

To all our customers

Regarding the change of names mentioned in the document, such as Mitsubishi Electric and Mitsubishi XX, to Renesas Technology Corp.

The semiconductor operations of Hitachi and Mitsubishi Electric were transferred to Renesas Technology Corporation on April 1st 2003. These operations include microcomputer, logic, analog and discrete devices, and memory chips other than DRAMs (flash memory, SRAMs etc.)

Accordingly, although Mitsubishi Electric, Mitsubishi Electric Corporation, Mitsubishi Semiconductors, and other Mitsubishi brand names are mentioned in the document, these names have in fact all been changed to Renesas Technology Corp. Thank you for your understanding. Except for our corporate trademark, logo and corporate statement, no changes whatsoever have been made to the contents of the document, and these changes do not constitute any alteration to the contents of the document itself.

Note : Mitsubishi Electric will continue the business operations of high frequency & optical devices and power devices.

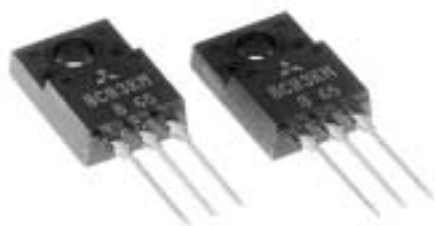
Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

BCR3KM

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

LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

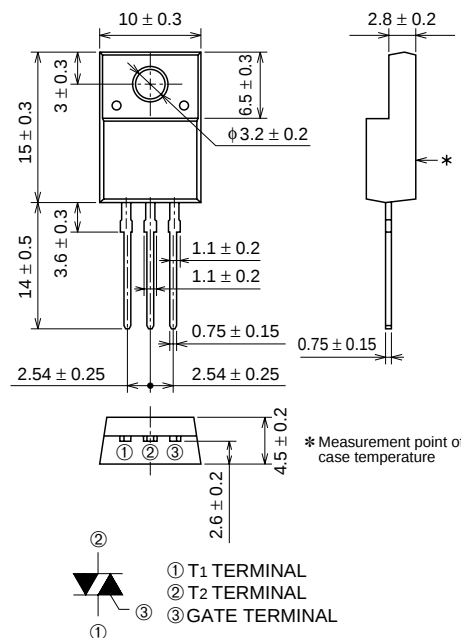
BCR3KM



- IT (RMS) 3A
- VDRM 600V
- IFGT I, IRGT I, IRGT III 15mA (10mA) *3
- UL Recognized: Yellow Card No.E80276(N)
File No. E80271

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

Control of heater such as electric rice cooker, electric pot

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, Tc=111°C	3	A
ITSM	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	30	A
I ² _t	I ² _t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	3.7	A ² 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
Tj	Junction temperature		-40 ~ +125	°C
Tstg	Storage temperature		-40 ~ +125	°C
—	Weight		2.0	g
Viso	Isolation voltage	Ta=25°C, AC 1 minute, T1 · T2 · G terminal to case	2000	V

*1. Gate open.

Mar. 2002

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maximum junction temperature 150°C

LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

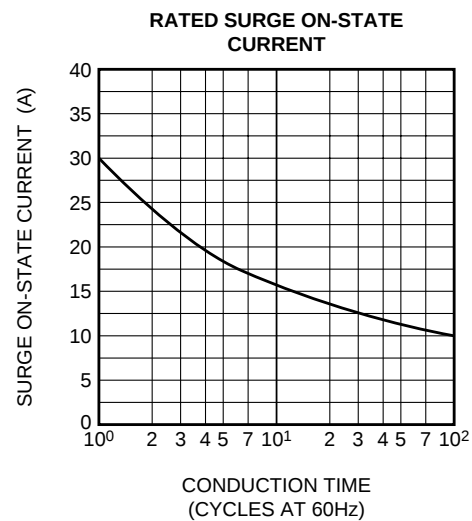
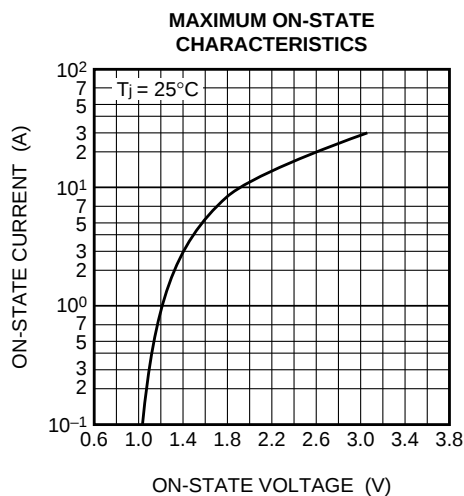
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current	$T_j=125^{\circ}\text{C}$, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage	$T_c=25^{\circ}\text{C}$, $I_{TM}=4.5\text{A}$, Instantaneous measurement	—	—	1.5	V
$V_{FGT\text{ I}}$	Gate trigger voltage *2	$T_j=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	1.5	V
$V_{RGT\text{ I}}$			—	—	1.5	V
$V_{RGT\text{ III}}$			—	—	1.5	V
$I_{FGT\text{ I}}$	Gate trigger current *2	$T_j=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	15 *3	mA
$I_{RGT\text{ I}}$			—	—	15 *3	mA
$I_{RGT\text{ III}}$			—	—	15 *3	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 *4	—	—	4.0	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	Thermal resistance	Junction to ambient	—	—	50	$^{\circ}\text{C/W}$

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

*3. High sensitivity ($I_{GT} \leq 10\text{mA}$) is also available. (IGT item ①)

*4. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is 0.5°C/W .

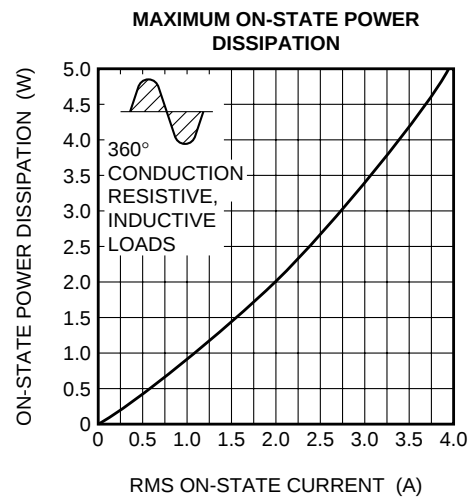
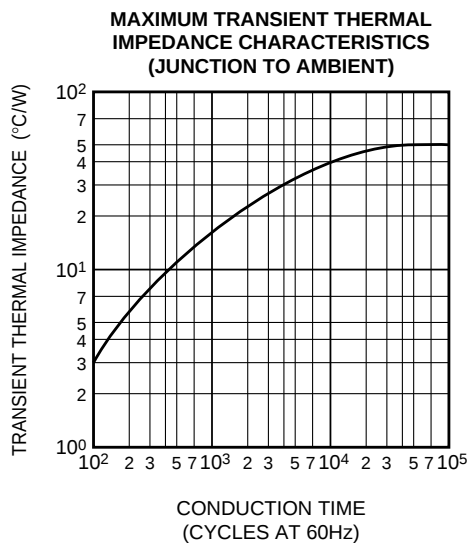
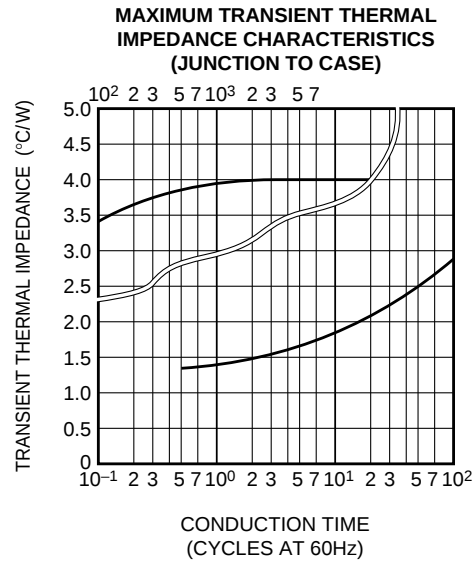
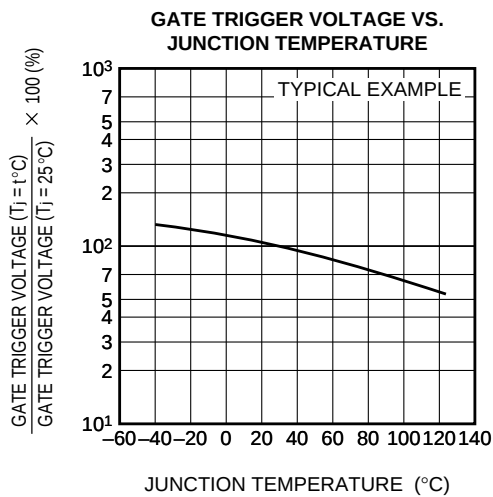
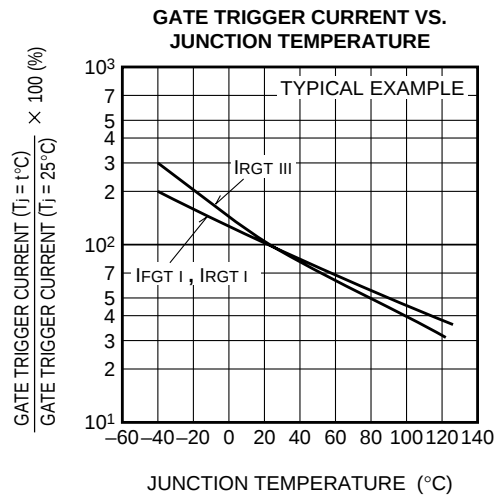
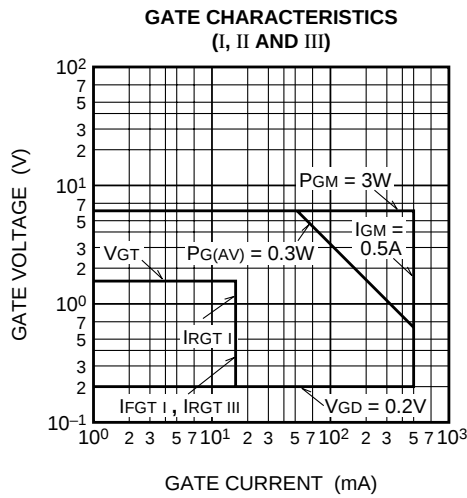
PERFORMANCE CURVES



BCR3KM

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

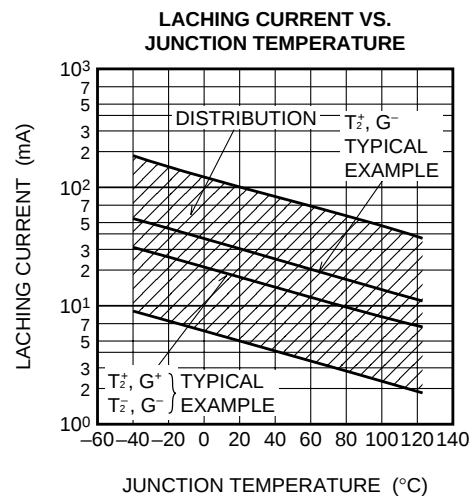
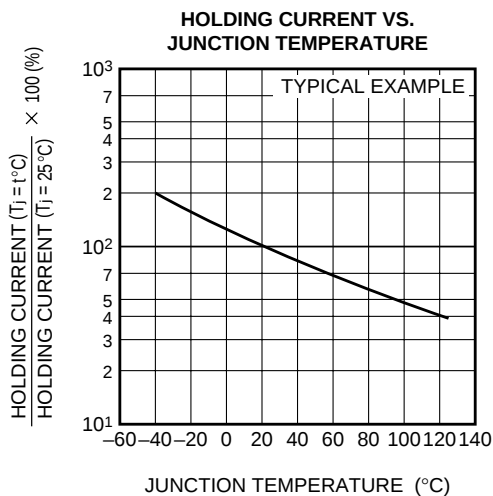
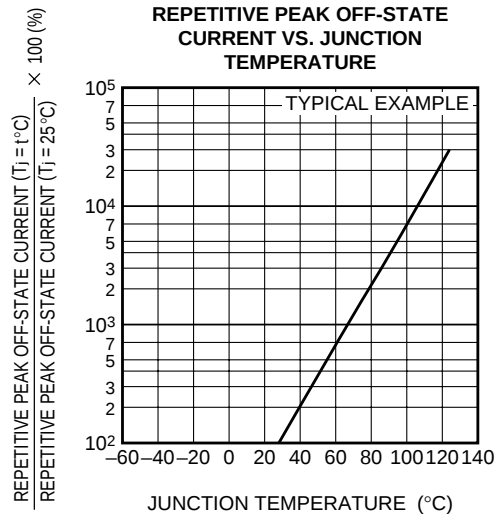
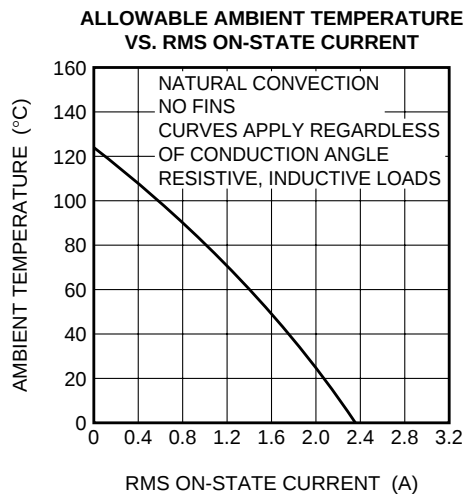
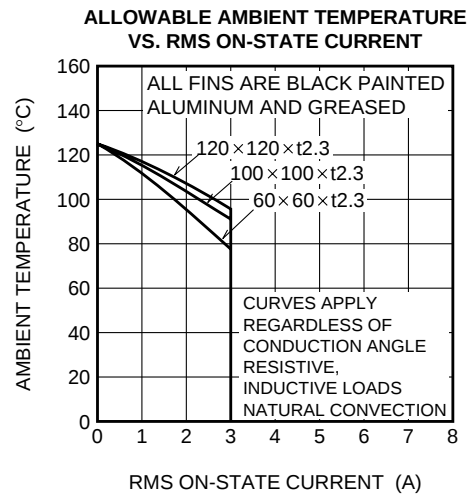
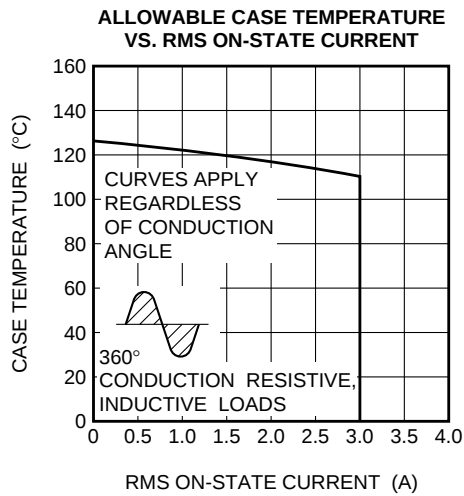
LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE



BCR3KM

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

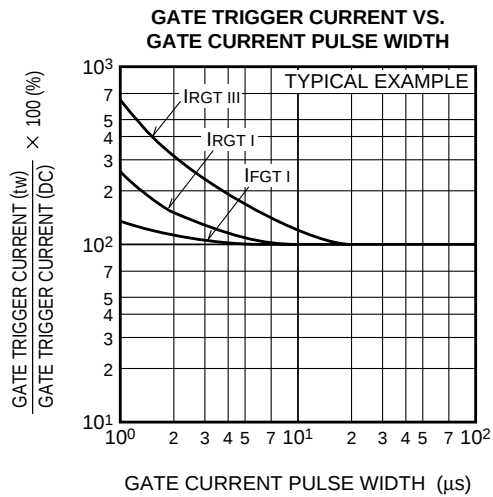
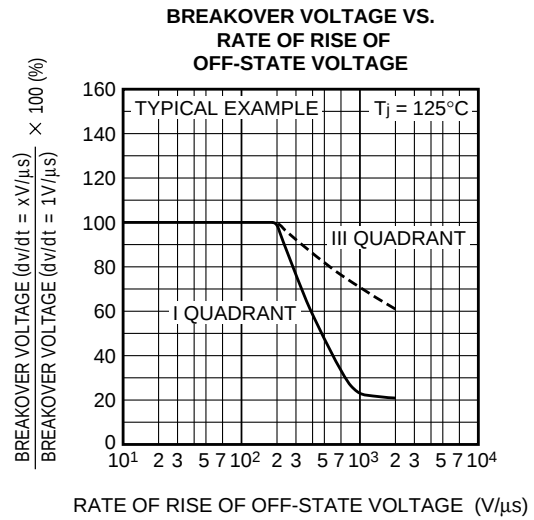
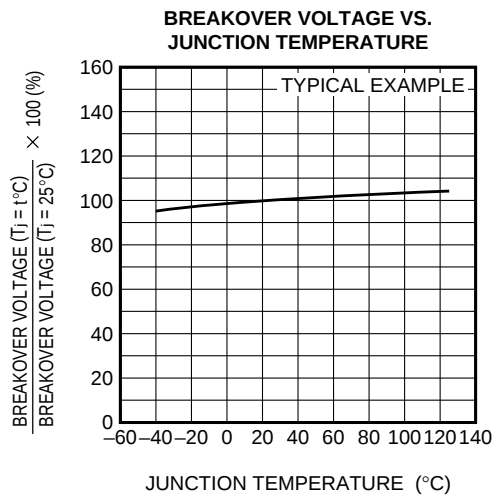
LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE



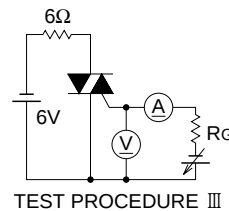
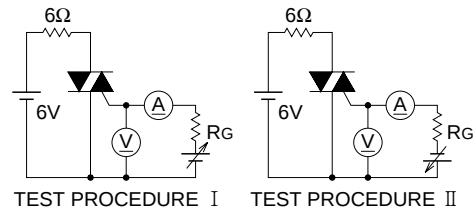
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Refer to the page 6 as to the product guaranteed maximum junction temperature 150°C

LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

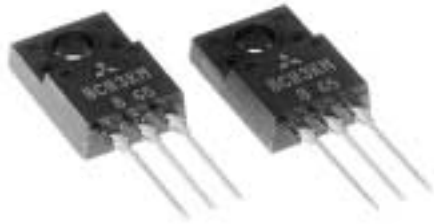


BCR3KM

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

LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

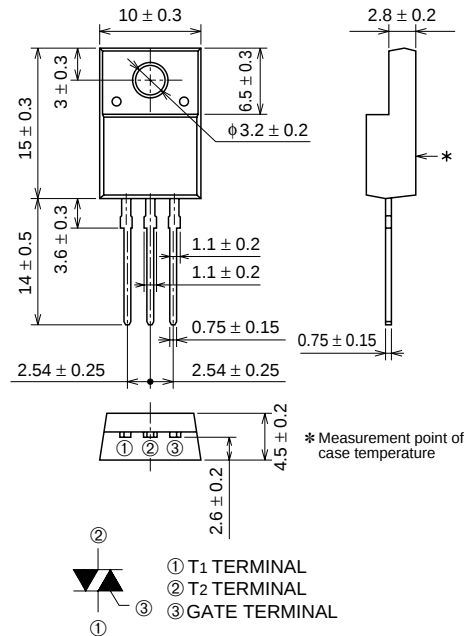
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- VDRM 600V
- IFGT I, IRGT I, IRGT III 15mA (10mA) *3
- UL Recognized: Yellow Card No.E80276(N)
File No. E80271

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

Control of heater such as electric rice cooker, electric pot

(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

Symbol	Parameter	Conditions	Ratings	Unit
IT (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, Tc=136°C	3	A
ITSM	Surge on-state current	60Hz sine wave 1 full cycle, peak value, non-repetitive	30	A
I ² _t	I ² _t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	3.7	A ² 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
Tj	Junction temperature		-40 ~ +150	°C
Tstg	Storage temperature		-40 ~ +150	°C
—	Weight		2.0	g
Viso	Isolation voltage	Ta=25°C, AC 1 minute, T1 · T2 · G terminal to case	2000	V

*1. Gate open.

Mar. 2002

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

LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

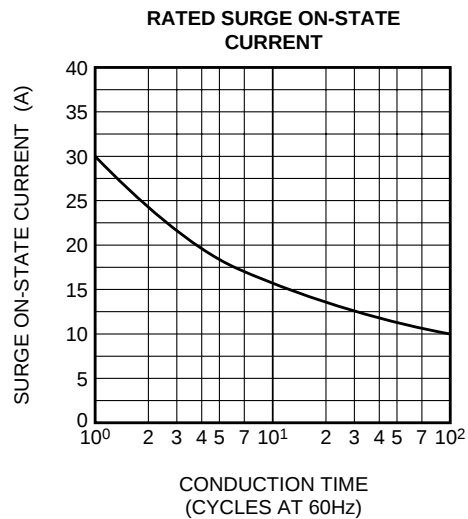
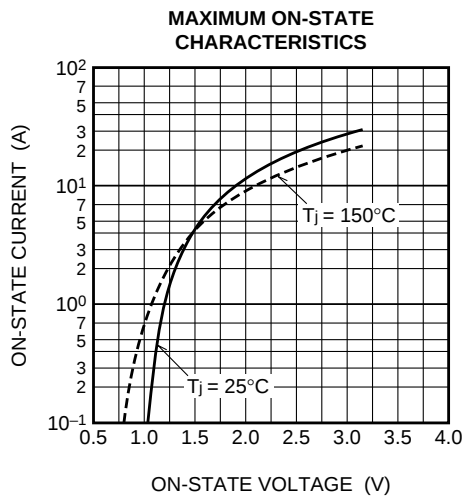
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current	$T_J=150^{\circ}\text{C}$, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage	$T_C=25^{\circ}\text{C}$, $I_{TM}=4.5\text{A}$, Instantaneous measurement	—	—	1.5	V
$V_{FGT\text{ I}}$	Gate trigger voltage *2	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	1.5	V
$V_{RGT\text{ I}}$			—	—	1.5	V
$V_{RGT\text{ III}}$			—	—	1.5	V
$I_{FGT\text{ I}}$	Gate trigger current *2	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	15 *3	mA
$I_{RGT\text{ I}}$			—	—	15 *3	mA
$I_{RGT\text{ III}}$			—	—	15 *3	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 *4	—	—	4.0	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	Thermal resistance	Junction to ambient	—	—	50	$^{\circ}\text{C}/\text{W}$

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

*3. High sensitivity ($I_{GT} \leq 10\text{mA}$) is also available. (IGT item ①)

*4. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is $0.5^{\circ}\text{C}/\text{W}$.

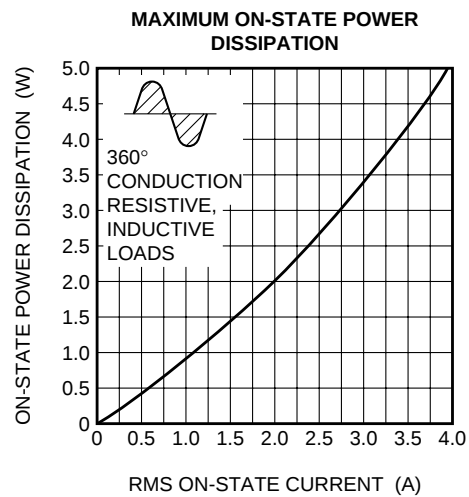
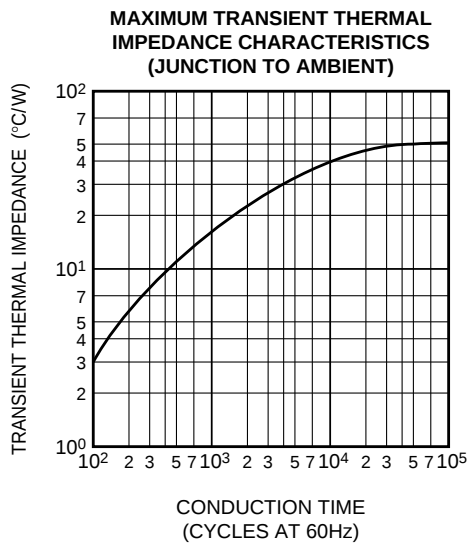
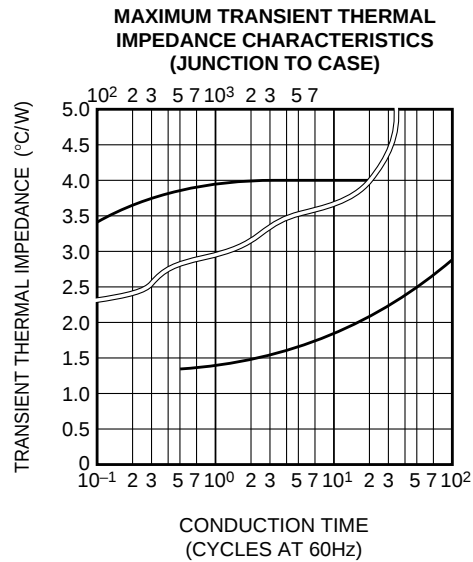
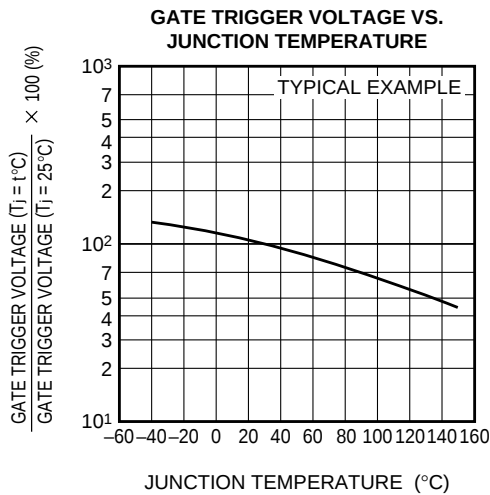
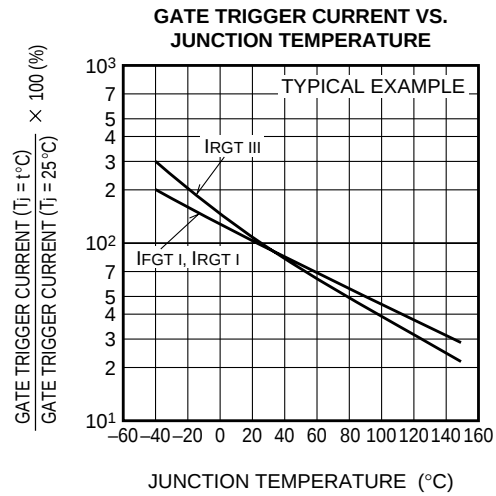
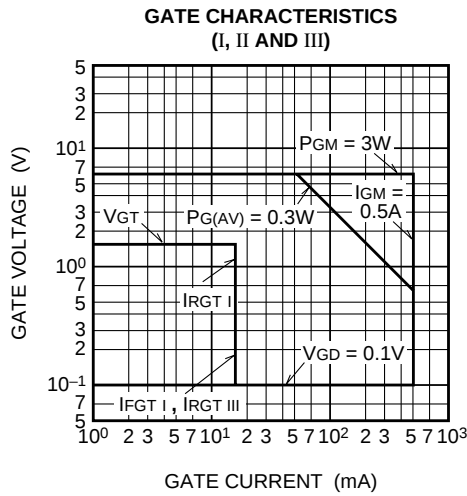
PERFORMANCE CURVES



BCR3KM

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

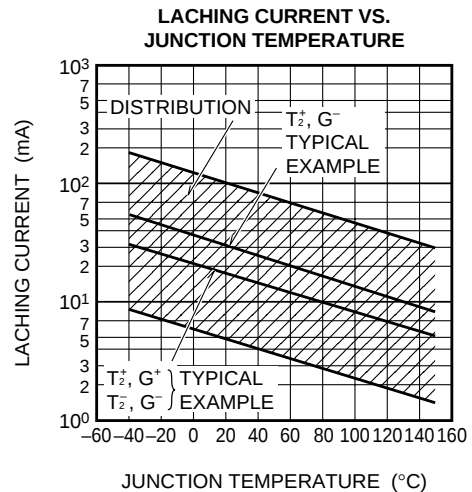
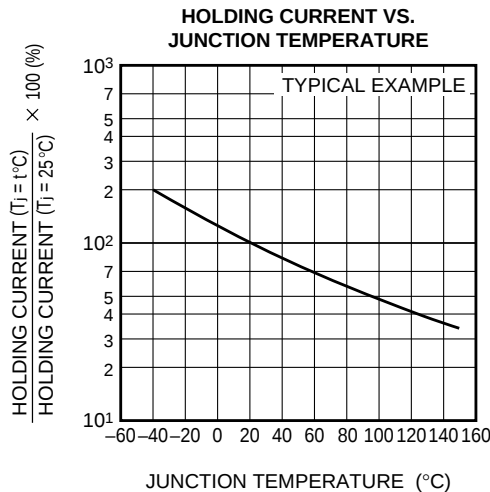
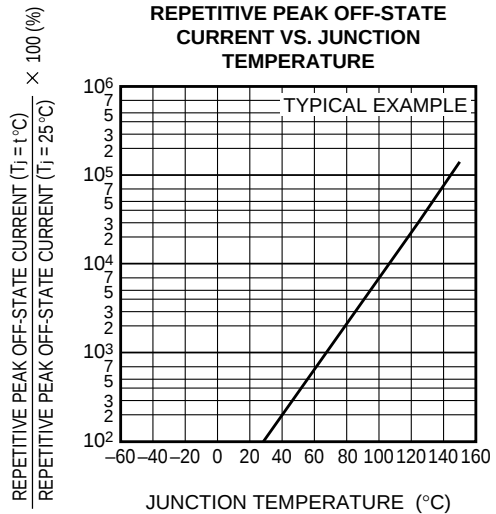
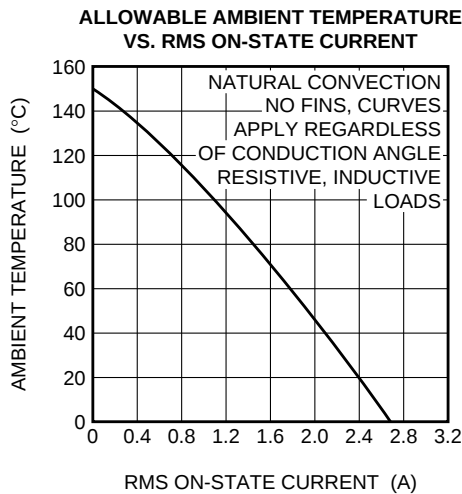
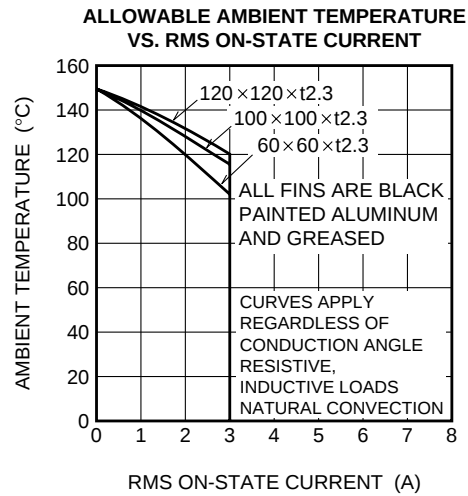
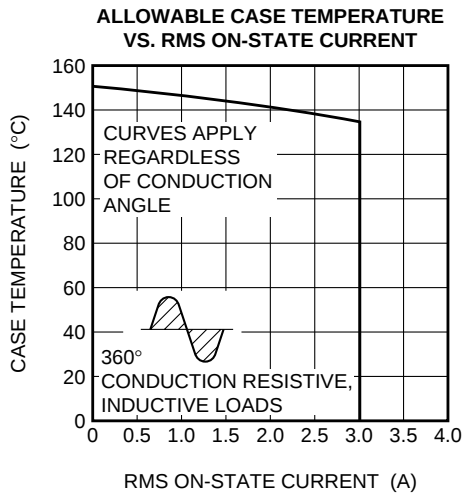
LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE



BCR3KM

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

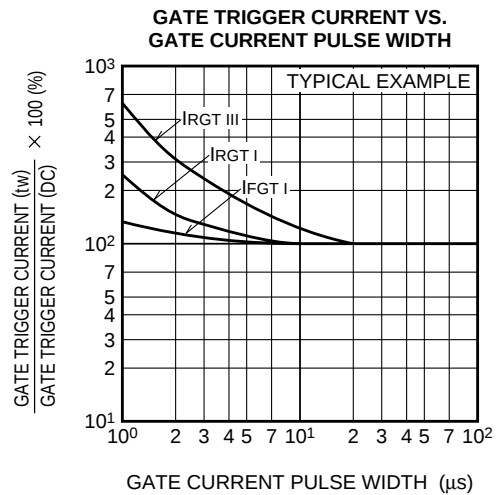
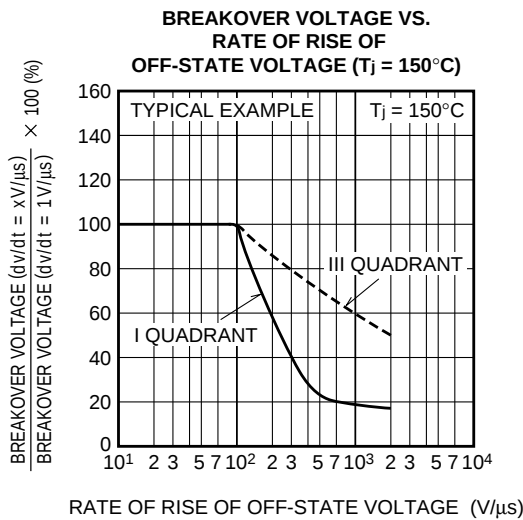
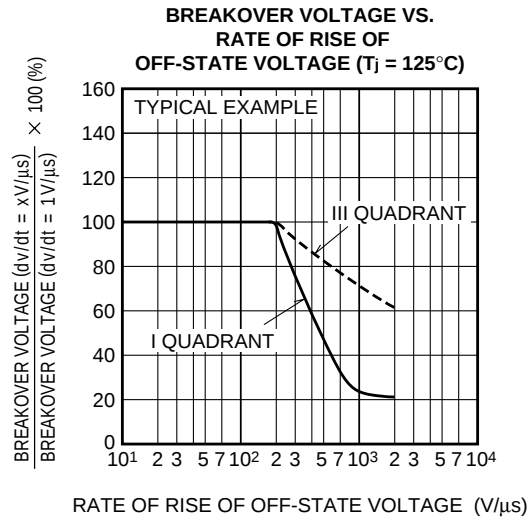
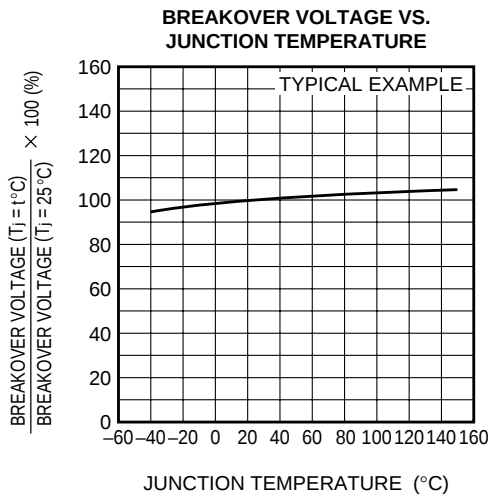
LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE



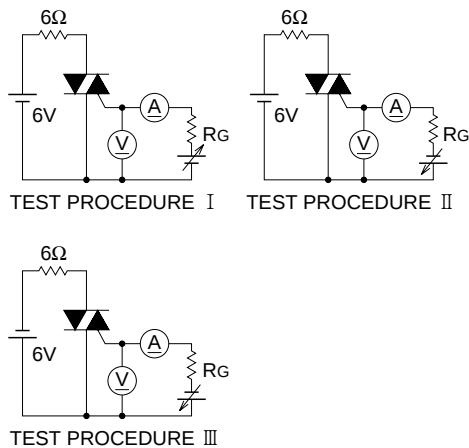
BCR3KM

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

LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS



RECOMMENDED CIRCUIT VALUES AROUND THE TRIAC

