dv/dt, $(dv/dt)_c$ (V/μsec) Load Type	Minimum	Test Condition	Commutating Voltage & Current Waveform (Inductive Load)
BCR5AS-8L	400	L	5	T_j = 125°C, Rate of Decay On-state Commutating Current $(di/dt)_c$ = -2.5A/msec; Peak Off-state Voltage V_D = 400V	
BCR5AS-12L	600	L	5		

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BCR5AS
Surface Mount Triac
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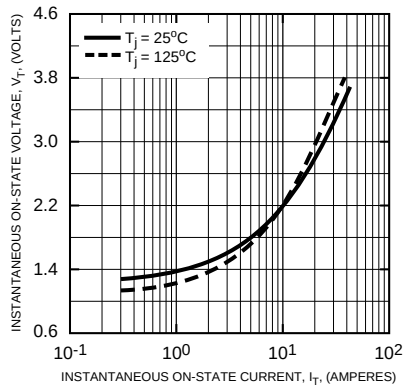
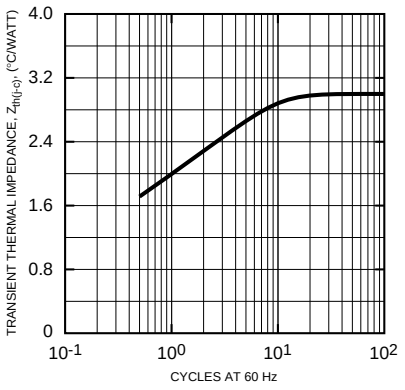
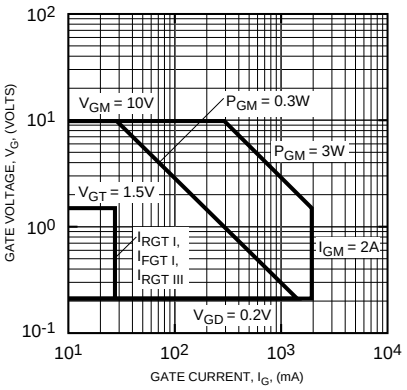
MAXIMUM ON-STATE CHARACTERISTICS



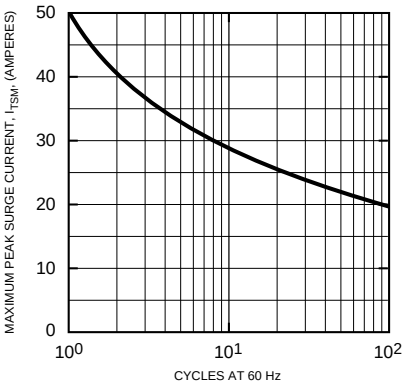
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION-TO-CASE)



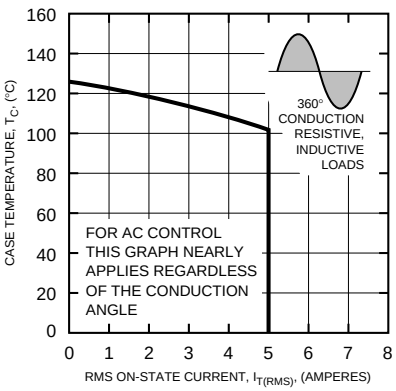
GATE CHARACTERISTICS (I, II, III)



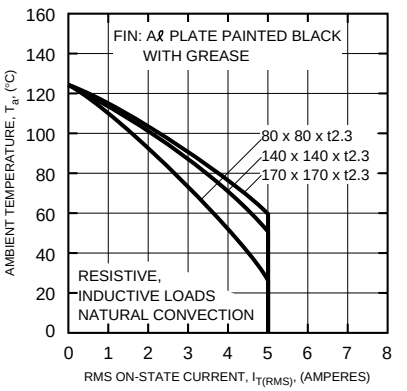
MAXIMUM SURGE CURRENT FOLLOWING RATED LOAD CONDITIONS



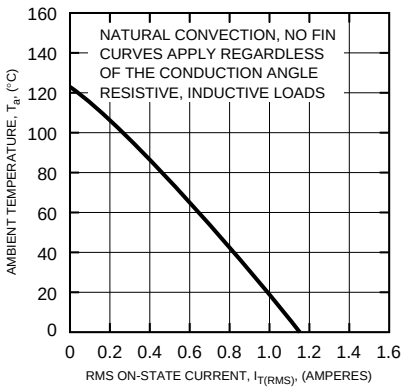
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



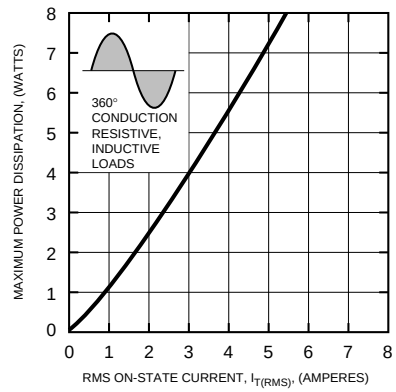
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



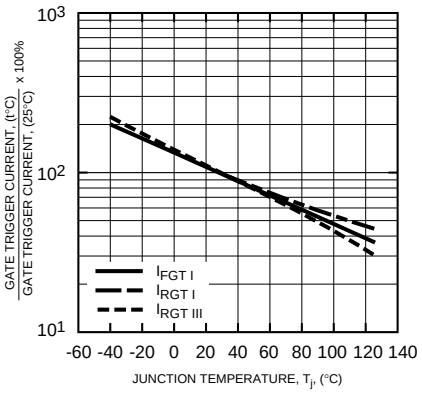
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



MAXIMUM ON-STATE POWER DISSIPATION



GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



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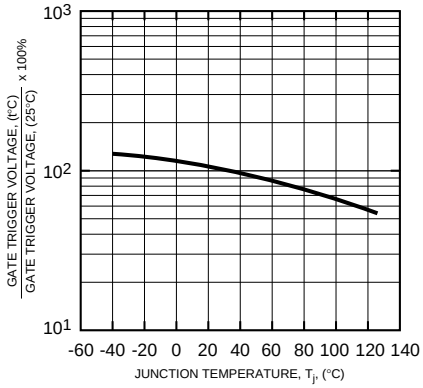
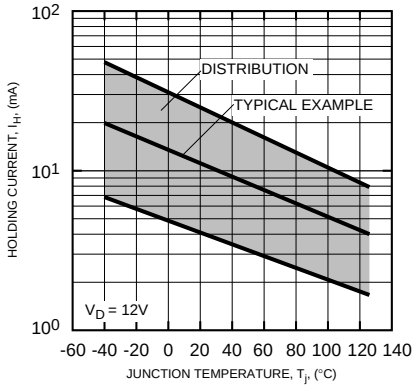
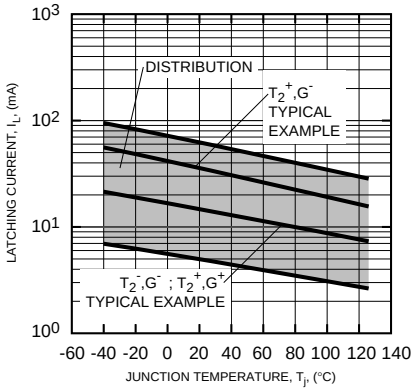
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



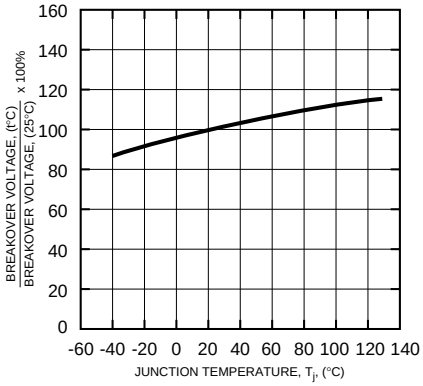
HOLDING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



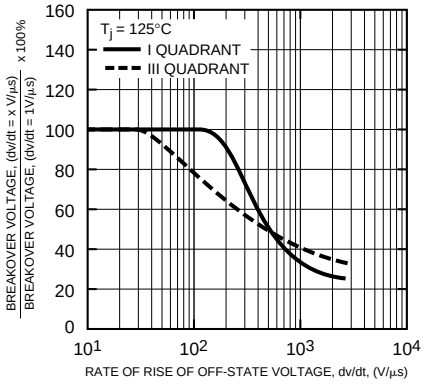
LATCHING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



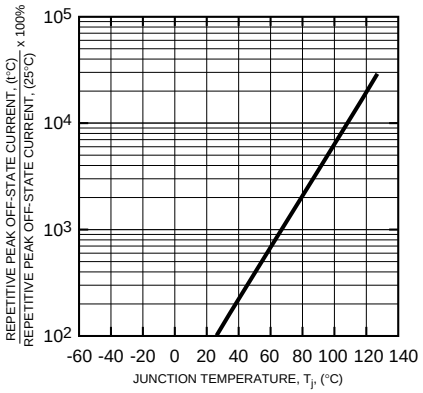
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



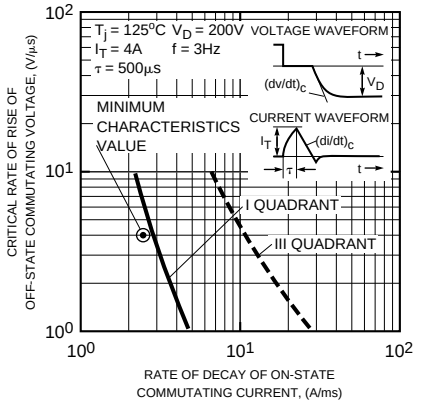
BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE (TYPICAL)



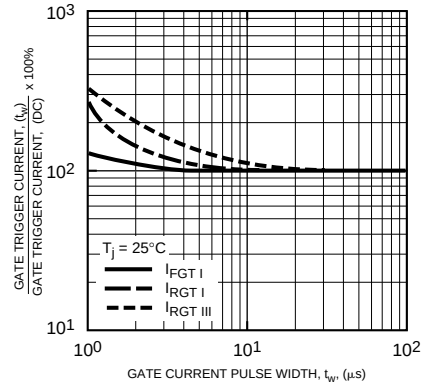
REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



COMMUTATION CHARACTERISTICS (TYPICAL)



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



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS