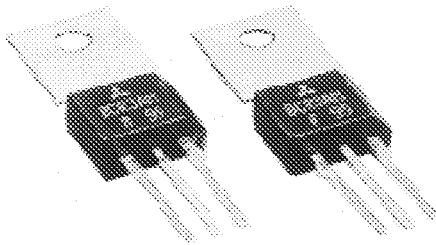


# BCR3AM

LOW POWER USE

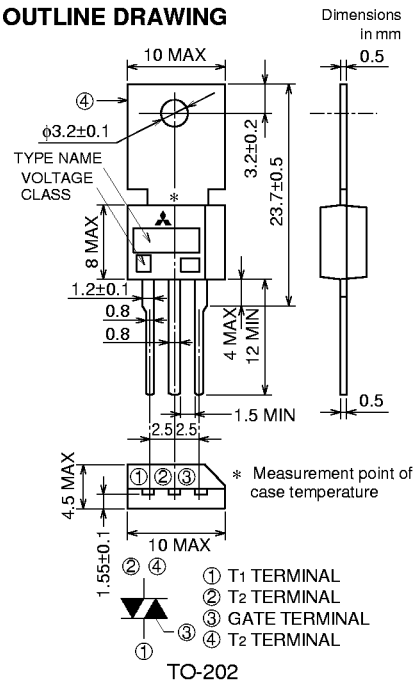
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

## BCR3AM



- $I_T$  (RMS) ..... 3A
- $V_{DRM}$  ..... 400V/600V
- $I_{FGT I}$ ,  $I_{RGT I}$ ,  $I_{RGT II}$  ..... 30mA (15mA) \*6

## OUTLINE DRAWING



## APPLICATION

Contactless AC switches, light dimmer, electric blankets, control of household equipment such as electric fan, solenoid drivers, small motor control, other general purpose control applications

## MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		8	12	
$V_{DRM}$	Repetitive peak off-state voltage *1	400	600	V
$V_{DSM}$	Non-repetitive peak off-state voltage *1	500	720	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_T$ (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, $T_c=86^\circ\text{C}$	3	A
$I_{TSM}$	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	30	A
$P_T$	$I_T^2$ for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	3.7	A <sup>2</sup> s
$P_{GM}$	Peak gate power dissipation		3	W
$P_G$ (AV)	Average gate power dissipation		0.3	W
$V_{GM}$	Peak gate voltage		6	V
$I_{GM}$	Peak gate current		0.5	A
$T_j$	Junction temperature		-40 ~ +125	°C
$T_{stg}$	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	1.6	g

\*1. Gate open.

# BCR3AM

LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

## ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDRM	Repetitive peak off-state current	T <sub>J</sub> =125°C, V <sub>DRM</sub> applied	—	—	2.0	mA
V <sub>TM</sub>	On-state voltage	T <sub>C</sub> =25°C, I <sub>TM</sub> =4.5A, Instantaneous measurement	—	—	1.5	V
V <sub>FGT</sub> !	Gate trigger voltage *2	T <sub>J</sub> =25°C, V <sub>D</sub> =6V, R <sub>L</sub> =6Ω, R <sub>G</sub> =330Ω	—	—	1.5	V
V <sub>RGT</sub> !			—	—	1.5	V
V <sub>RGT</sub> #			—	—	1.5	V
I <sub>FGT</sub> !	Gate trigger current *2	T <sub>J</sub> =25°C, V <sub>D</sub> =6V, R <sub>L</sub> =6Ω, R <sub>G</sub> =330Ω	—	—	30 *6	mA
I <sub>RGT</sub> !			—	—	30 *6	mA
I <sub>RGT</sub> #			—	—	30 *6	mA
V <sub>GD</sub>	Gate non-trigger voltage	T <sub>J</sub> =125°C, V <sub>D</sub> =1/2V <sub>DRM</sub>	0.2	—	—	V
R <sub>th</sub> (j-c)	Thermal resistance	Junction to case *4 *5	—	—	10	°C/W
(dv/dt) <sub>c</sub>	Critical-rate of rise of off-state commutating voltage		*3	—	—	V/μs

\*2. Measurement using the gate trigger characteristics measurement circuit.

\*3. The critical-rate of rise of the off-state commutating voltage is shown in the table below.

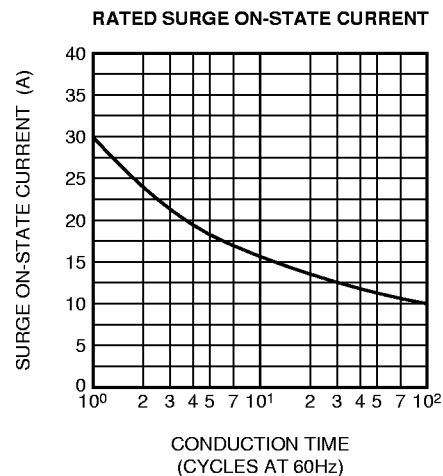
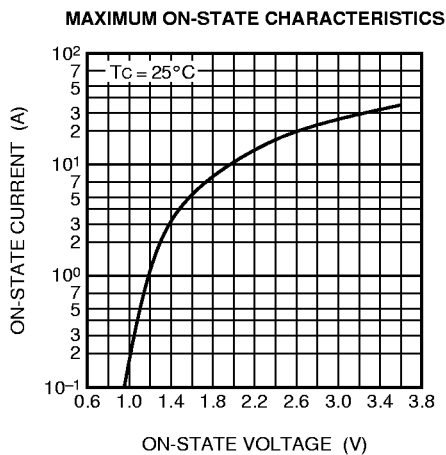
\*4. Case temperature is measured at the T<sub>2</sub> terminal 1.5mm away from the molded case.

\*5. The contact thermal resistance R<sub>th</sub> (c-l) in case of greasing is 3°C/W.

\*6. High sensitivity (I<sub>GT</sub>≤15mA) is also available. (IGT item 1 )

Voltage class	V <sub>DRM</sub> (V)	(dv/dt) <sub>c</sub>		Test conditions	Commutating voltage and current waveforms (inductive load)
		Min.	Unit		
8	400	5	V/μs	1. Junction temperature T <sub>J</sub> =125°C	
12	600			2. Rate of decay of on-state commutating current (di/dt) <sub>c</sub> =-1.5A/ms 3. Peak off-state voltage V <sub>D</sub> =400V	

## PERFORMANCE CURVES

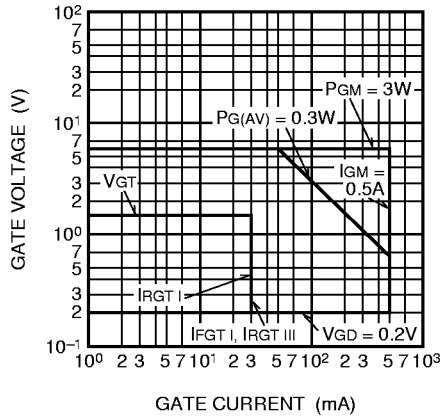


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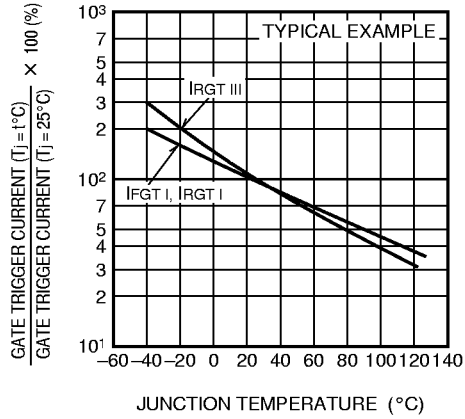
LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

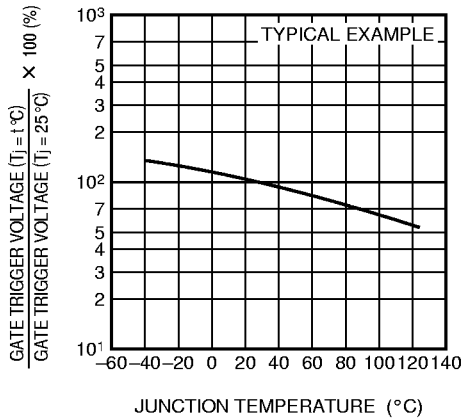
GATE CHARACTERISTICS



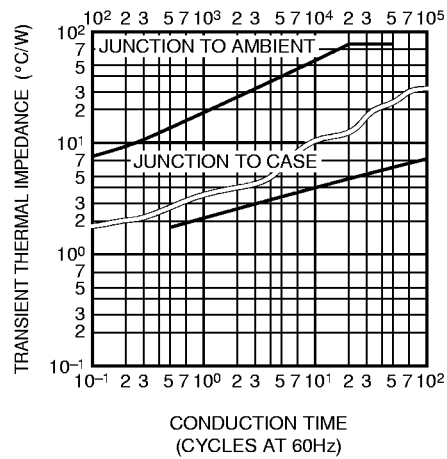
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



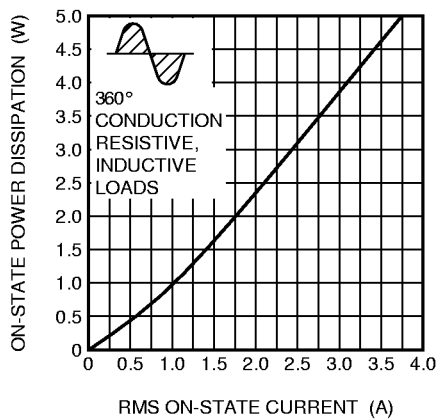
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



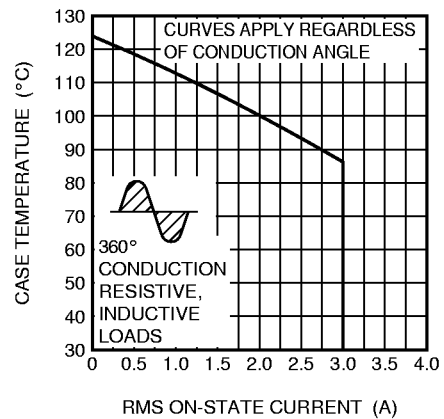
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



MAXIMUM ON-STATE POWER DISSIPATION



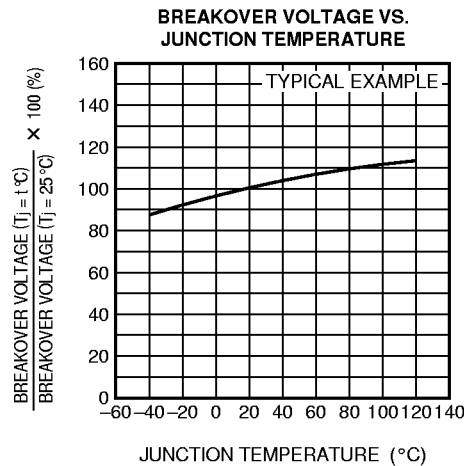
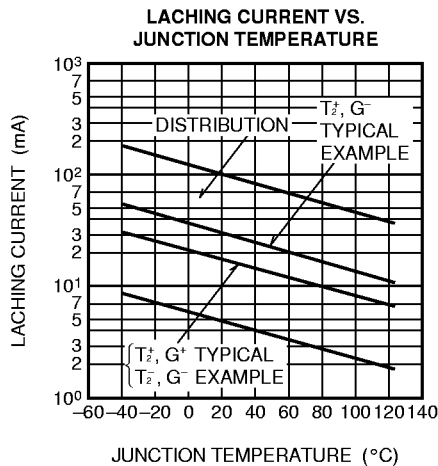
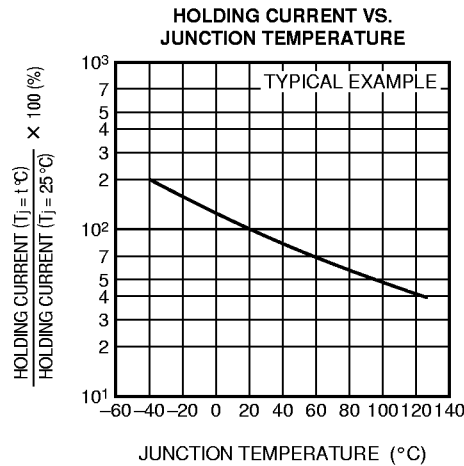
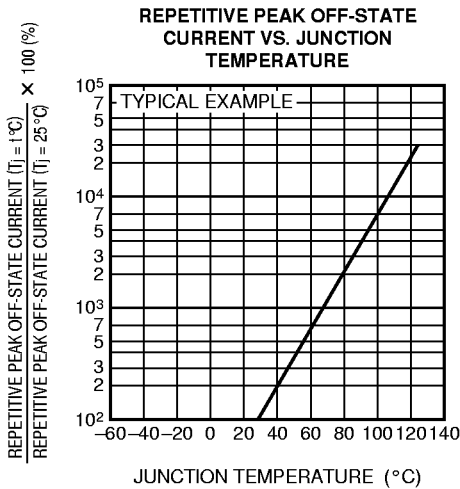
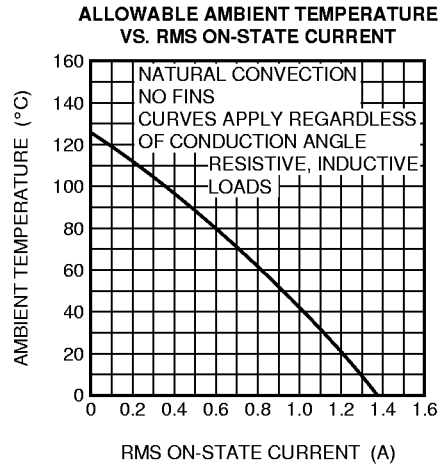
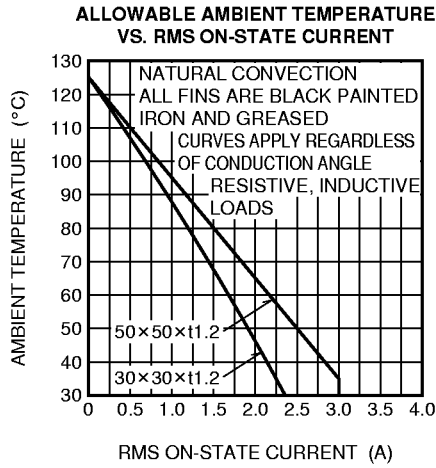
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



# BCR3AM

LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

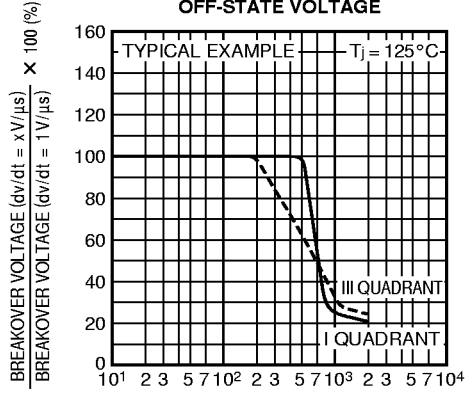


# BCR3AM

LOW POWER USE

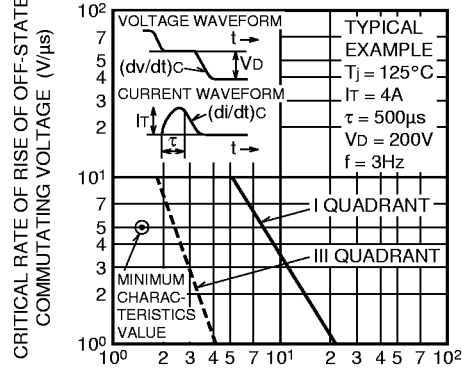
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

**BREAKOVER VOLTAGE VS.  
RATE OF RISE OF  
OFF-STATE VOLTAGE**



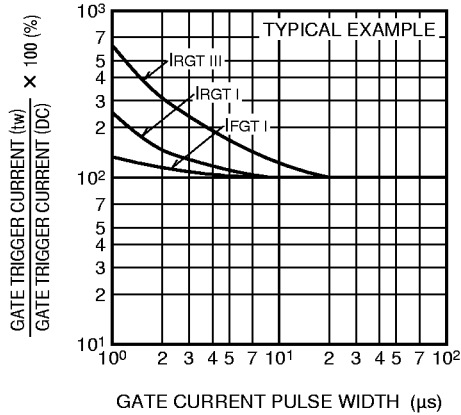
RATE OF RISE OF OFF-STATE VOLTAGE ( $\text{V}/\mu\text{s}$ )

**COMMUTATION CHARACTERISTICS**



RATE OF DECAY OF ON-STATE  
COMMUTATING CURRENT ( $\text{A}/\text{ms}$ )

**GATE TRIGGER CURRENT VS.  
GATE CURRENT PULSE WIDTH**



GATE CURRENT PULSE WIDTH ( $\mu\text{s}$ )

**GATE TRIGGER CHARACTERISTICS TEST CIRCUITS**

