

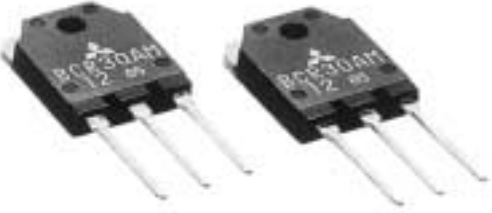
BCR30AM

MEDIUM POWER USE

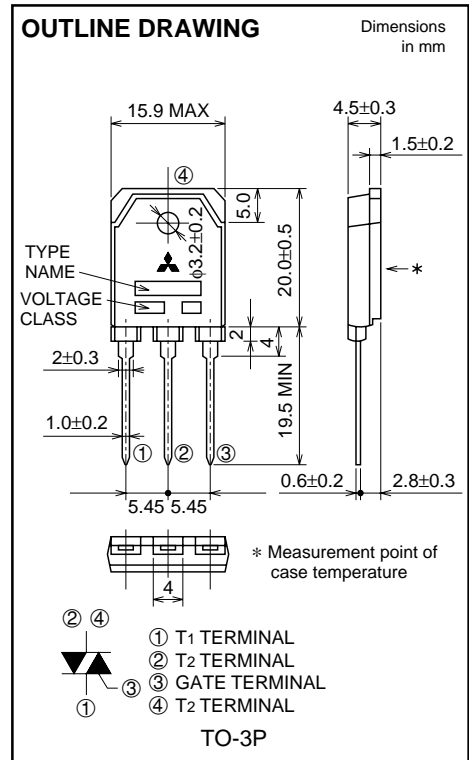
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

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

BCR30AM



- **IT (RMS)** **30A**
- **VDRM** **600V**
- **IFGT I , IRGT I , IRGT III** **50mA**



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	600	
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, Tc=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
PGM	Peak gate power dissipation		5	W
PG (AV)	Average gate power dissipation		0.5	W
VGM	Peak gate voltage		10	V
IGM	Peak gate current		2	A
Tj	Junction temperature		-40 ~ +125	°C
Tstg	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	4.8	g

*1. Gate open.

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

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit	
			Min.	Typ.	Max.		
IDRM	Repetitive peak off-state current	T _j =125°C, V _{DRM} applied	—	—	3.0	mA	
V _{TM}	On-state voltage	T _c =25°C, I _{TM} =45A	—	—	1.6	V	
V _{FGT I}	Gate trigger voltage *2	T _j =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	I	—	—	2.5	V
V _{RGT I}			II	—	—	2.5	V
V _{RGT III}			III	—	—	2.5	V
I _{FGT I}	Gate trigger current *2	T _j =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	I	—	—	50	mA
I _{RGT I}			II	—	—	50	mA
I _{RGT III}			III	—	—	50	mA
V _{GD}	Gate non-trigger voltage	T _j =125°C, V _D =1/2V _{DRM}	0.2	—	—	V	
R _{th (j-c)}	Thermal resistance	Junction to case *3	—	—	1.2	°C/W	
(dv/dt) _c	Critical-rate of rise of off-state commutating voltage *4	T _j =125°C	20	—	—	V/μs	

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

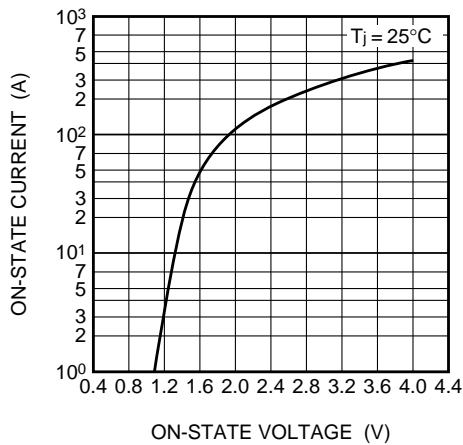
*3. The contact thermal resistance R_{th (b-f)} in case of greasing is 0.3°C/W.

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

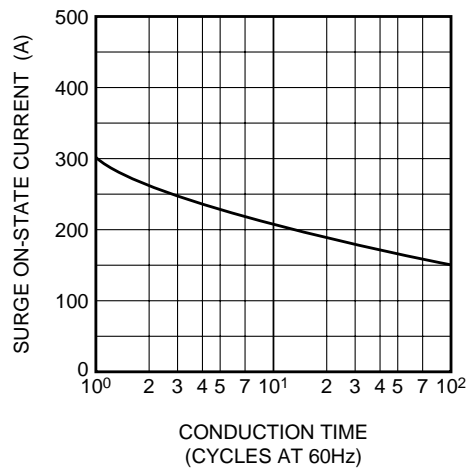
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature T _j =125°C 2. Rate of decay of on-state commutating current (di/dt) _c =-16A/ms 3. Peak off-state voltage V _D =400V	

PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS



RATED SURGE ON-STATE CURRENT

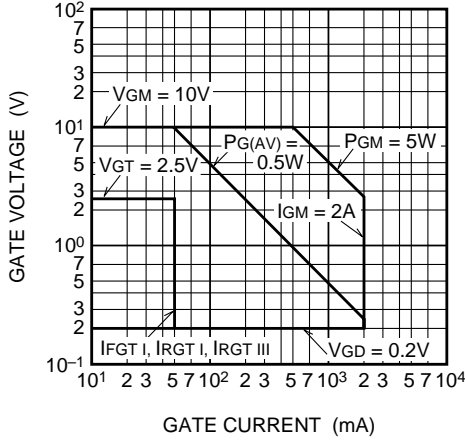


BCR30AM

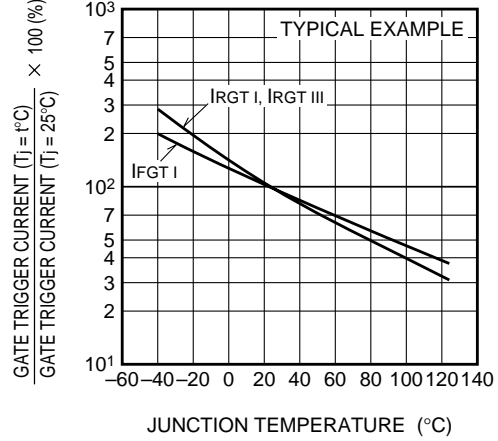
Refer to the page 6 as to the product guaranteed maximum junction temperature 150°C

MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

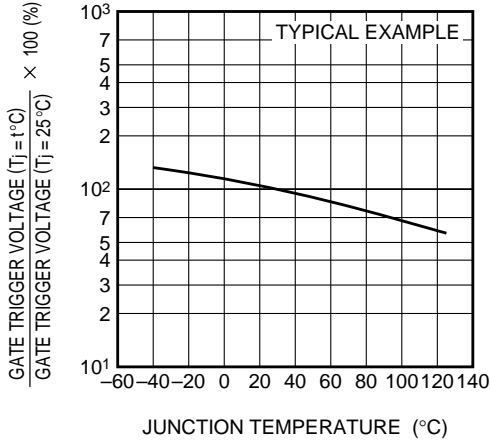
GATE CHARACTERISTICS (I, II AND III)



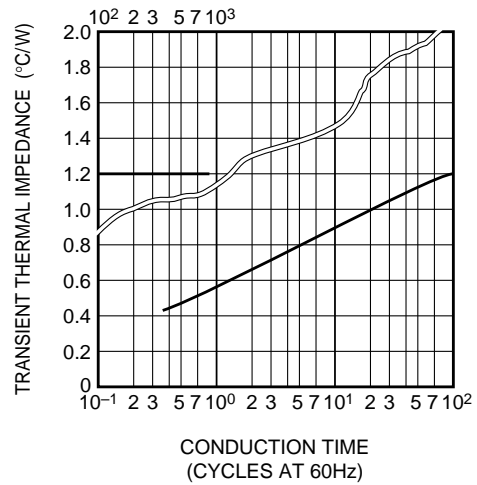
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



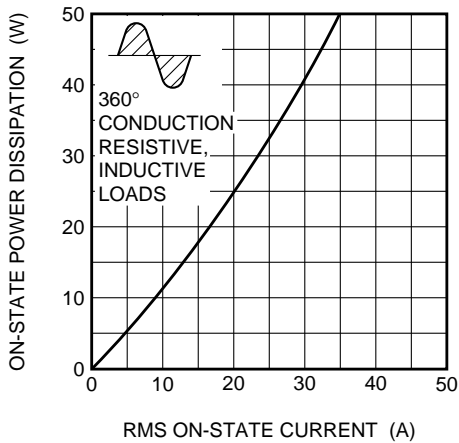
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



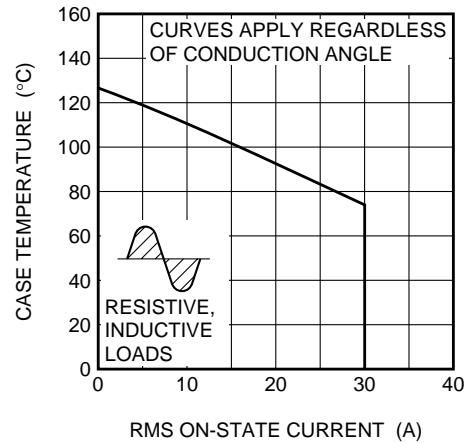
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM ON-STATE POWER DISSIPATION



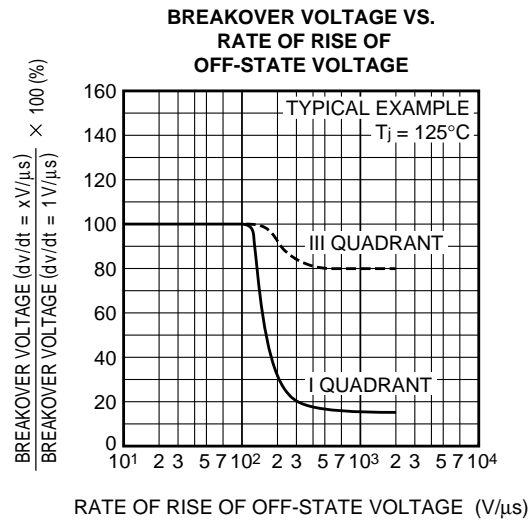
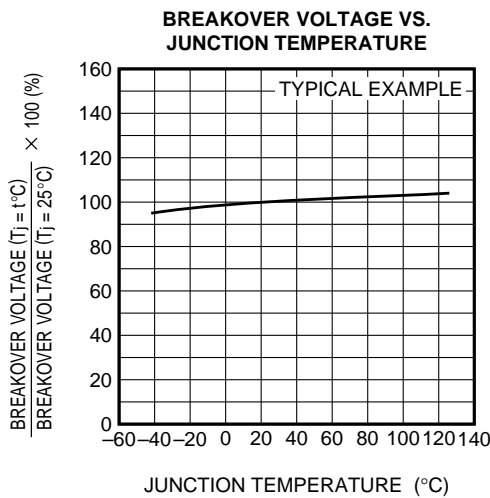
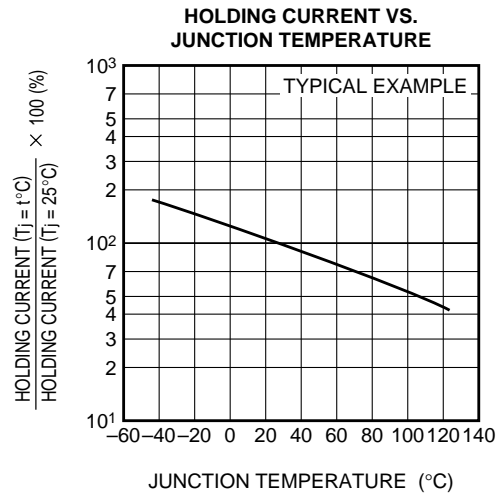
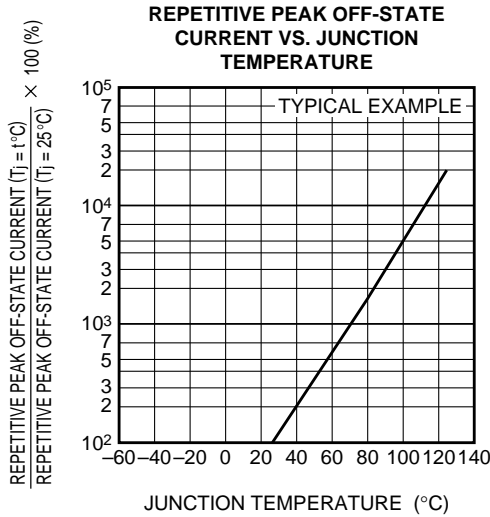
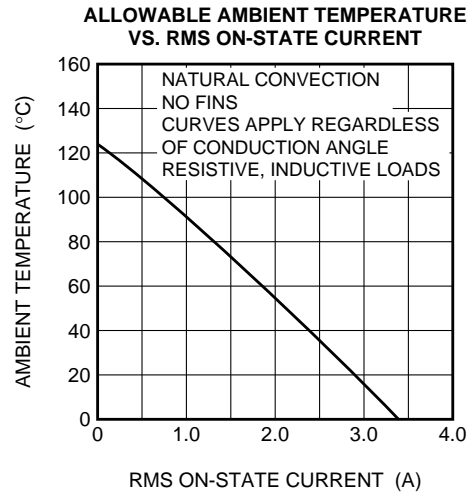
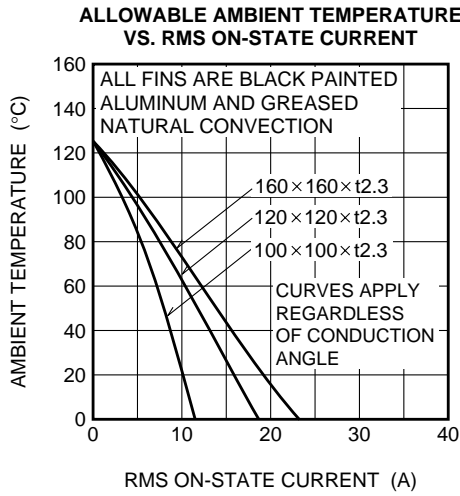
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



BCR30AM

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

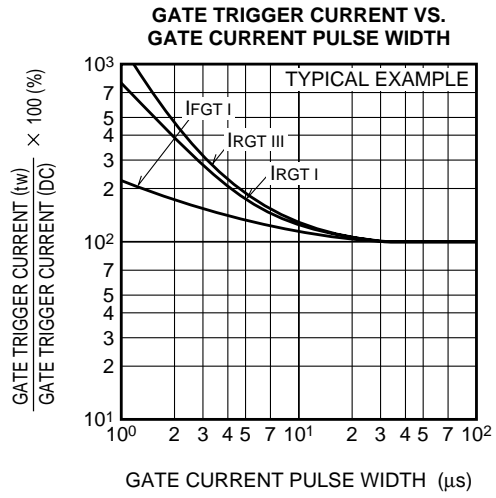
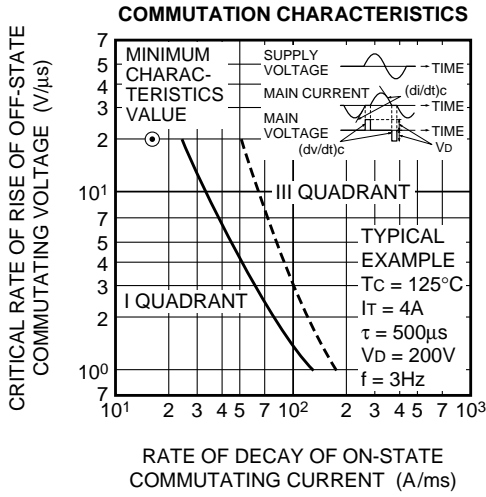
MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE



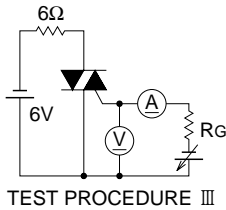
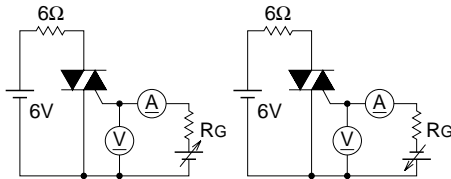
BCR30AM

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

MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS



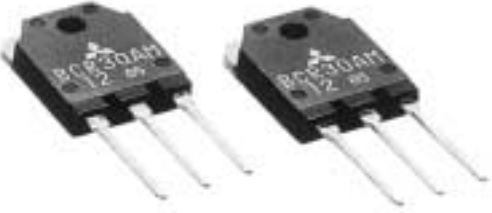
BCR30AM

MEDIUM POWER USE

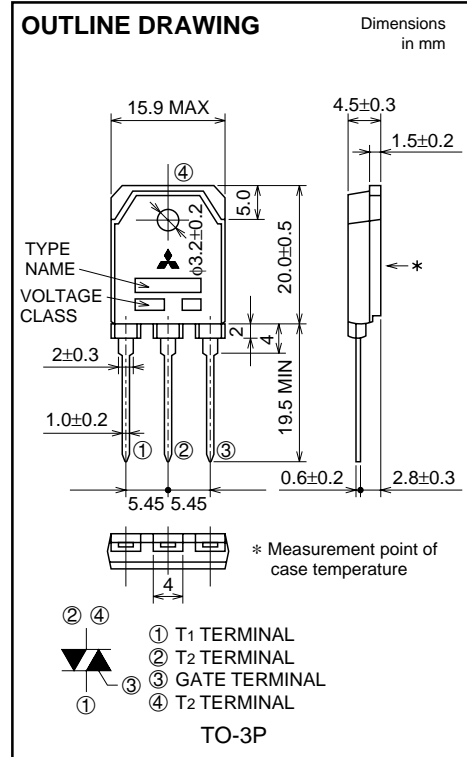
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

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

BCR30AM



- **IT (RMS)** **30A**
- **VDRM** **600V**
- **IFGT I , IRGT I , IRGT III** **50mA**



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	600	
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, Tc=100°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
PGM	Peak gate power dissipation		5	W
PG (AV)	Average gate power dissipation		0.5	W
VGM	Peak gate voltage		10	V
IGM	Peak gate current		2	A
Tj	Junction temperature		-40 ~ +150	°C
Tstg	Storage temperature		-40 ~ +150	°C
—	Weight	Typical value	4.8	g

*1. Gate open.

BCR30AM

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

MEDIUM 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 _j =125°C/150°C, V _{DRM} applied	—	—	3.0/5.0	mA	
V _{TM}	On-state voltage	T _c =25°C, I _{TM} =45A	—	—	1.6	V	
V _{FGT I}	Gate trigger voltage *2	T _j =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	I	—	—	2.5	V
V _{RGT I}			II	—	—	2.5	V
V _{RGT III}			III	—	—	2.5	V
I _{FGT I}	Gate trigger current *2	T _j =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	I	—	—	50	mA
I _{RGT I}			II	—	—	50	mA
I _{RGT III}			III	—	—	50	mA
V _{GD}	Gate non-trigger voltage	T _j =125°C/150°C, V _D =1/2V _{DRM}	0.2/0.1	—	—	V	
R _{th (j-c)}	Thermal resistance	Junction to case *3	—	—	1.2	°C/W	
(dv/dt) _c	Critical-rate of rise of off-state commutating voltage *4	T _j =125°C/150°C	20/2	—	—	V/μs	

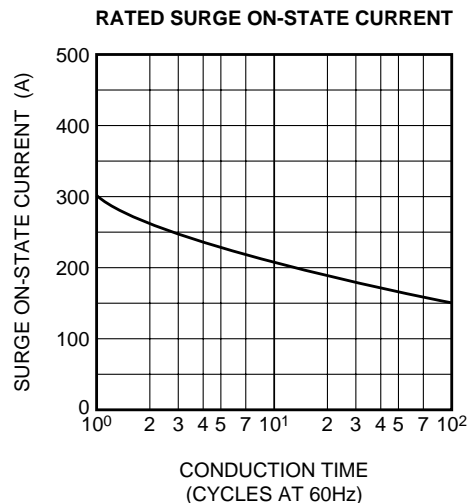
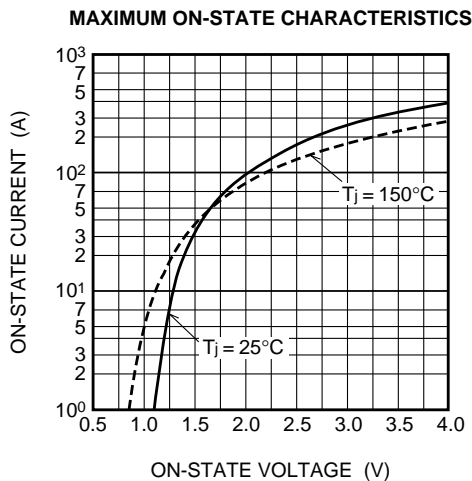
*2. Measurement using the gate trigger characteristics measurement circuit.

*3. The contact thermal resistance R_{th (b-f)} in case of greasing is 0.3°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°C/150°C 2. Rate of decay of on-state commutating current (di/dt) _c =-16A/ms 3. Peak off-state voltage V _D =400V	

PERFORMANCE CURVES

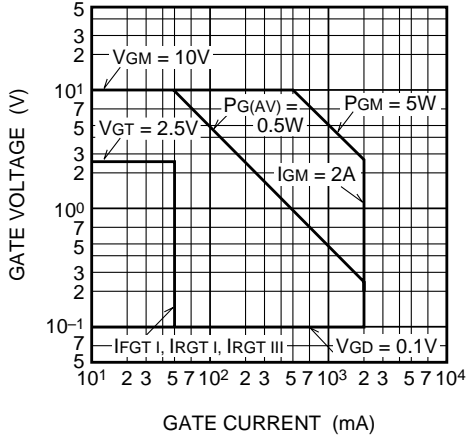


BCR30AM

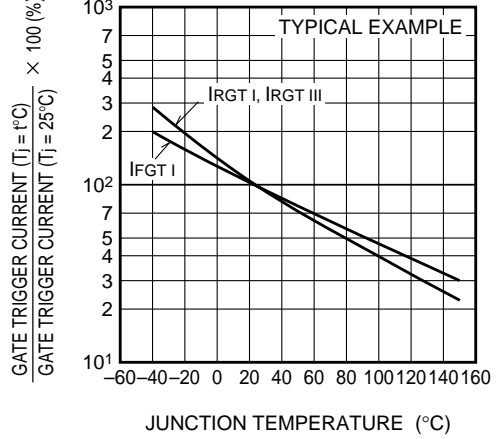
The product guaranteed maximum junction temperature 150°C (See warning.)

MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

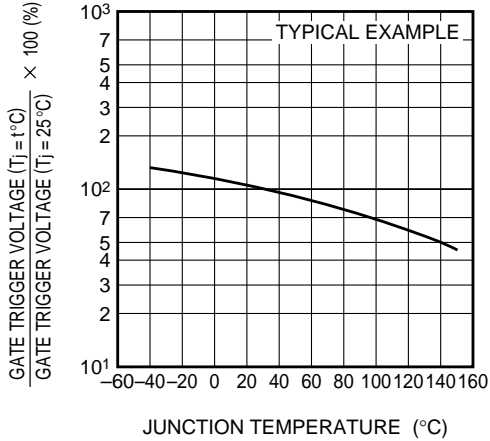
GATE CHARACTERISTICS (I, II AND III)



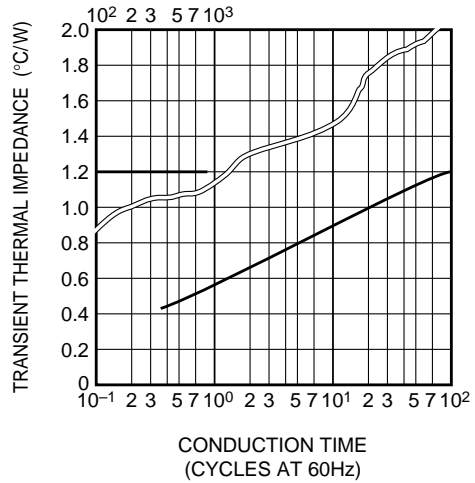
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



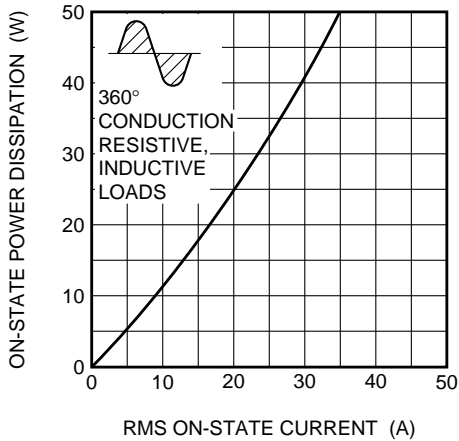
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



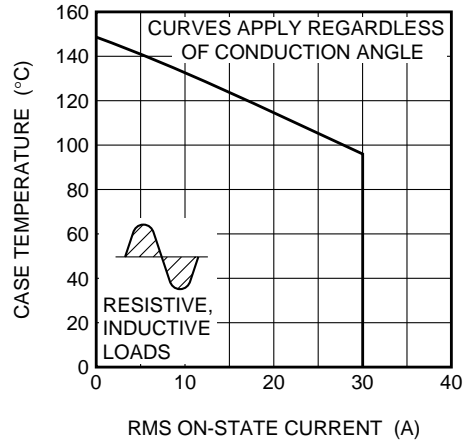
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM ON-STATE POWER DISSIPATION



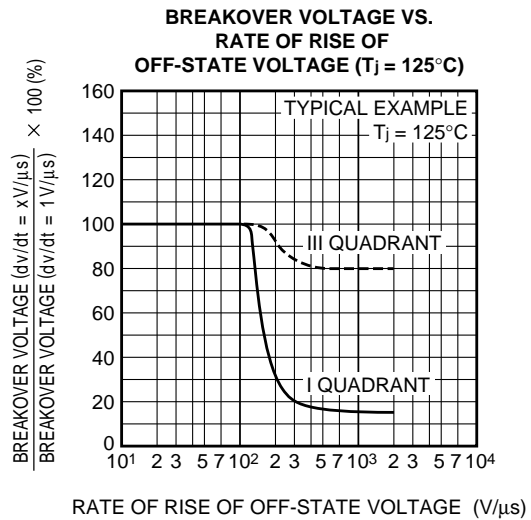
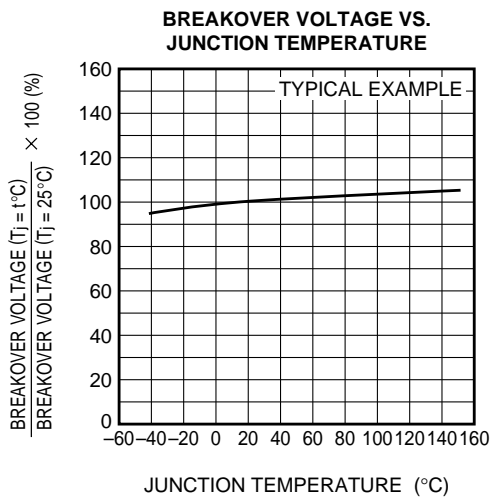
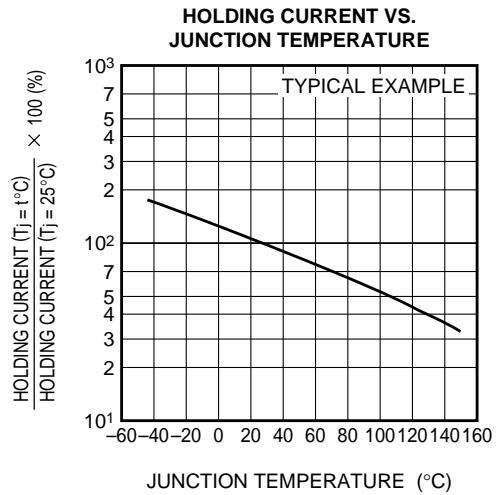
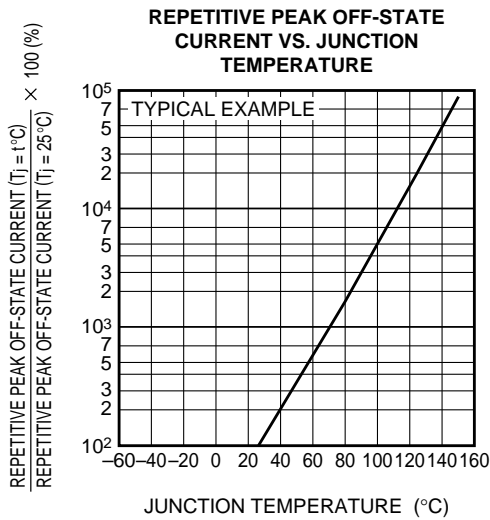
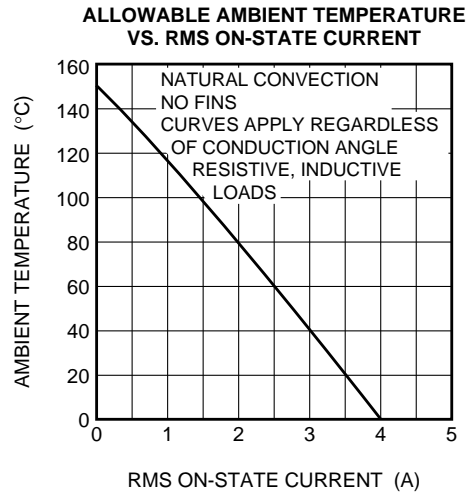
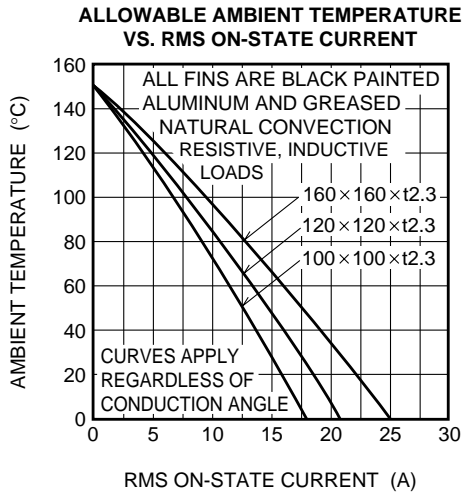
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



BCR30AM

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

MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

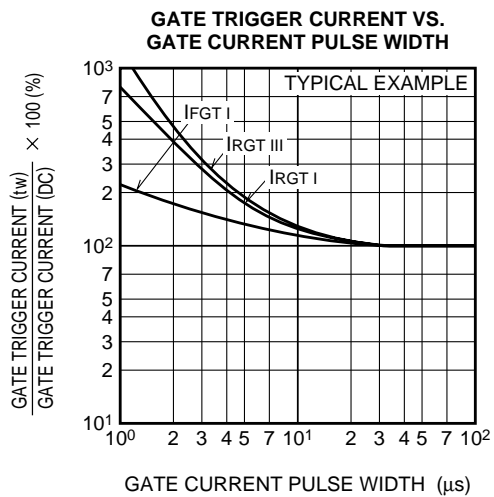
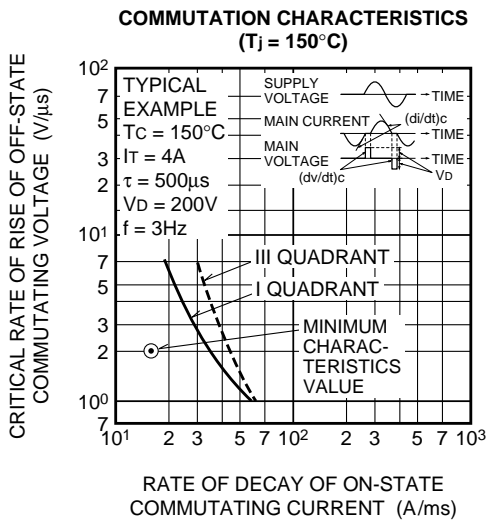
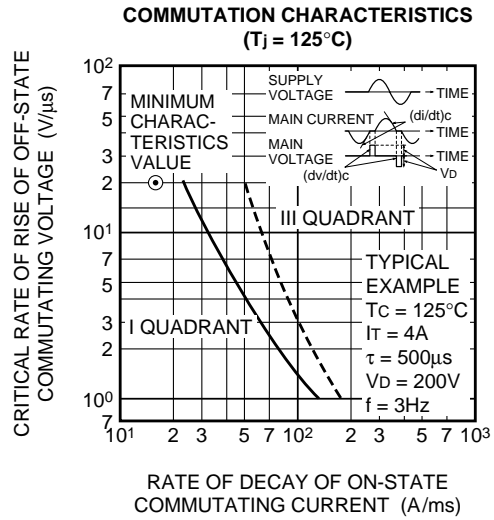
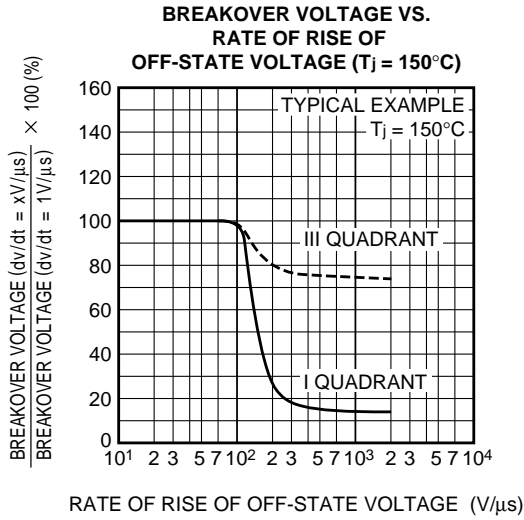


BCR30AM

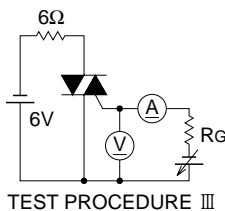
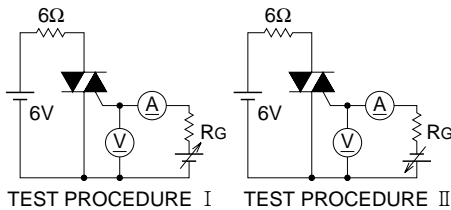
MEDIUM POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

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



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS



RECOMMENDED CIRCUIT VALUES AROUND THE TRIAC

