

BCR30AM

Refer to the page 6 as to the product guaranteed
maximum junction temperature 150°C

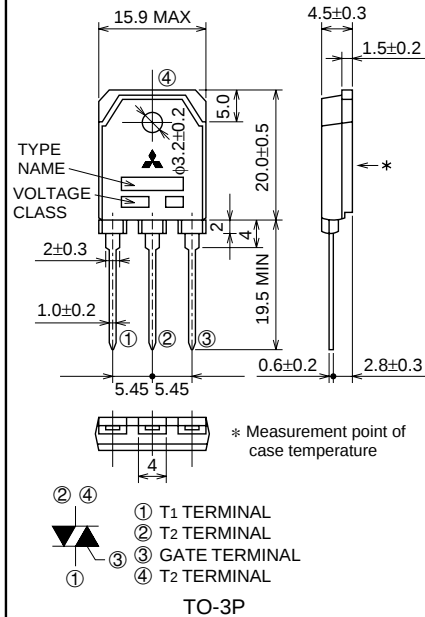
MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

BCR30AM

- **IT (RMS)** **30A**
- **VDRM** **600V**
- **IFGT I, I_{RGT} I, I_{RGT} III** **50mA**

OUTLINE DRAWING

Dimensions
in mm

**APPLICATION**

Contactless AC switches, light dimmer,
on/off and speed control of small induction motors, on/off control of copier lamps,
microwave ovens

MAXIMUM RATINGS

Symbol	Parameter	Voltage class	Unit
		12	
VDRM	Repetitive peak off-state voltage *1	600	V
VDSM	Non-repetitive peak off-state voltage *1	720	V

Symbol	Parameter	Conditions	Ratings	Unit
IT (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, T _c =75°C	30	A
ITSM	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	300	A
I ² _t	I ² _t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	378	A ² s
P _{GM}	Peak gate power dissipation		5	W
P _G (AV)	Average gate power dissipation		0.5	W
V _{GM}	Peak gate voltage		10	V
I _{GM}	Peak gate current		2	A
T _j	Junction temperature		-40 ~ +125	°C
T _{stg}	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	4.8	g

*1. Gate open.

Mar. 2002



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MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

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	—	—	3.0	mA
V_{TM}	On-state voltage	$T_c=25^{\circ}\text{C}$, $I_{TM}=45\text{A}$	—	—	1.6	V
$V_{FGT\text{ I}}$	Gate trigger voltage *2	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	2.5	V
$V_{RGT\text{ I}}$			—	—	2.5	V
$V_{RGT\text{ III}}$			—	—	2.5	V
$I_{FGT\text{ I}}$	Gate trigger current *2	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	50	mA
$I_{RGT\text{ I}}$			—	—	50	mA
$I_{RGT\text{ III}}$			—	—	50	mA
V_{GD}	Gate non-trigger voltage	$T_J=125^{\circ}\text{C}$, $V_D=1/2V_{DRM}$	0.2	—	—	V
$R_{th(j-c)}$	Thermal resistance	Junction to case *3	—	—	1.2	$^{\circ}\text{C/W}$
$(dv/dt)_c$	Critical-rate of rise of off-state commutating voltage *4	$T_J=125^{\circ}\text{C}$	20	—	—	$\text{V}/\mu\text{s}$

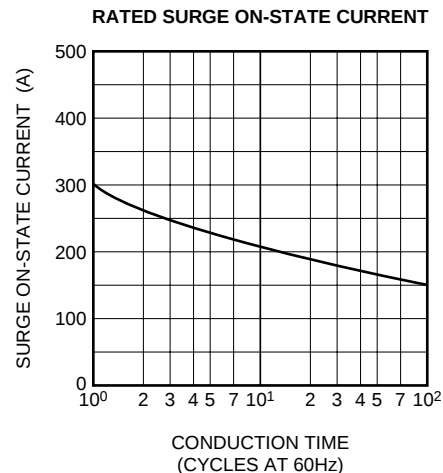
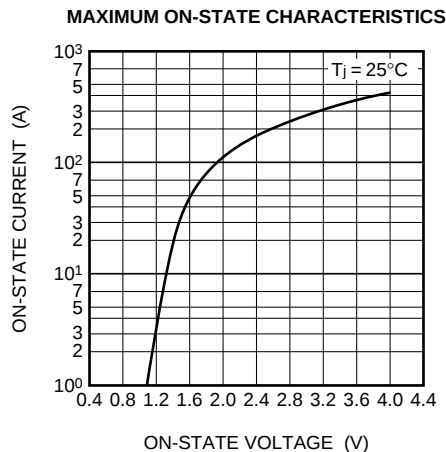
*2. Measurement using the gate trigger characteristics measurement circuit.

*3. The contact thermal resistance $R_{th(j-c)}$ in case of greasing is 0.3°C/W .

*4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_J=125^{\circ}\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c=16\text{A/ms}$ 3. Peak off-state voltage $V_D=400\text{V}$	

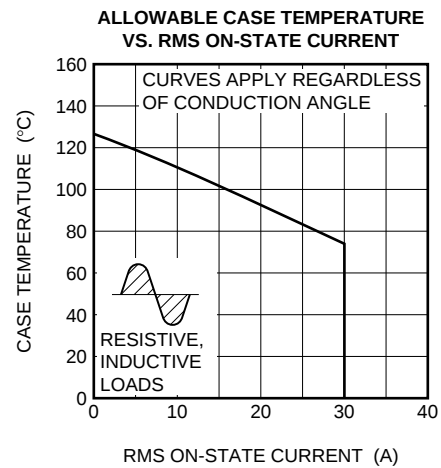
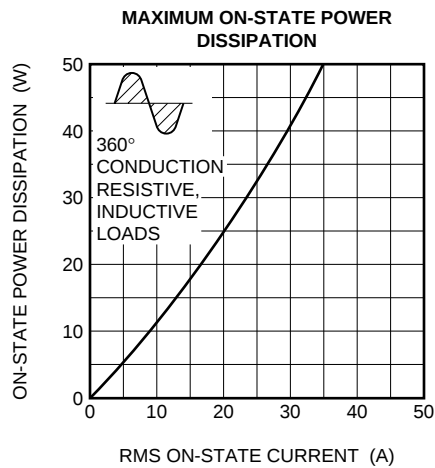
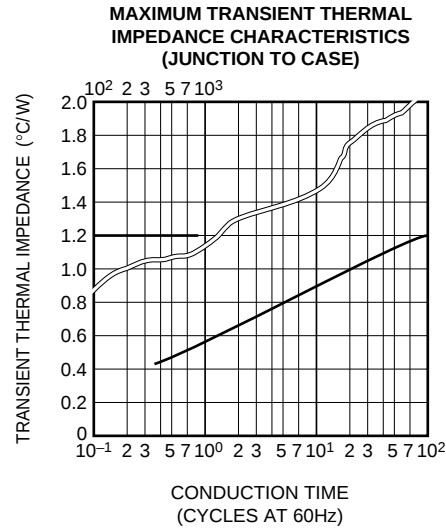
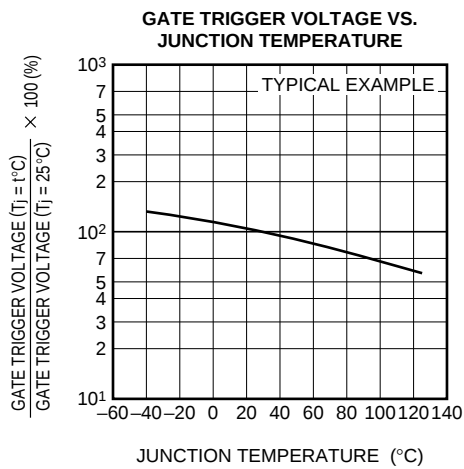
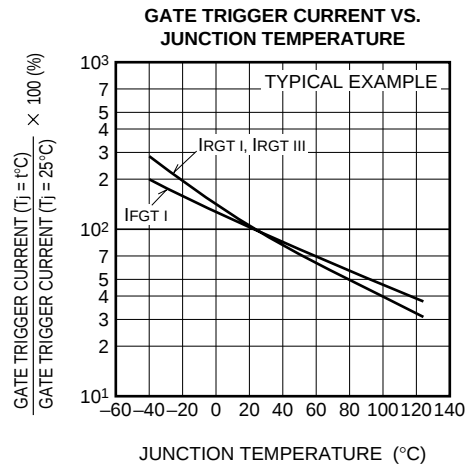
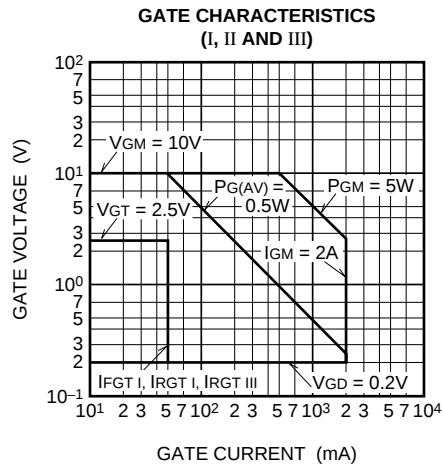
PERFORMANCE CURVES



BCR30AM

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maximum junction temperature 150°C

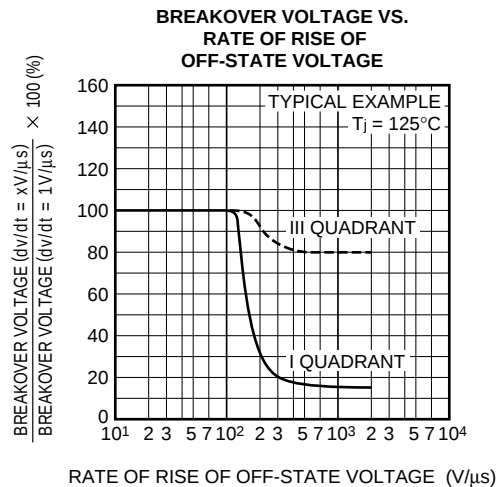
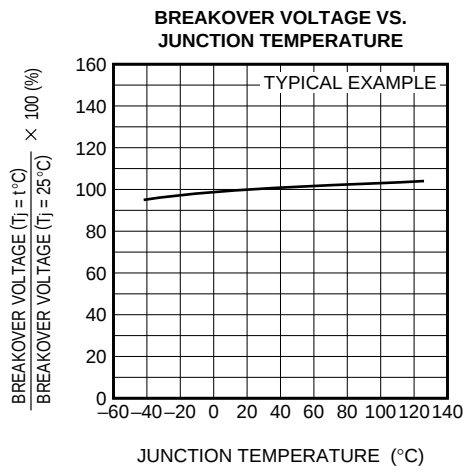
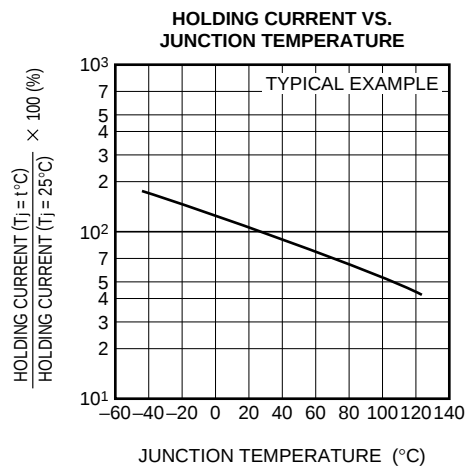
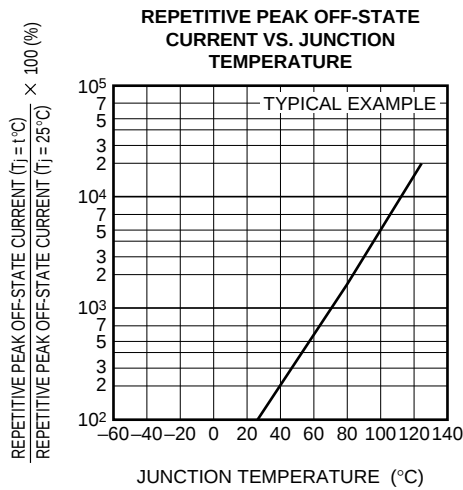
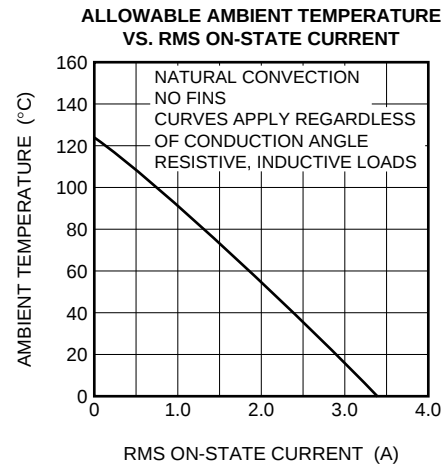
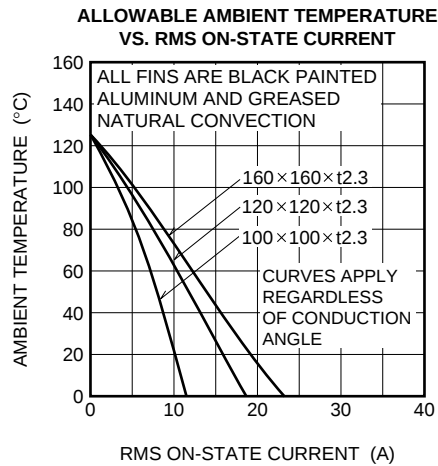
MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE



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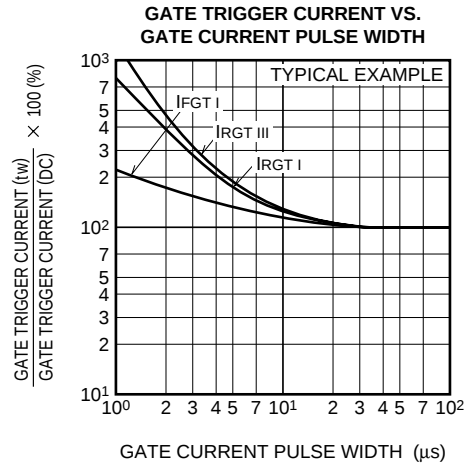
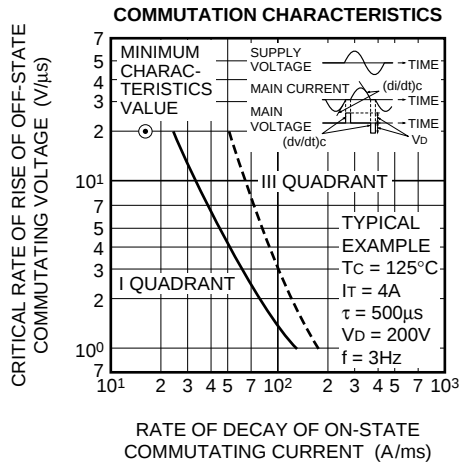
MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE



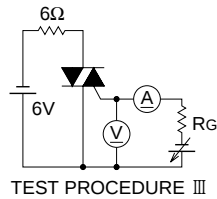
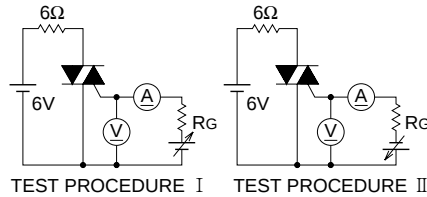
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MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS



BCR30AM

The product guaranteed maximum junction temperature 150°C (See warning.)

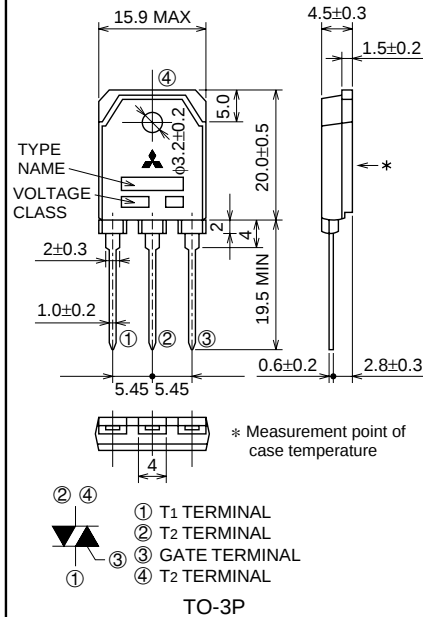
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- **VDRM** **600V**
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OUTLINE DRAWING

Dimensions
in mm

**APPLICATION**

Contactless AC switches, light dimmer,
on/off and speed control of small induction motors, on/off control of copier lamps,
microwave ovens

(Warning)

1. Refer to the recommended circuit values around the triac before using.
2. Be sure to exchange the specification before using. If not exchanged, general triacs will be supplied.

MAXIMUM RATINGS

Symbol	Parameter	Voltage class	Unit
		12	
VDRM	Repetitive peak off-state voltage *1	600	V
VDSM	Non-repetitive peak off-state voltage *1	720	V

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I ² _t	I ² _t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	378	A ² s
P _{GM}	Peak gate power dissipation		5	W
P _G (AV)	Average gate power dissipation		0.5	W
V _{GM}	Peak gate voltage		10	V
I _{GM}	Peak gate current		2	A
T _j	Junction temperature		-40 ~ +150	°C
T _{stg}	Storage temperature		-40 ~ +150	°C
—	Weight	Typical value	4.8	g

*1. Gate open.

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NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current	$T_J=125^\circ\text{C}/150^\circ\text{C}$, V_{DRM} applied	—	—	3.0/5.0	mA
V_{TM}	On-state voltage	$T_c=25^\circ\text{C}$, $I_{TM}=45\text{A}$	—	—	1.6	V
$V_{FGT\text{ I}}$	Gate trigger voltage *2	$T_J=25^\circ\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	2.5	V
$V_{RGT\text{ I}}$			—	—	2.5	V
$V_{RGT\text{ III}}$			—	—	2.5	V
$I_{FGT\text{ I}}$	Gate trigger current *2	$T_J=25^\circ\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	50	mA
$I_{RGT\text{ I}}$			—	—	50	mA
$I_{RGT\text{ III}}$			—	—	50	mA
V_{GD}	Gate non-trigger voltage	$T_J=125^\circ\text{C}/150^\circ\text{C}$, $V_D=1/2V_{DRM}$	0.2/0.1	—	—	V
$R_{th(j-c)}$	Thermal resistance	Junction to case *3	—	—	1.2	$^\circ\text{C}/\text{W}$
$(dv/dt)_c$	Critical-rate of rise of off-state commutating voltage *4	$T_J=125^\circ\text{C}/150^\circ\text{C}$	20/2	—	—	$\text{V}/\mu\text{s}$

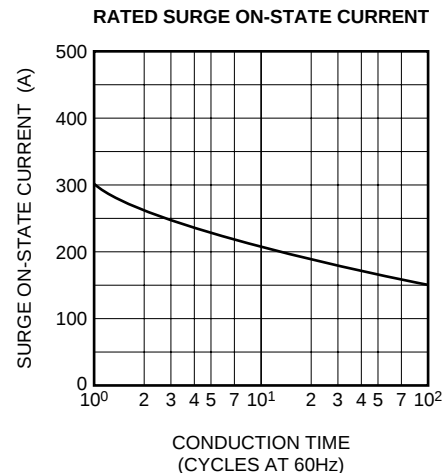
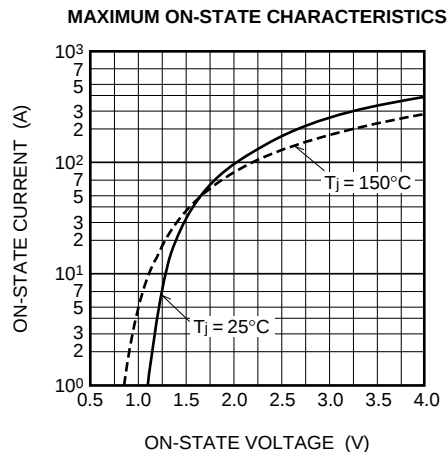
*2. Measurement using the gate trigger characteristics measurement circuit.

*3. The contact thermal resistance $R_{th(b-f)}$ in case of greasing is $0.3^\circ\text{C}/\text{W}$.

*4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_J=125^\circ\text{C}/150^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c=16\text{A/ms}$ 3. Peak off-state voltage $V_D=400\text{V}$	

PERFORMANCE CURVES

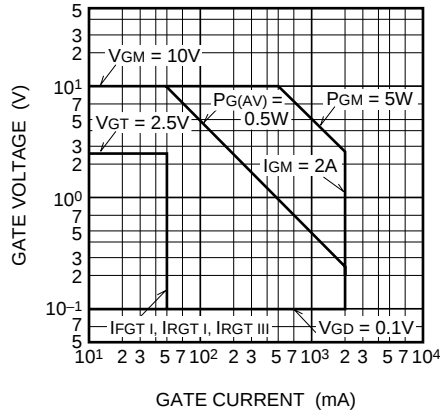


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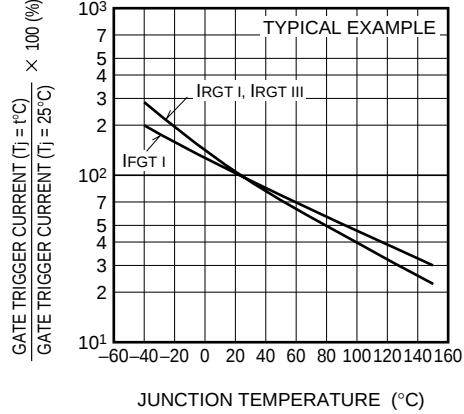
The product guaranteed maximum junction temperature 150°C (See warning.)

MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

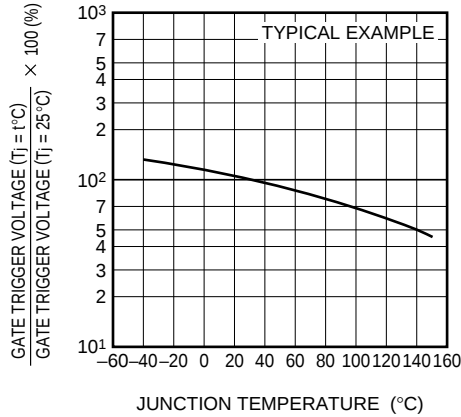
**GATE CHARACTERISTICS
(I, II AND III)**



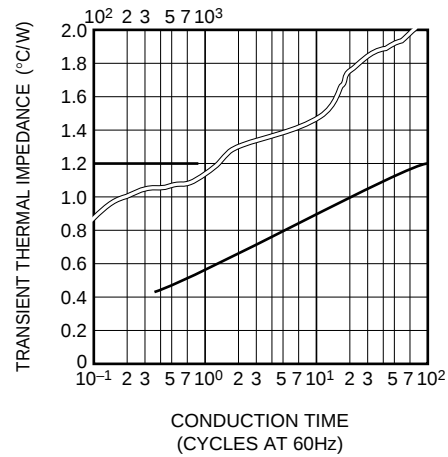
**GATE TRIGGER CURRENT VS.
JUNCTION TEMPERATURE**



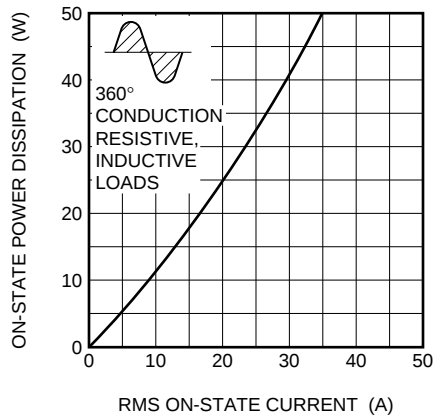
**GATE TRIGGER VOLTAGE VS.
JUNCTION TEMPERATURE**



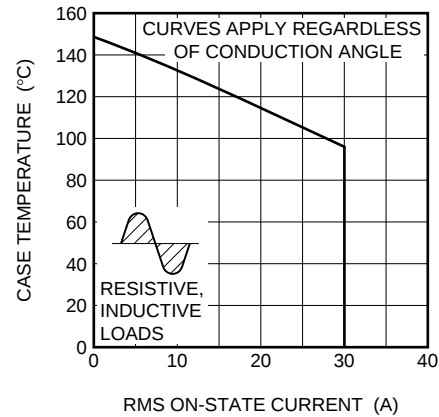
**MAXIMUM TRANSIENT THERMAL
IMPEDANCE CHARACTERISTICS
(JUNCTION TO CASE)**



**MAXIMUM ON-STATE POWER
DISSIPATION**



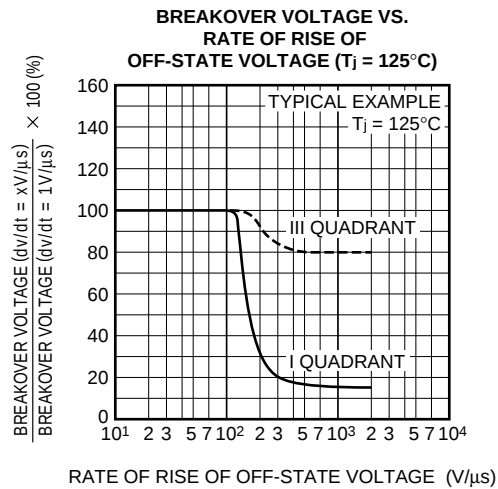
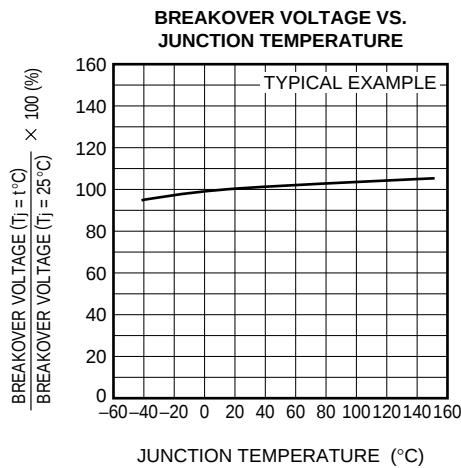
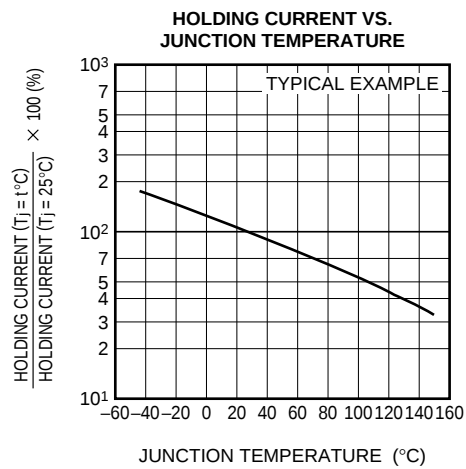
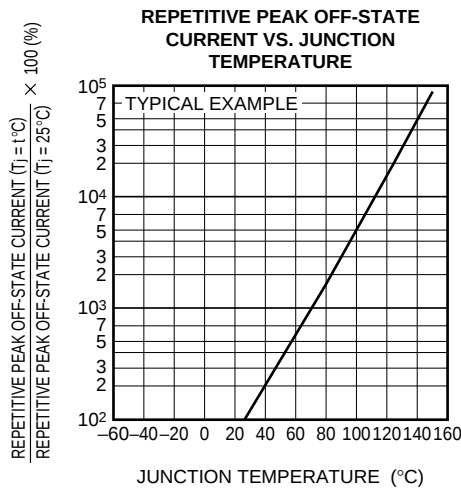
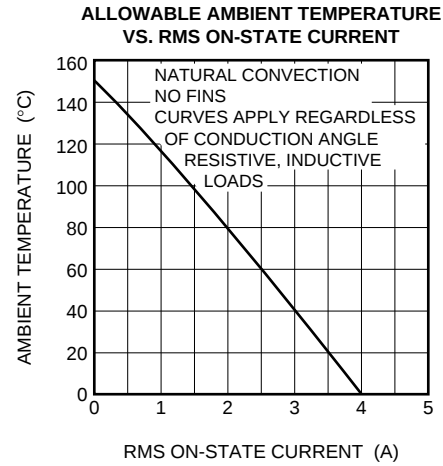
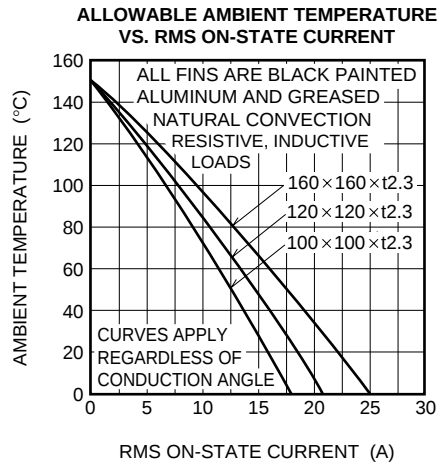
**ALLOWABLE CASE TEMPERATURE
VS. RMS ON-STATE CURRENT**



BCR30AM

The product guaranteed maximum junction temperature 150°C (See warning.)

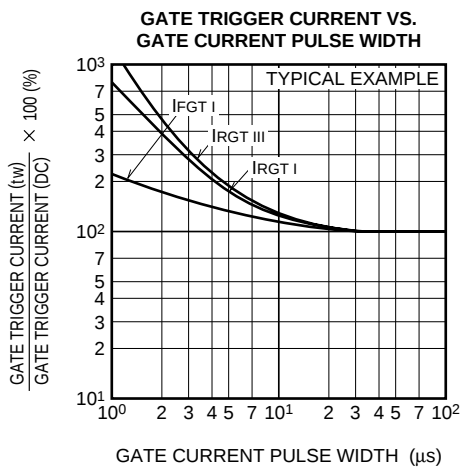
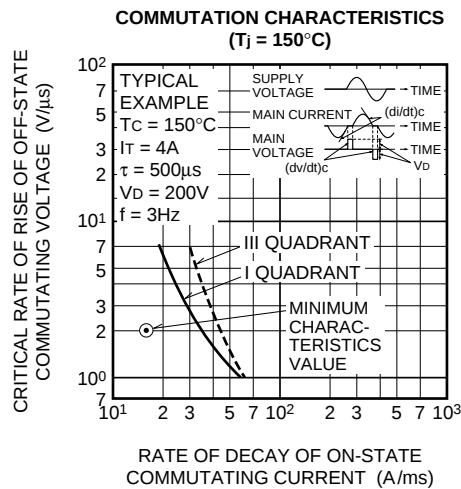
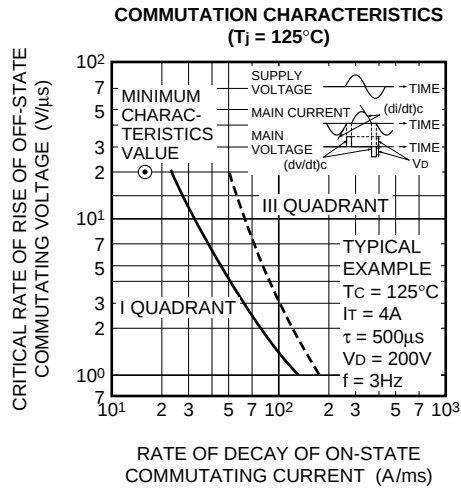
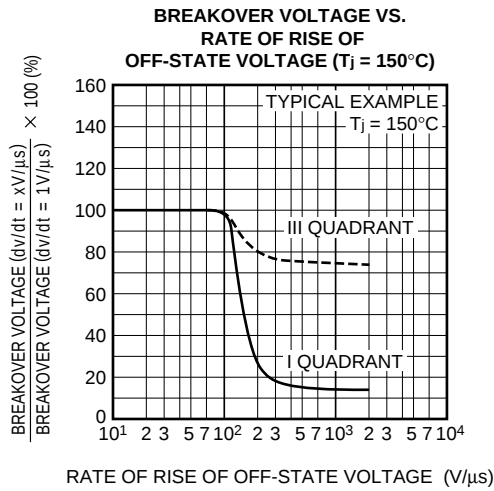
MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE



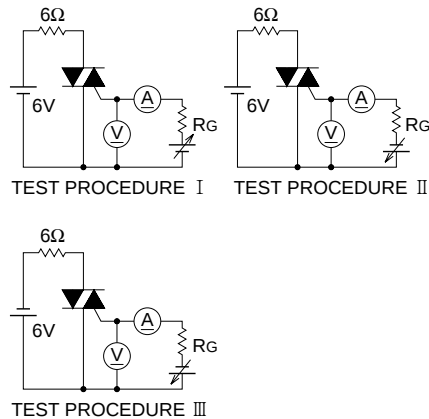
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MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS



RECOMMENDED CIRCUIT VALUES AROUND THE TRIAC

