

BCR5KM

MEDIUM POWER USE

INSULATED TYPE, PLANAR PASSIVATION TYPE

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

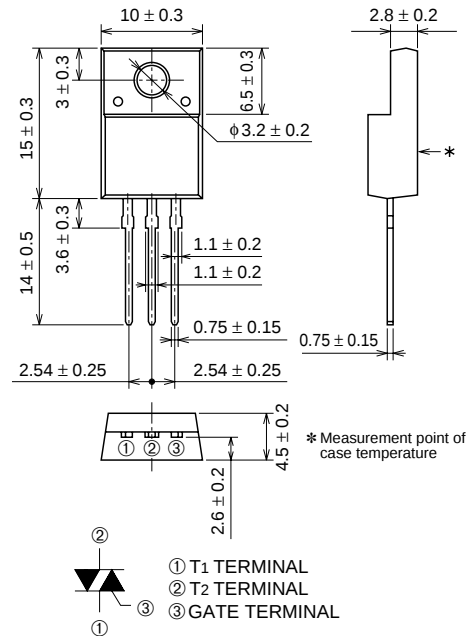
BCR5KM



- IT (RMS) 5A
- 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=103°C	5	A
ITSM	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	50	A
I ² _t	I ² _t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	10.4	A ² s
PGM	Peak gate power dissipation		3	W
PG (AV)	Average gate power dissipation		0.3	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		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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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

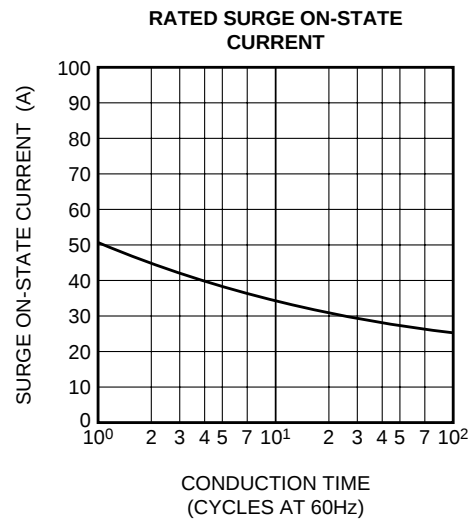
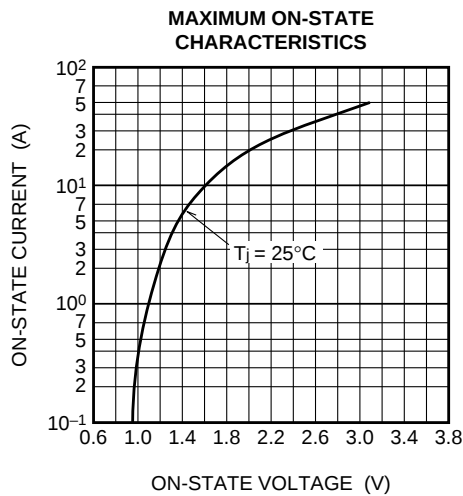
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current	$T_j=125^{\circ}\text{C}$, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage	$T_c=25^{\circ}\text{C}$, $I_{TM}=7\text{A}$, Instantaneous measurement	—	—	1.5	V
$V_{FGT\text{ I}}$	Gate trigger voltage *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	—	—	3.8	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	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 .

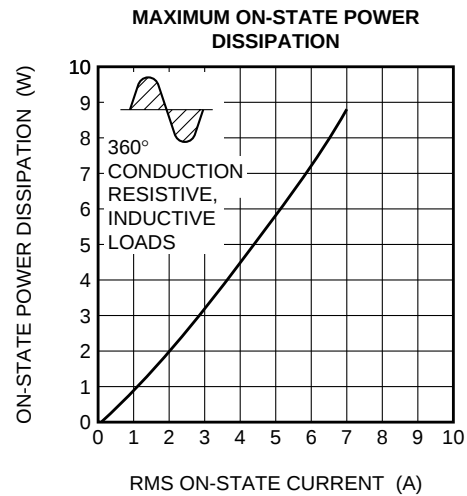
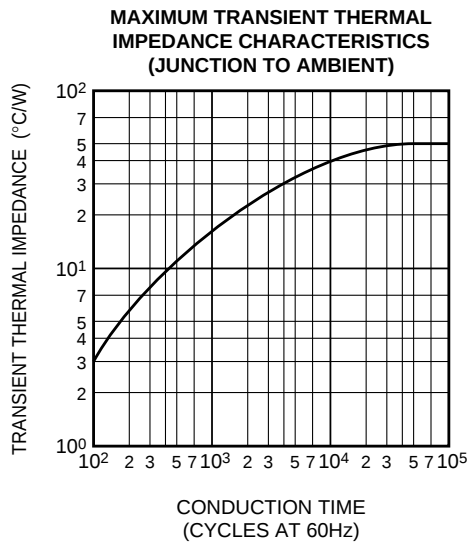
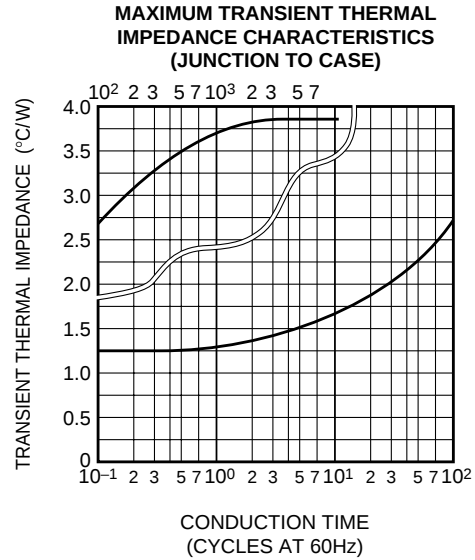
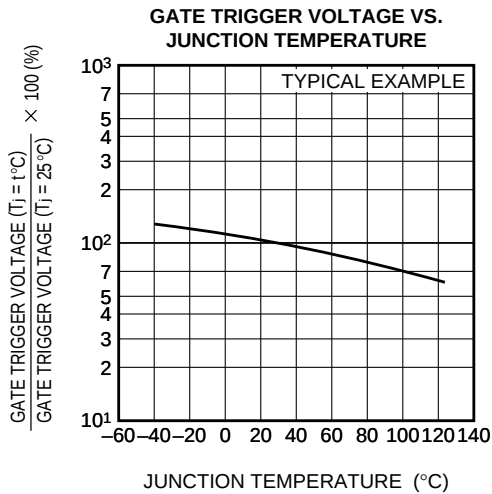
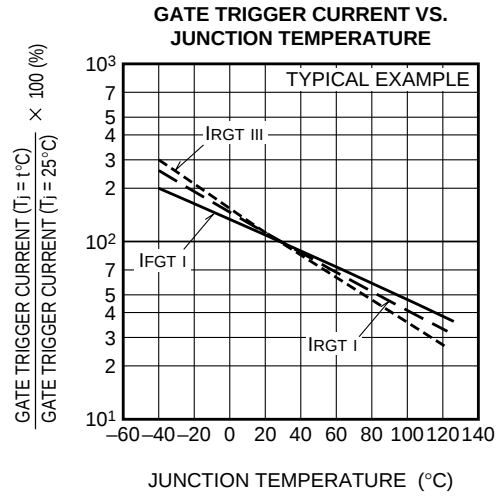
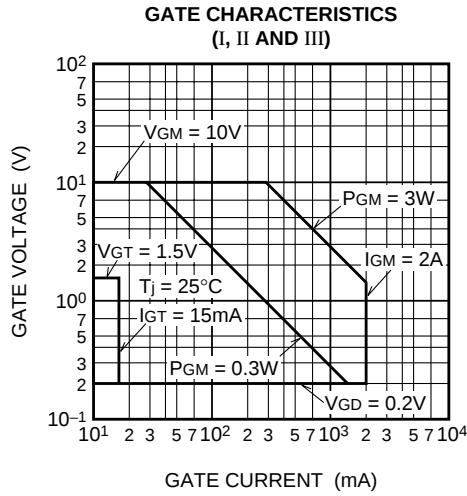
PERFORMANCE CURVES



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

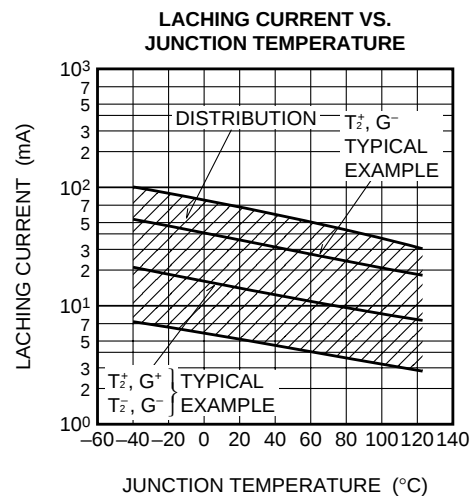
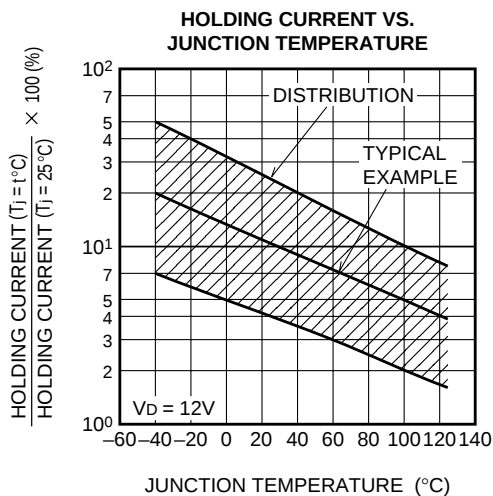
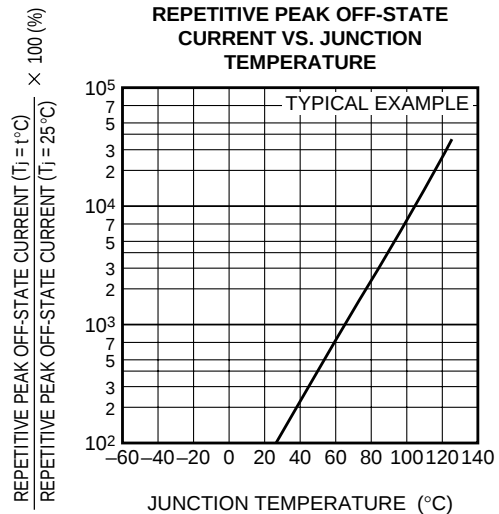
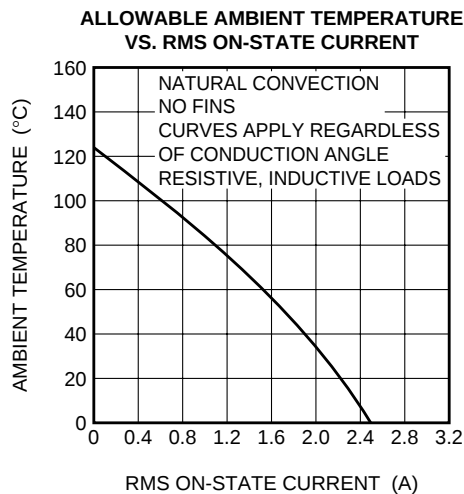
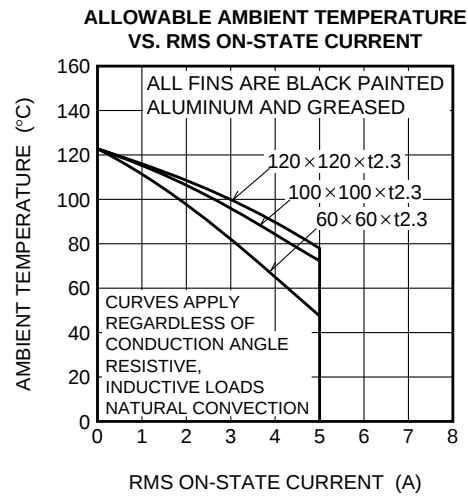
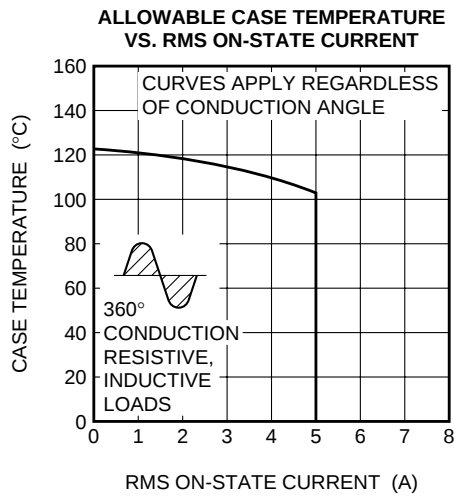
MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE



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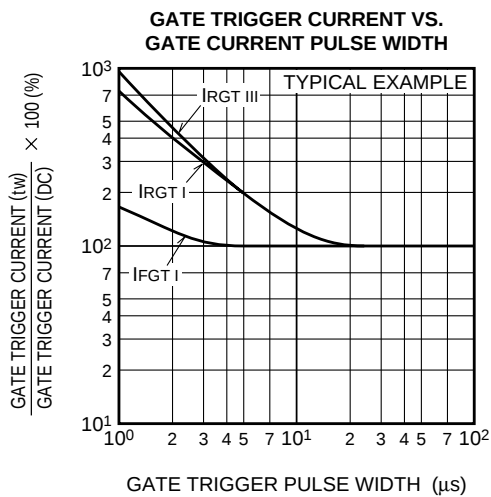
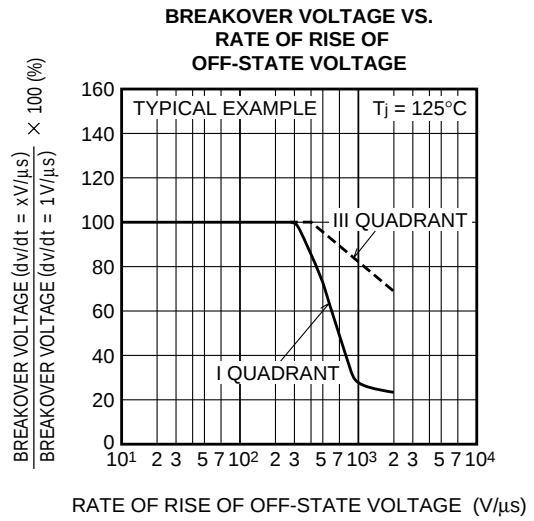
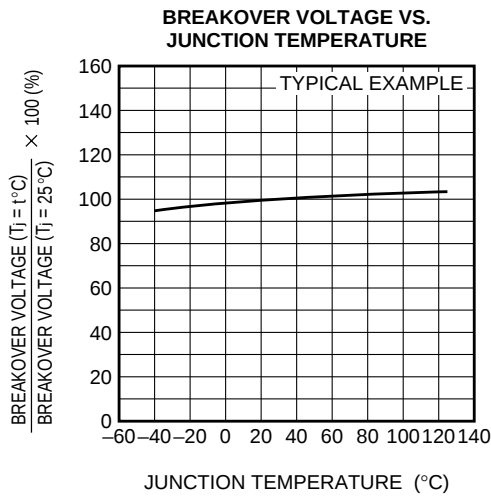
MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE



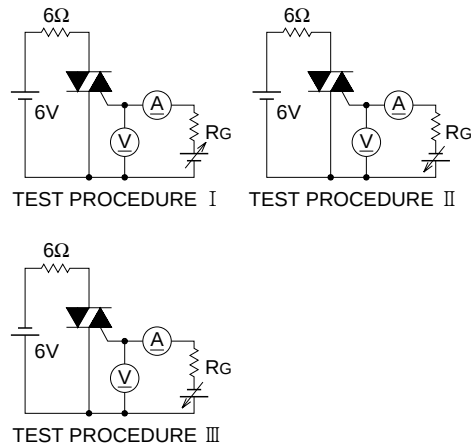
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Refer to the page 6 as to the product guaranteed
maximum junction temperature 150°C

MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS



BCR5KM

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

MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

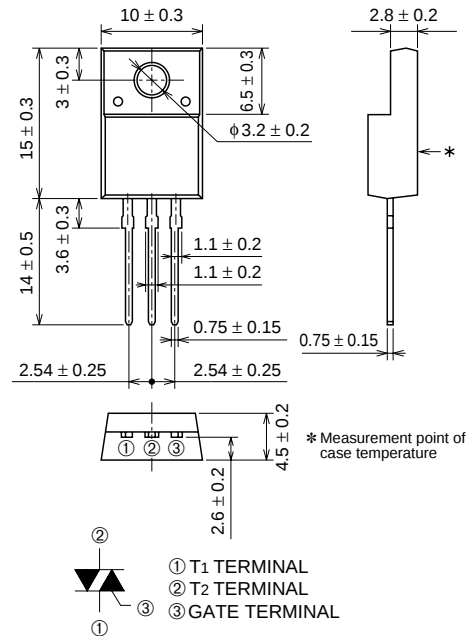
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- VDRM 600V
- IFGT I, IRGT I, IRGT III 15mA (10mA) *3
- UL Recognized: Yellow Card No.E80276(N)
File No. E80271

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=128°C	5	A
ITSM	Surge on-state current	60Hz sine wave 1 full cycle, peak value, non-repetitive	50	A
I ² _t	I ² _t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	10.4	A ² s
PGM	Peak gate power dissipation		3	W
PG (AV)	Average gate power dissipation		0.3	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		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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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

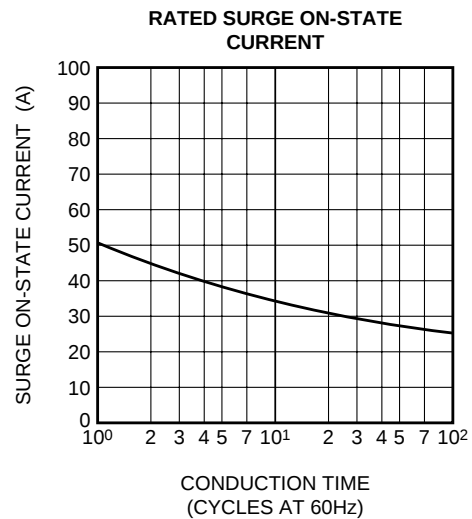
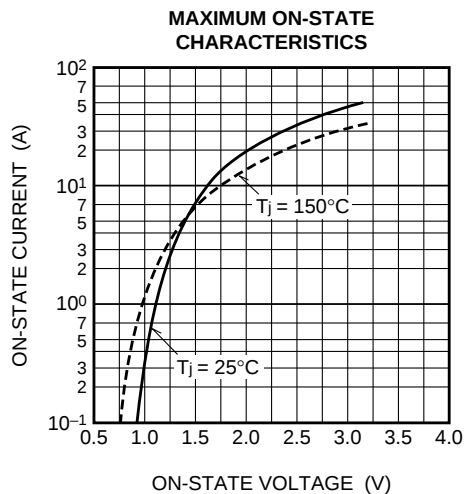
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current	$T_J=150^{\circ}\text{C}$, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage	$T_c=25^{\circ}\text{C}$, $I_{TM}=7\text{A}$, Instantaneous measurement	—	—	1.5	V
$V_{FGT\text{ I}}$	Gate trigger voltage *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	—	—	3.8	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	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

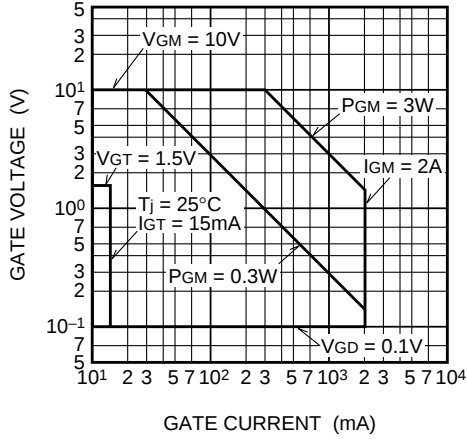


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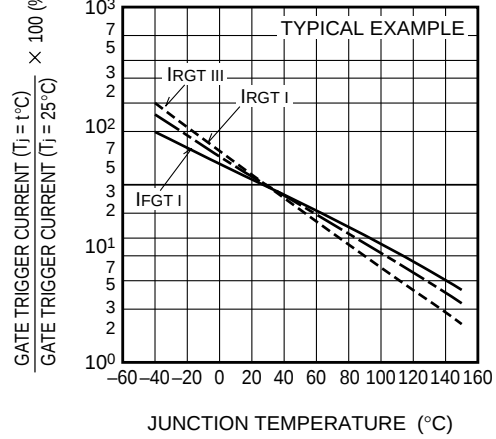
The product guaranteed maximum junction temperature 150°C (See warning.)

MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

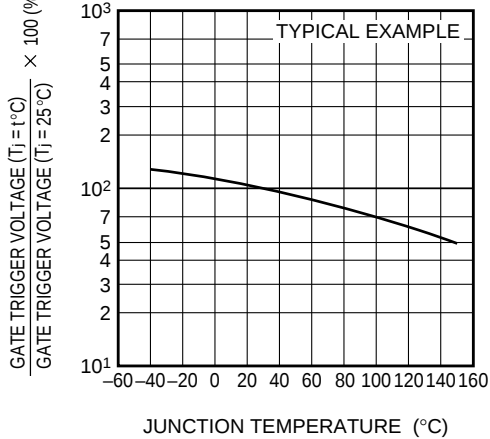
**GATE CHARACTERISTICS
(I, II AND III)**



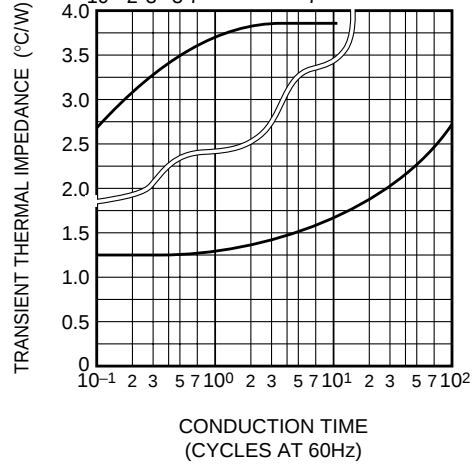
**GATE TRIGGER CURRENT VS.
JUNCTION TEMPERATURE**



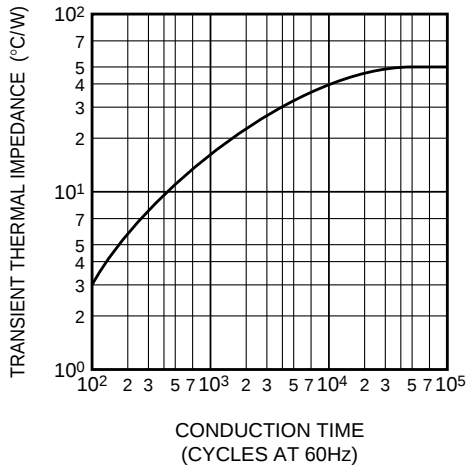
**GATE TRIGGER VOLTAGE VS.
JUNCTION TEMPERATURE**



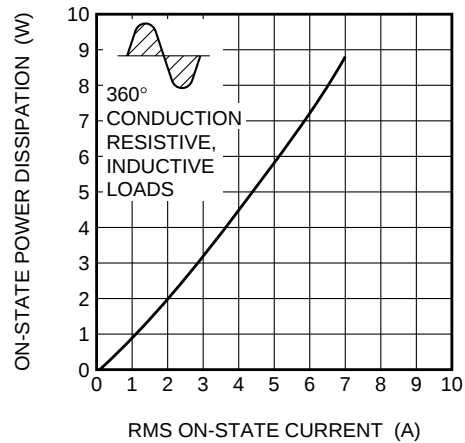
**MAXIMUM TRANSIENT THERMAL
IMPEDANCE CHARACTERISTICS
(JUNCTION TO CASE)**



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



**MAXIMUM ON-STATE POWER
DISSIPATION**

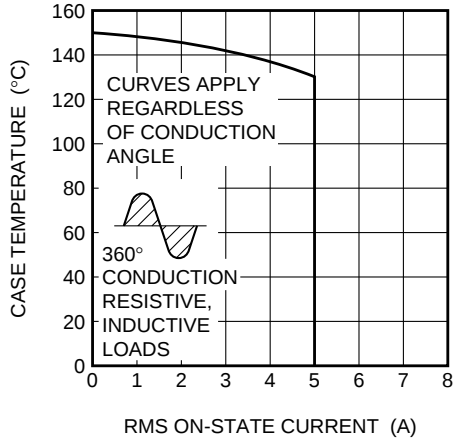


BCR5KM

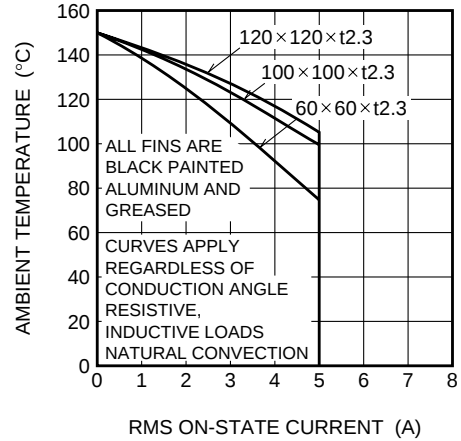
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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

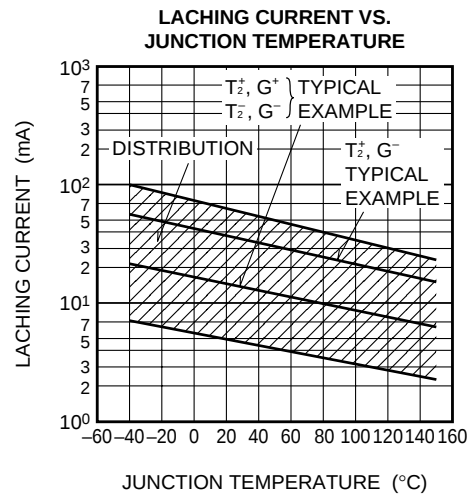
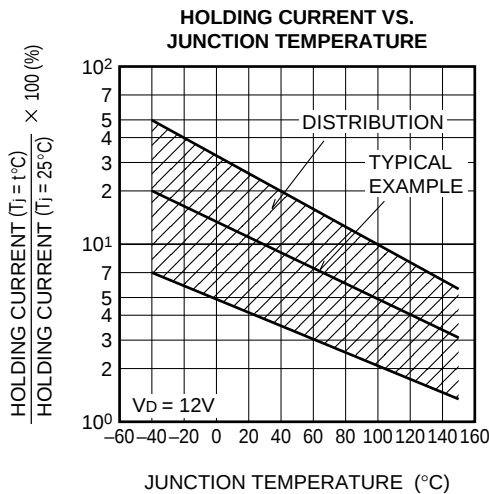
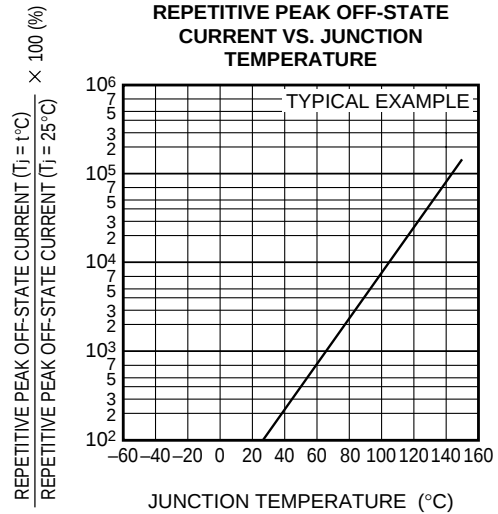
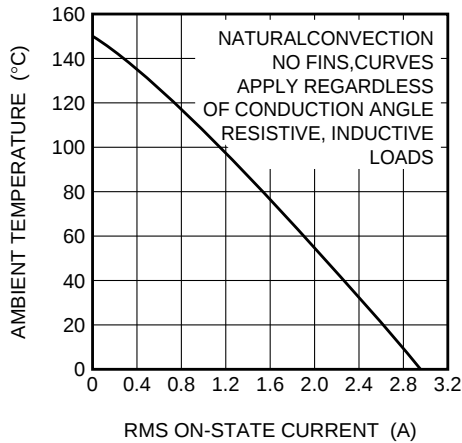
ALLOWABLE CASE TEMPERATURE
VS. RMS ON-STATE CURRENT



ALLOWABLE AMBIENT TEMPERATURE
VS. RMS ON-STATE CURRENT



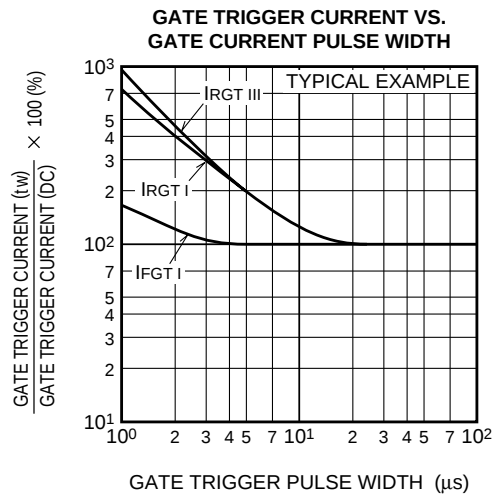
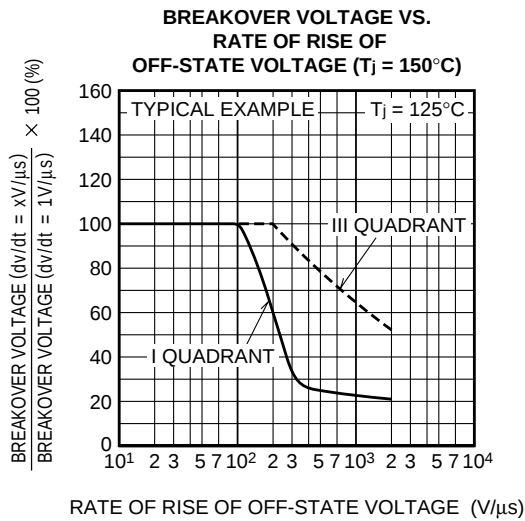
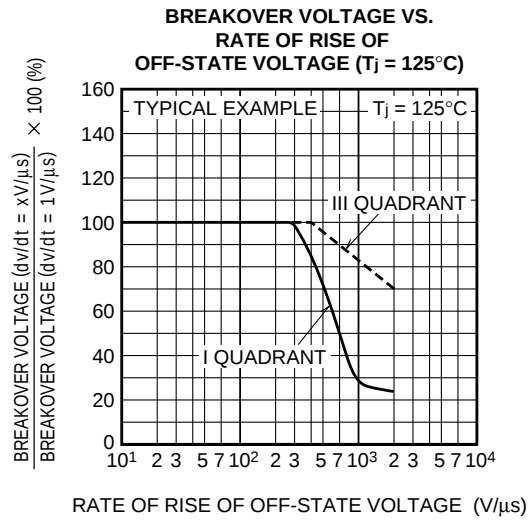
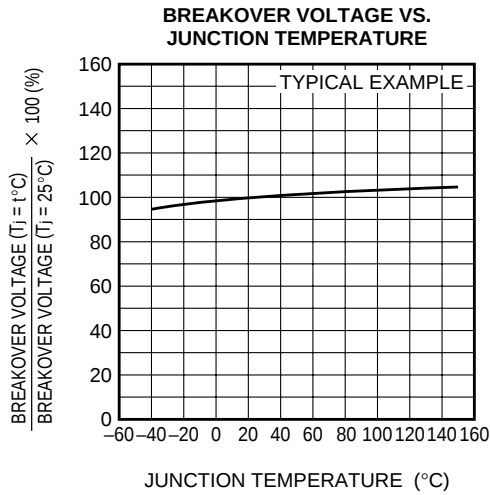
ALLOWABLE AMBIENT TEMPERATURE
VS. RMS ON-STATE CURRENT



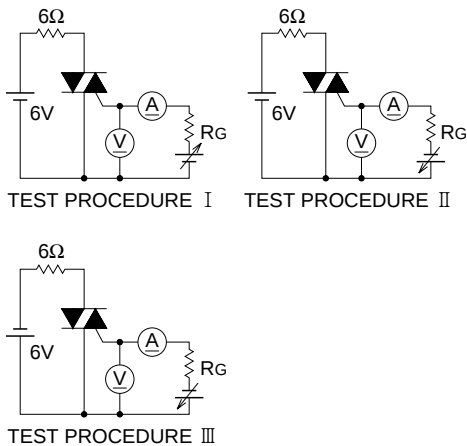
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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS



RECOMMENDED CIRCUIT VALUES AROUND THE TRIAC

