

BCR1AM-12

LOW POWER USE
GLASS PASSIVATION TYPE

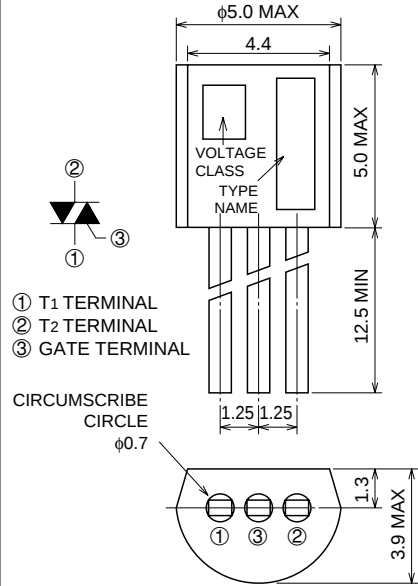
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- I_T (RMS) 1A
- V_{DRM} 600V
- $I_{FGT I}$, $I_{RGT I}$, $I_{RGT III}$ 5mA
- $I_{FGT III}$ 10mA

OUTLINE DRAWING

Dimensions
in mm



JEDEC : TO-92

APPLICATION

Contactless AC switches, heating, refrigerator, washing machine, electric fan, vending machines, trigger circuit for low and medium triac, solid state relay, other general purpose control applications

MAXIMUM RATINGS

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

Symbol	Parameter	Conditions	Ratings	Unit
I_T (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, $T_c=56^\circ\text{C}$ *4	1.0	A
I_{TSM}	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	10	A
I^2_t	I^2_t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	0.41	A ² s
PGM	Peak gate power dissipation		1	W
PG (AV)	Average gate power dissipation		0.1	W
VGM	Peak gate voltage		6	V
IGM	Peak gate current		1	A
T_j	Junction temperature		-40 ~ +125	°C
T_{stg}	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	0.23	g

*1. Gate open.

Feb.1999

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ELECTRICAL CHARACTERISTICS

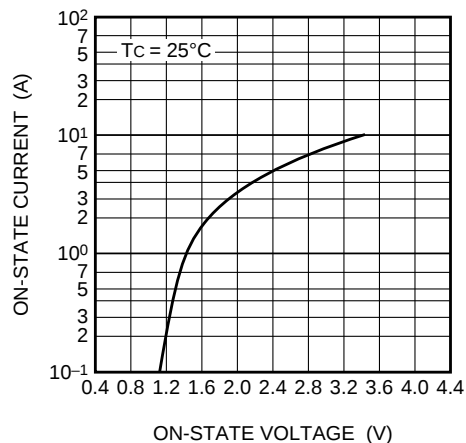
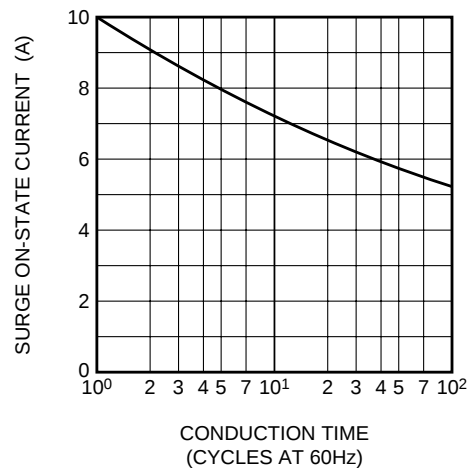
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current	$T_J=125^{\circ}\text{C}$, V_{DRM} applied	—	—	1.0	mA
V_{TM}	On-state voltage	$T_C=25^{\circ}\text{C}$, $I_{TM}=1.5\text{A}$, Instantaneous measurement	—	—	1.6	V
$V_{FGT\text{ I}}$	Gate trigger voltage *2	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	2.0	V
$V_{RGT\text{ I}}$			—	—	2.0	V
$V_{RGT\text{ III}}$			—	—	2.0	V
$V_{FGT\text{ III}}$			—	—	2.0	V
$I_{FGT\text{ I}}$	Gate trigger current *2	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	5	mA
$I_{RGT\text{ I}}$			—	—	5	mA
$I_{RGT\text{ III}}$			—	—	5	mA
$I_{FGT\text{ III}}$			—	—	10	mA
V_{GD}	Gate non-trigger voltage	$T_J=125^{\circ}\text{C}$, $V_D=1/2V_{DRM}$	0.1	—	—	V
$R_{th(j-c)}$	Thermal resistance	Junction to case *4	—	—	50	$^{\circ}\text{C/W}$
$(dv/dt)_c$	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.

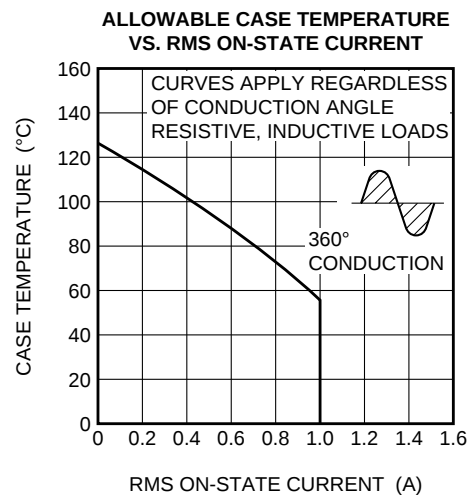
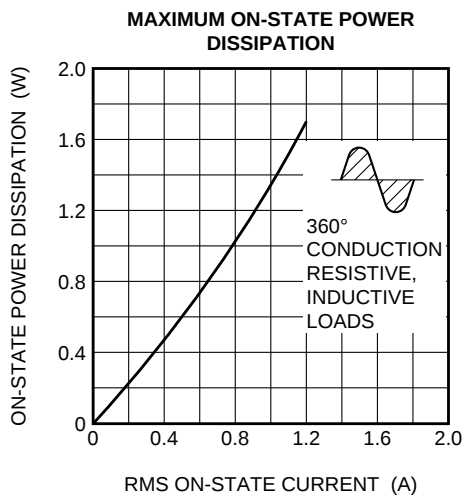
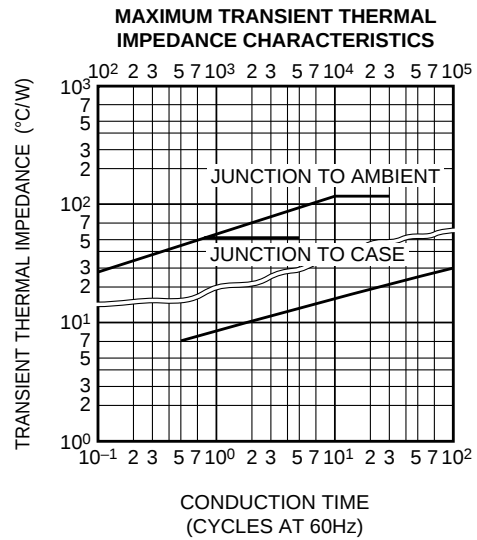
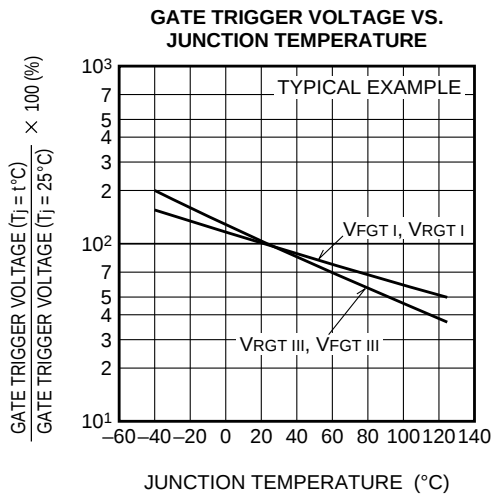
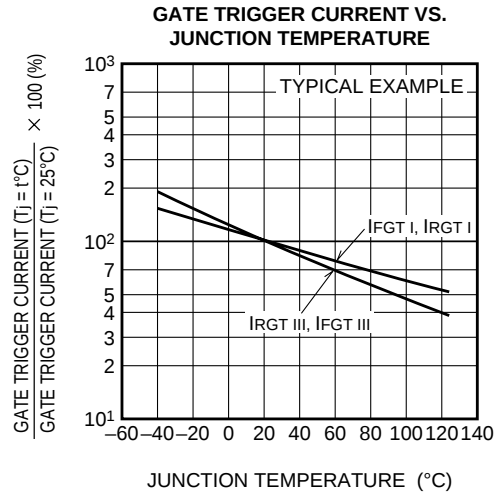
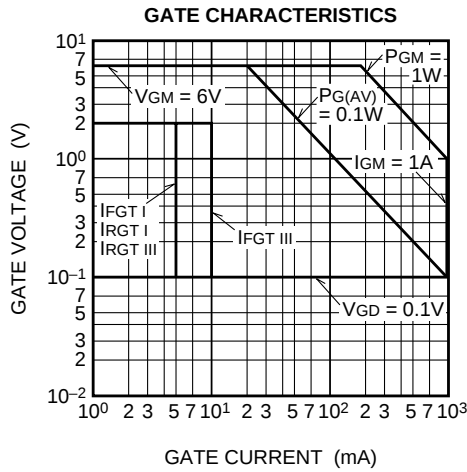
*4. Case temperature is measured at the T₂ terminal 1.5mm away from the molded case.

Voltage class	V_{DRM} (V)	$(dv/dt)_c$		Test conditions	Commutating voltage and current waveforms (inductive load)
		Min.	Unit		
12	600	2	V/ μs	1. Junction temperature $T_J=125^{\circ}\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c=-0.5\text{A/ms}$ 3. Peak off-state voltage $V_D=400\text{V}$	

PERFORMANCE CURVES**MAXIMUM ON-STATE CHARACTERISTICS****RATED SURGE ON-STATE CURRENT**

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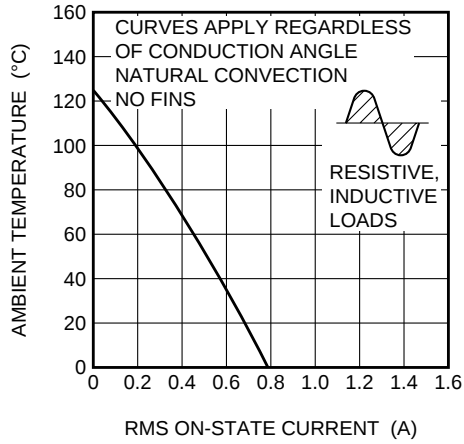
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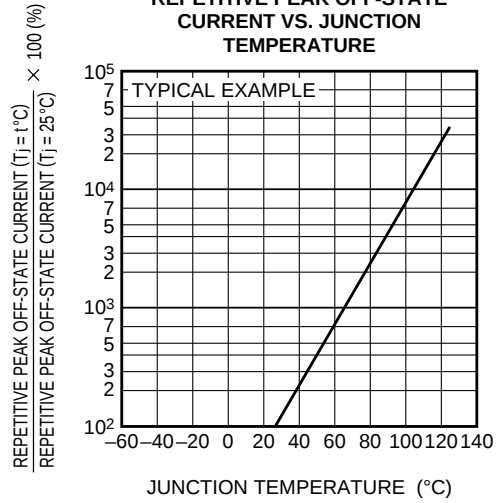
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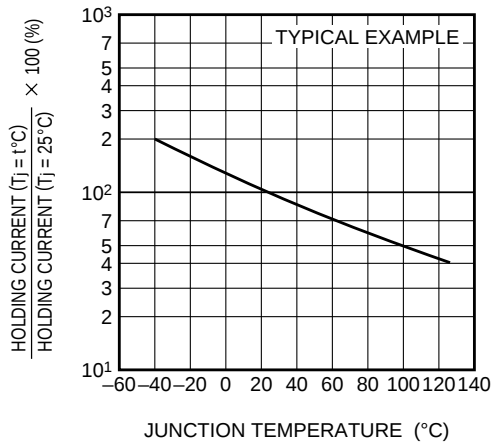
ALLOWABLE AMBIENT TEMPERATURE
VS. RMS ON-STATE CURRENT



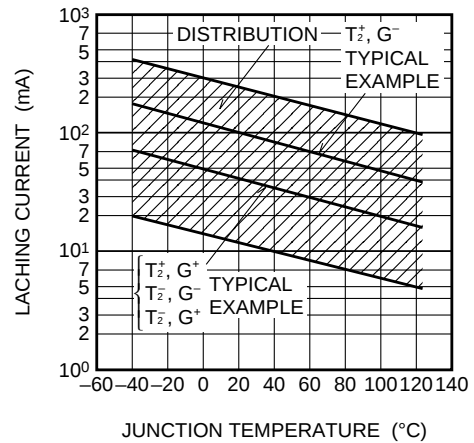
REPETITIVE PEAK OFF-STATE
CURRENT VS. JUNCTION
TEMPERATURE



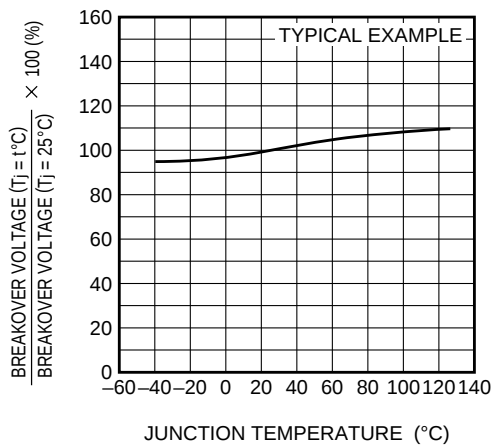
HOLDING CURRENT VS.
JUNCTION TEMPERATURE



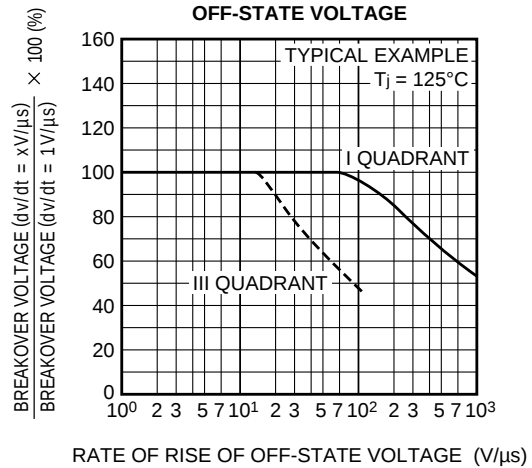
LACHING CURRENT VS.
JUNCTION TEMPERATURE



BREAKOVER VOLTAGE VS.
JUNCTION TEMPERATURE

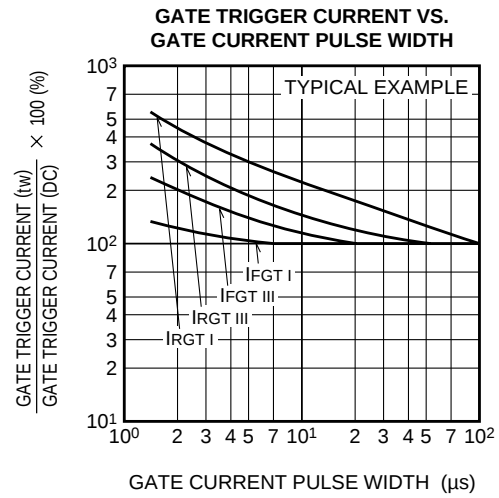
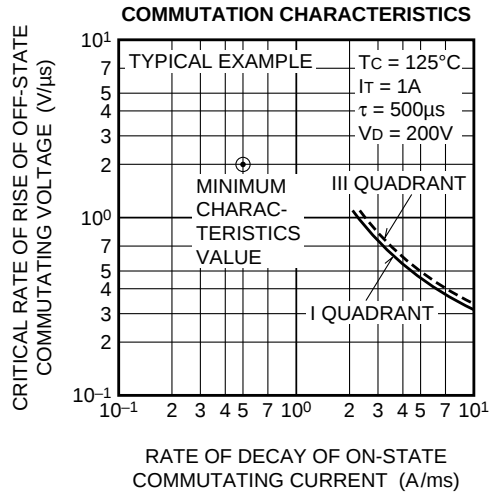


BREAKOVER VOLTAGE VS.
RATE OF RISE OF
OFF-STATE VOLTAGE



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GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

