


# BCR3AM

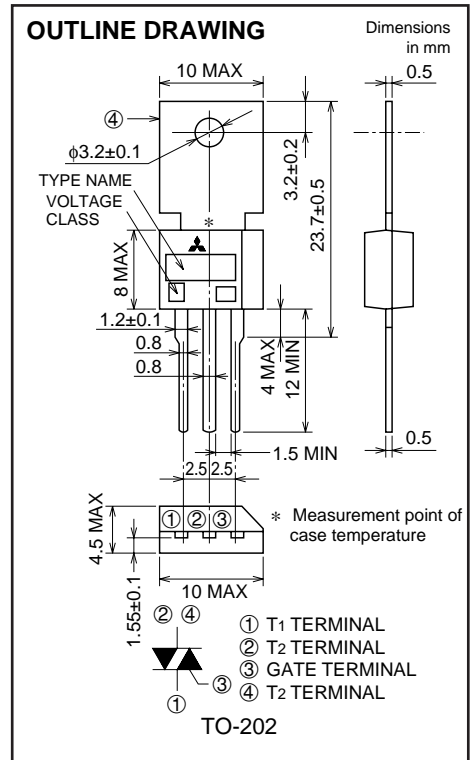
LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

**BCR3AM**



- $I_T$  (RMS) ..... **3A**
- $V_{DRM}$  ..... **400V/600V**
- IFGT I , IRGT I , IRGT III ..... **30mA (15mA) \*6**



## 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
$I_t^2$	$I_t^2$ for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	3.7	A <sup>2</sup> s
PGM	Peak gate power dissipation		3	W
PG (AV)	Average gate power dissipation		0.3	W
VGM	Peak gate voltage		6	V
IGM	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.

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## ELECTRICAL CHARACTERISTICS

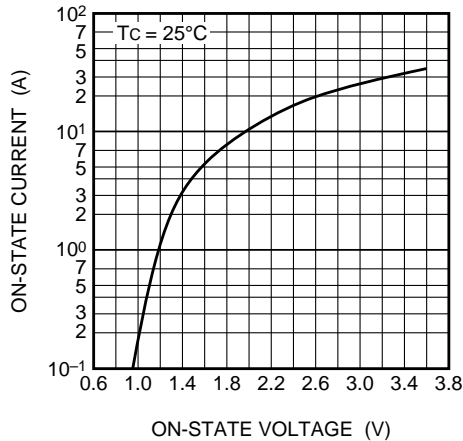
Symbol	Parameter	Test conditions	Limits			Unit	
			Min.	Typ.	Max.		
IDRM	Repetitive peak off-state current	T <sub>j</sub> =125°C, V <sub>DRM</sub> applied	—	—	2.0	mA	
VTM	On-state voltage	T <sub>c</sub> =25°C, I <sub>TM</sub> =4.5A, Instantaneous measurement	—	—	1.5	V	
VFGT I	Gate trigger voltage *2	T <sub>j</sub> =25°C, V <sub>D</sub> =6V, R <sub>L</sub> =6Ω, R <sub>G</sub> =330Ω	I	—	—	1.5	V
VRGT I			II	—	—	1.5	V
VRGT III			III	—	—	1.5	V
IFGT I	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	I	—	—	30*6	mA
IRGT I			II	—	—	30*6	mA
IRGT III			III	—	—	30*6	mA
VGD	Gate non-trigger voltage	T <sub>j</sub> =125°C, V <sub>D</sub> =1/2V <sub>DRM</sub>	0.2	—	—	V	
Rth (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 (c-f)</sub> in case of greasing is 3°C/W.
- \*6. High sensitivity (I<sub>GT</sub>≤15mA) is also available. (IGT item ①)

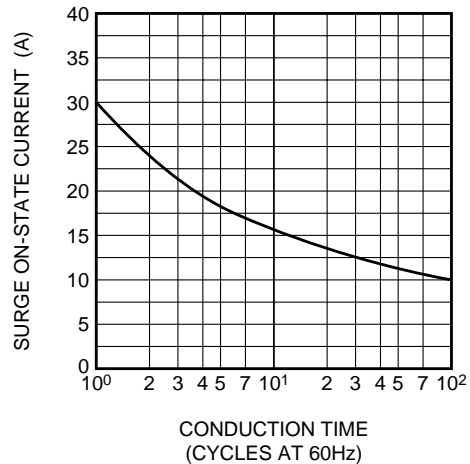
Voltage class	V <sub>DRM</sub> (V)	(dv/dt) <sub>c</sub>		Test conditions	Commutating voltage and current waveforms (inductive load)
		Min.	Unit		
8	400	5	V/μs	1. Junction temperature T <sub>j</sub> =125°C 2. Rate of decay of on-state commutating current (di/dt) <sub>c</sub> =-1.5A/ms 3. Peak off-state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

## PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS

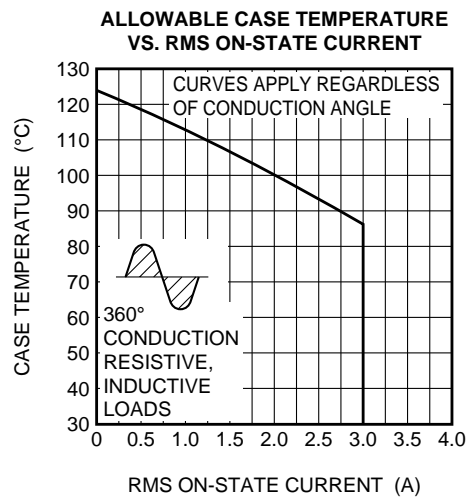
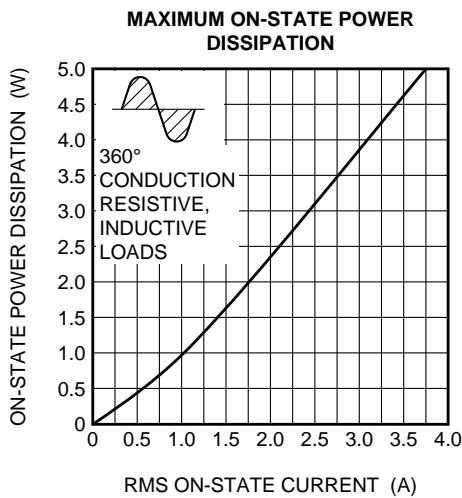
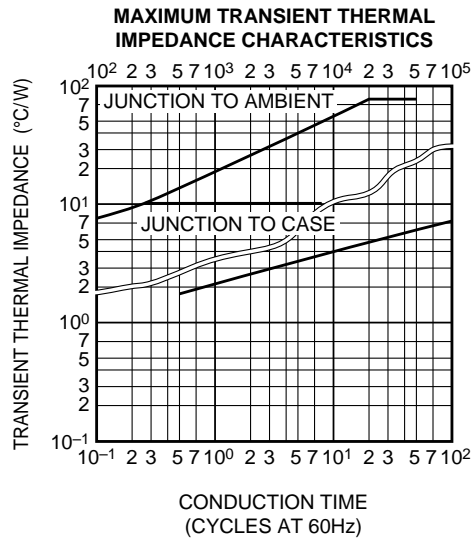
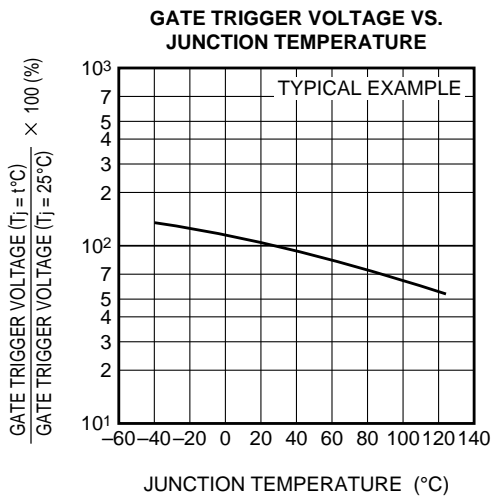
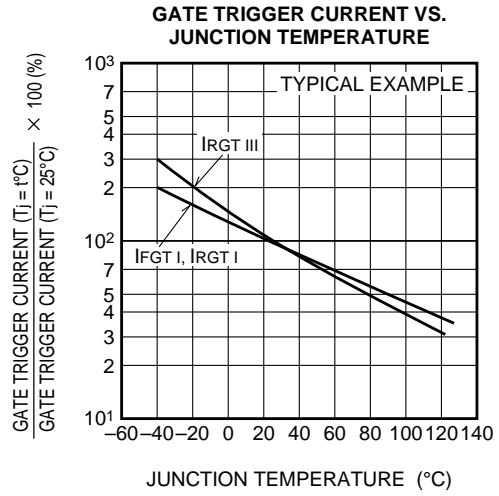
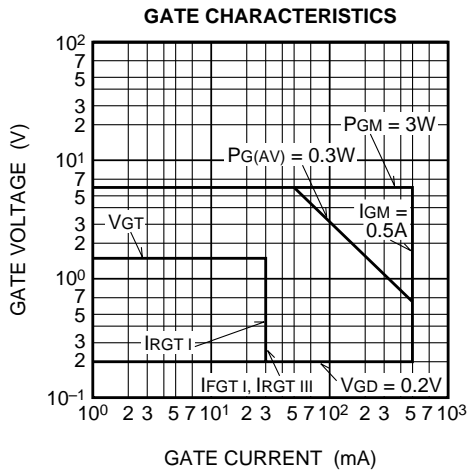


RATED SURGE ON-STATE CURRENT



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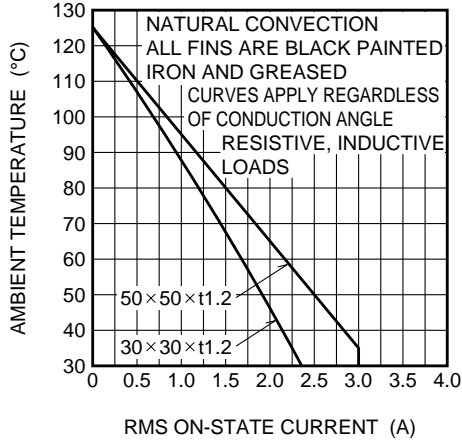
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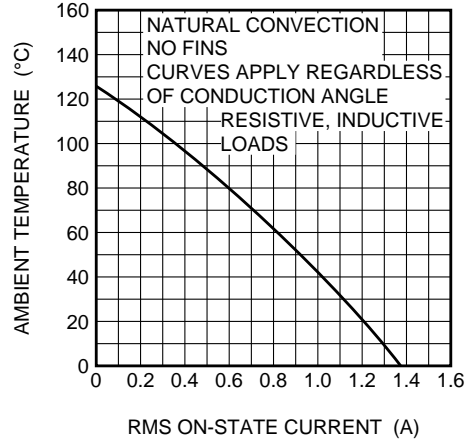
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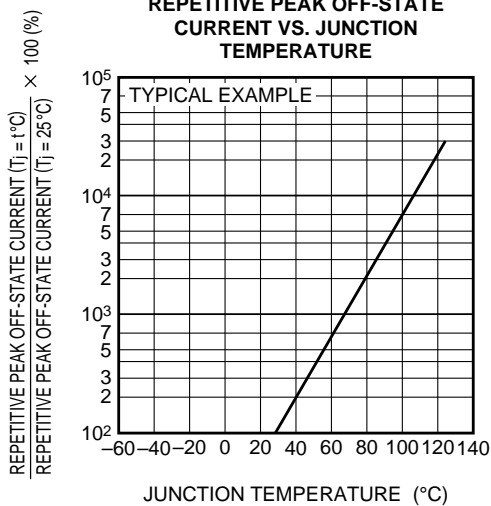
**ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT**



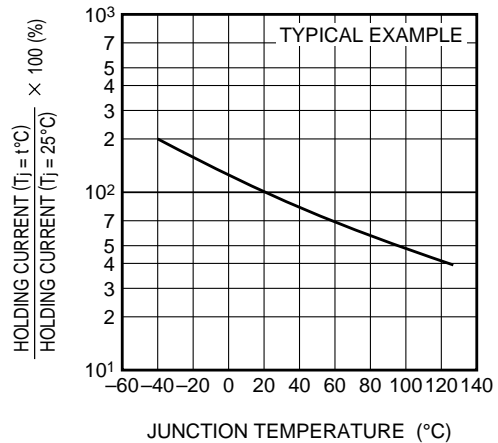
**ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT**



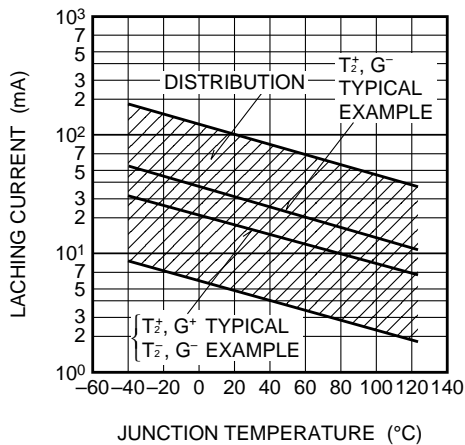
**REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE**



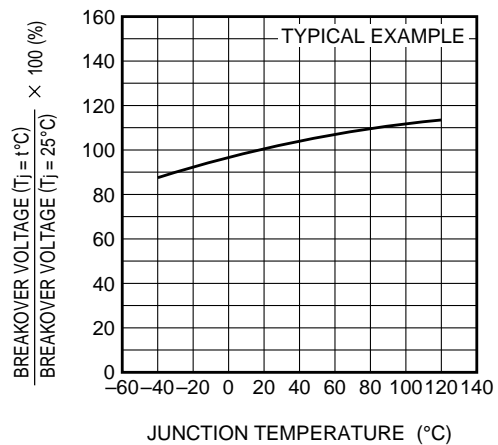
**HOLDING CURRENT VS. JUNCTION TEMPERATURE**



**LATCHING CURRENT VS. JUNCTION TEMPERATURE**



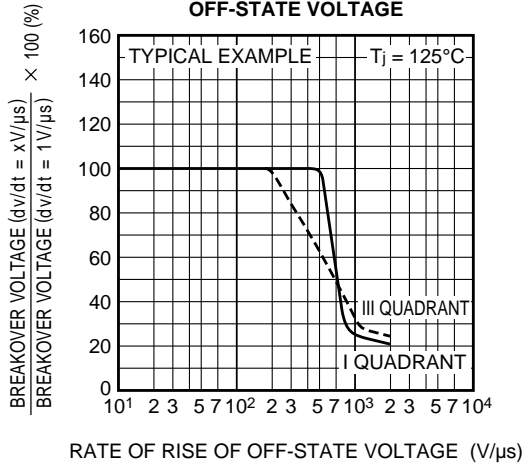
**BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE**



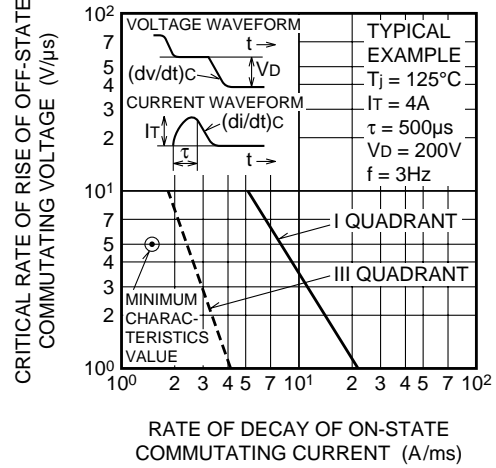
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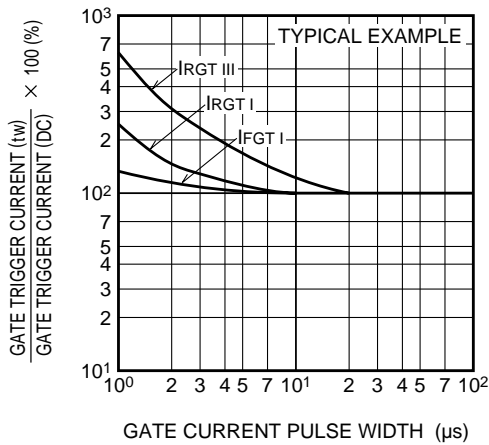
**BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE**



**COMMUTATION CHARACTERISTICS**



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



**GATE TRIGGER CHARACTERISTICS TEST CIRCUITS**

