

BCR5KM-12

Triac

Medium Power Use

(The product guaranteed maximum junction temperature of 150°C)

REJ03G0466-0200

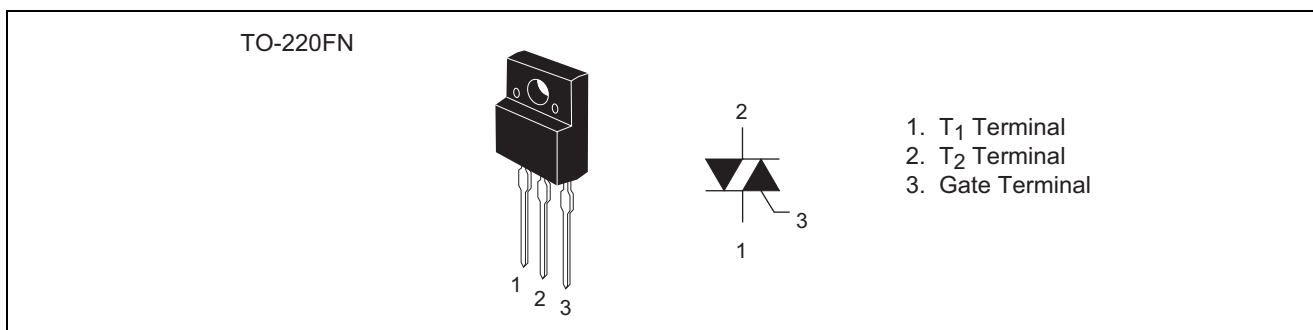
Rev.2.00

Nov.09.2004

Features

- $I_{T(RMS)}$: 5 A
- V_{DRM} : 600 V
- $I_{FGT\ I}, I_{RGT\ I}, I_{RGT\ III}$: 15 mA (10 mA)^{Note3}
- Insulated Type
- Planar Passivation Type

Outline



Applications

Electric rice cooker, electric pot, and controller for other heater

Warning

1. Refer to the recommended circuit values around the triac before using.
2. Be sure to exchange the specification before using. Otherwise, general triacs with the maximum junction temperature of 125°C will be supplied.

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		12	
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	600	V
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	720	V

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Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	5	A	Commercial frequency, sine full wave 360° conduction, $T_c = 128^\circ\text{C}$
Surge on-state current	I_{TSM}	50	A	60Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	10.4	A^2s	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	P_{GM}	3	W	
Average gate power dissipation	$P_{G(AV)}$	0.3	W	
Peak gate voltage	V_{GM}	10	V	
Peak gate current	I_{GM}	2	A	
Junction temperature	T_j	- 40 to +150	$^\circ\text{C}$	
Storage temperature	T_{stg}	- 40 to +150	$^\circ\text{C}$	
Mass	—	2.0	g	
Isolation voltage	Viso	2000	V	$T_a = 25^\circ\text{C}$, AC 1 minute, $T_1 \cdot T_2 \cdot G$ terminal to case

Notes: 1. Gate open.

Electrical Characteristics

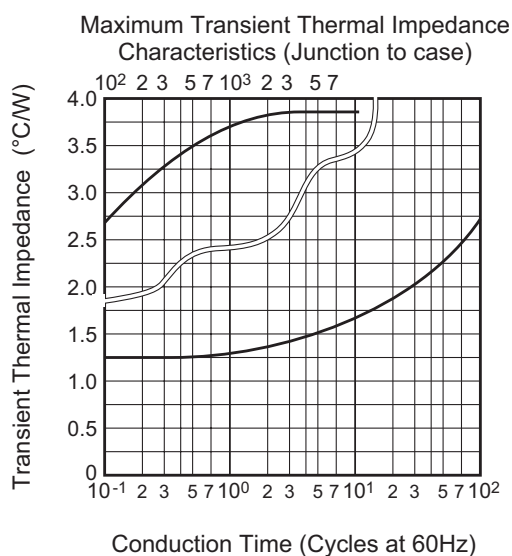
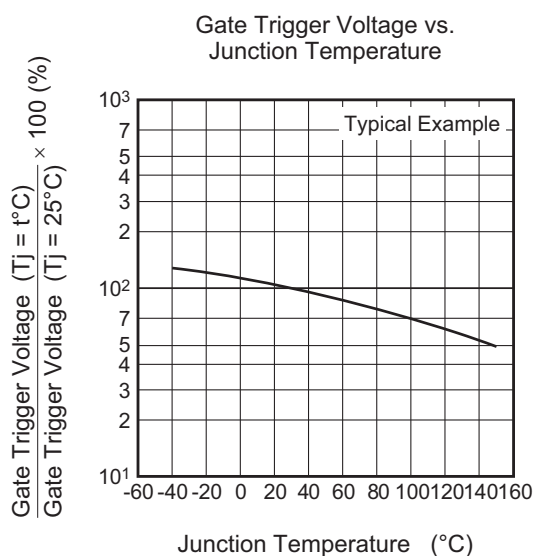
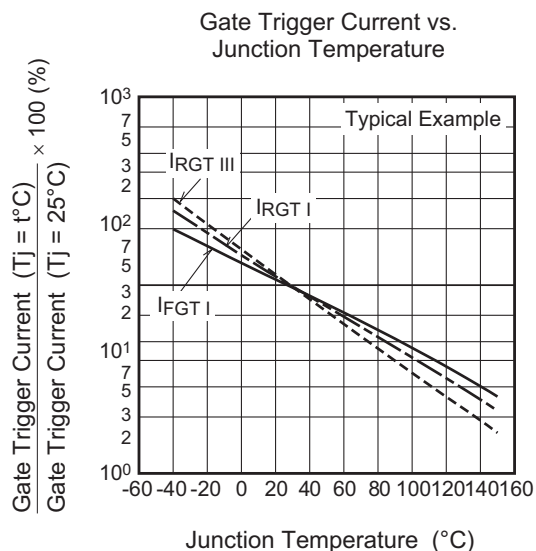
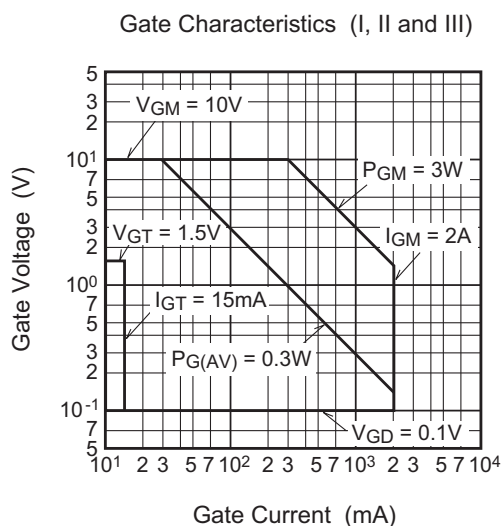
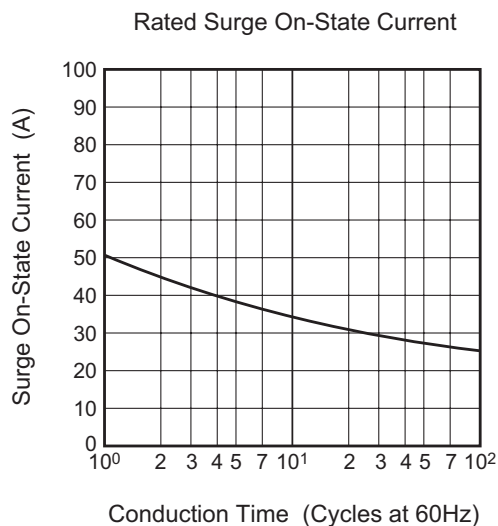
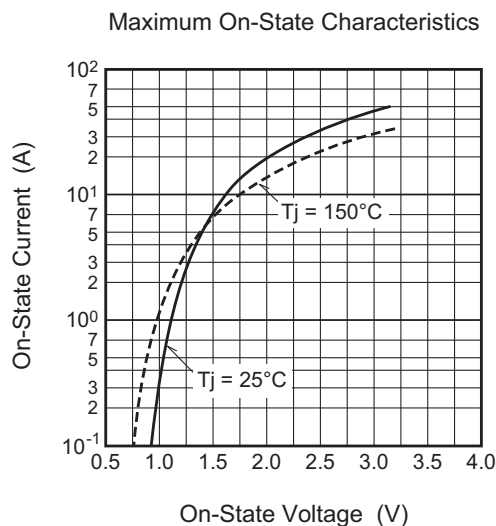
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_j = 150^\circ\text{C}$, V_{DRM} applied
On-state voltage	V_{TM}	—	—	1.5	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 7\text{ A}$, Instantaneous measurement
Gate trigger voltage ^{Note2}	I V_{FGTI}	—	—	1.5	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II V_{RGTI}	—	—	1.5	V	
	III $V_{RGTI\text{III}}$	—	—	1.5	V	
Gate trigger current ^{Note2}	I I_{FGTI}	—	—	15 ^{Note3}	mA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II I_{RGTI}	—	—	15 ^{Note3}	mA	
	III $I_{RGTI\text{III}}$	—	—	15 ^{Note3}	mA	
Gate non-trigger voltage	V_{GD}	0.2/0.1	—	—	V	$T_j = 125^\circ\text{C}/150^\circ\text{C}$, $V_D = 1/2\ V_{DRM}$
Thermal resistance	$R_{th(j-c)}$	—	—	3.8	$^\circ\text{C/W}$	Junction to case ^{Note4}
Thermal resistance	$R_{th(j-a)}$	—	—	50	$^\circ\text{C/W}$	Junction to ambient

Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

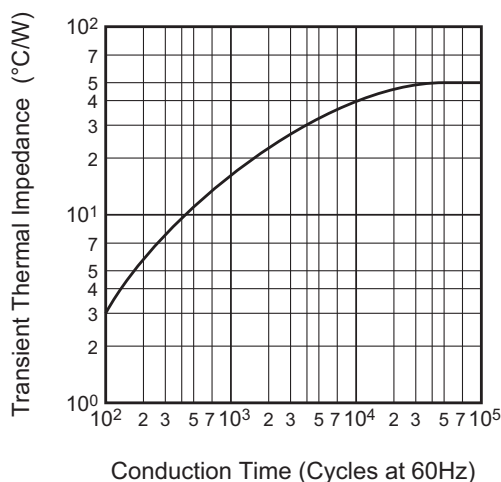
3. High sensitivity ($I_{GT} \leq 10\text{ mA}$) is also available. (I_{GT} item: 1)

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

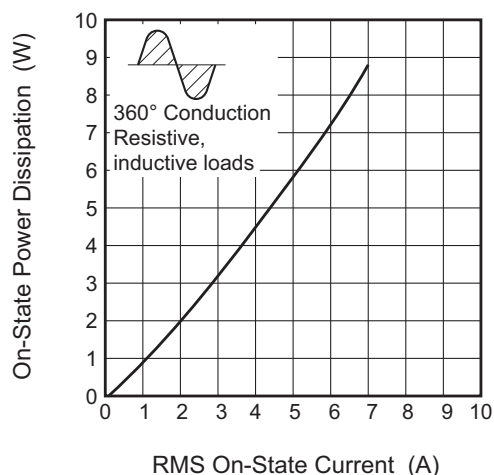
Performance Curves



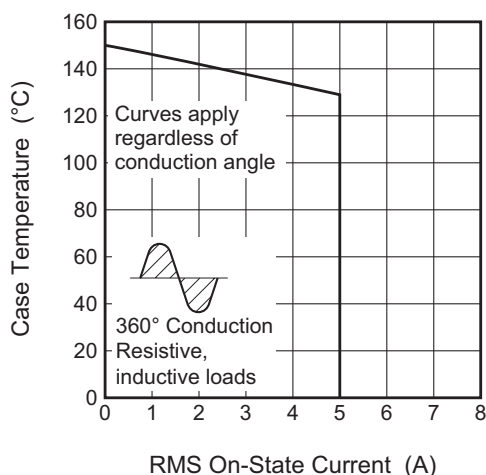
Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



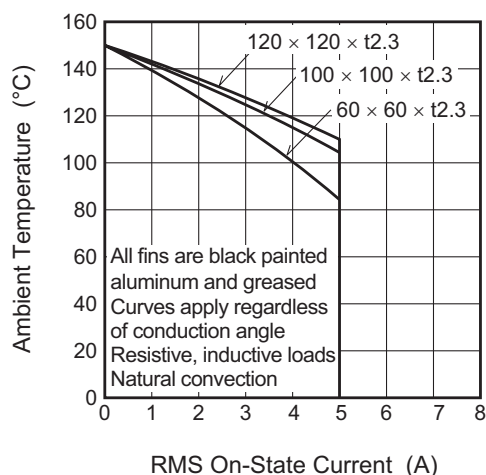
Maximum On-State Power Dissipation



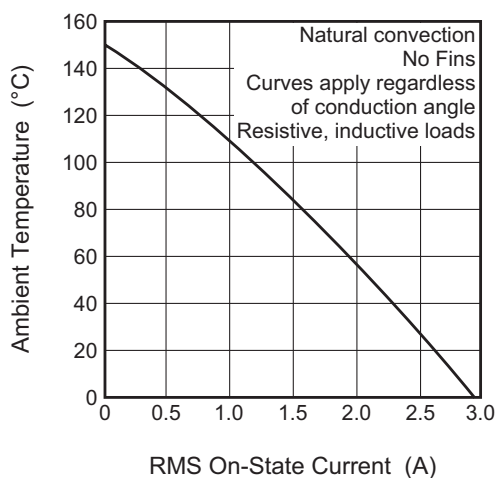
Allowable Case Temperature vs. RMS On-State Current



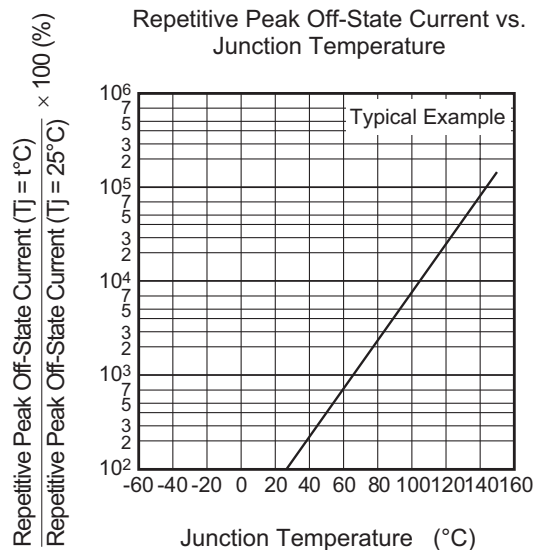
Allowable Ambient Temperature vs. RMS On-State Current



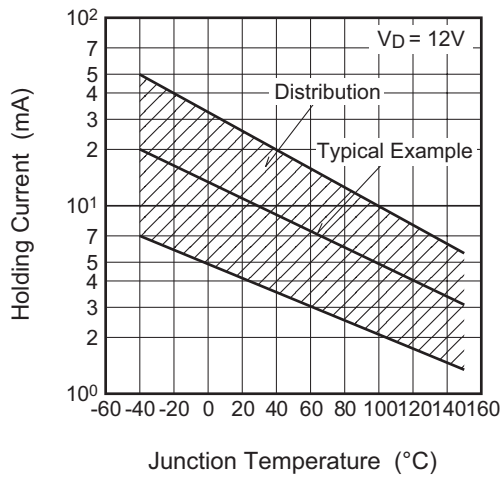
Allowable Ambient Temperature vs. RMS On-State Current



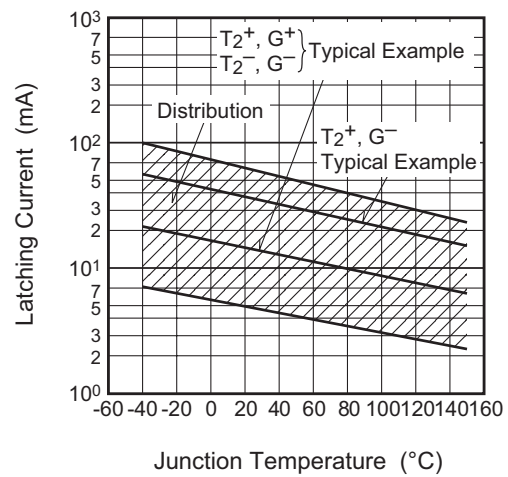
Repetitive Peak Off-State Current vs. Junction Temperature



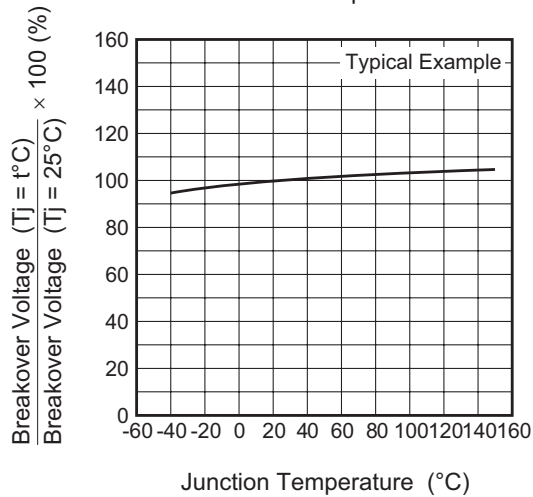
Holding Current vs.
Junction Temperature



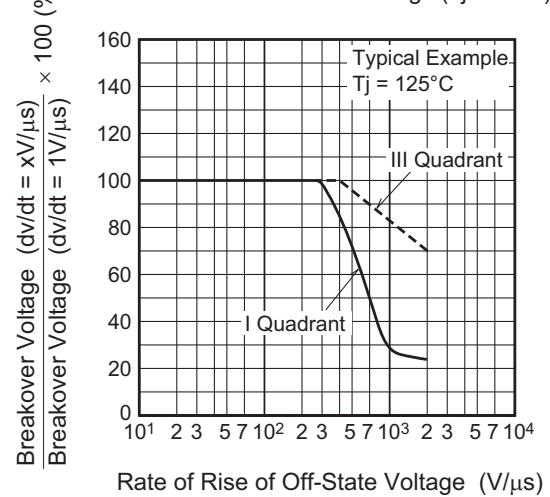
Latching Current vs.
Junction Temperature



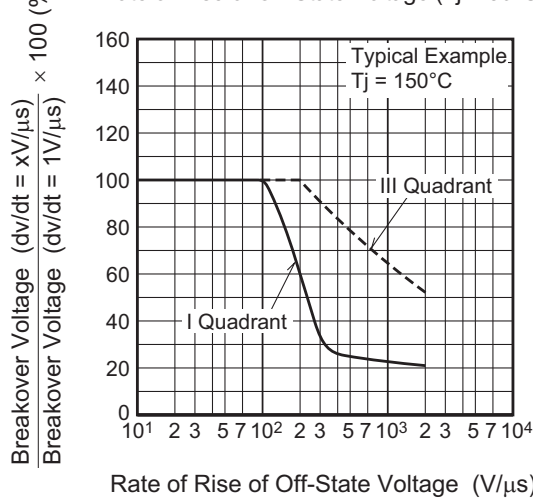
Breakover Voltage vs.
Junction Temperature



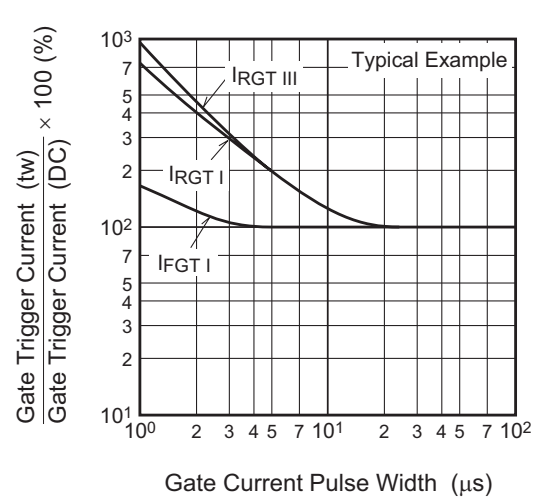
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=125°C)



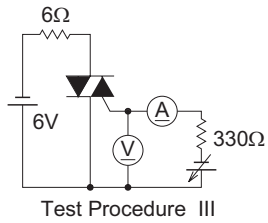
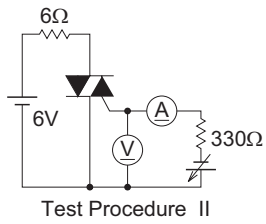
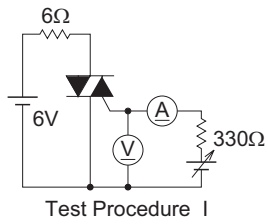
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=150°C)



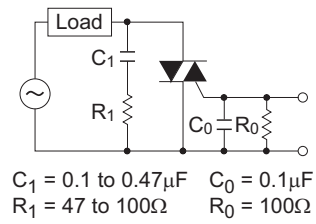
Gate Trigger Current vs.
Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



Recommended Circuit Values Around The Triac

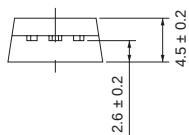
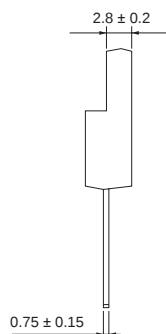
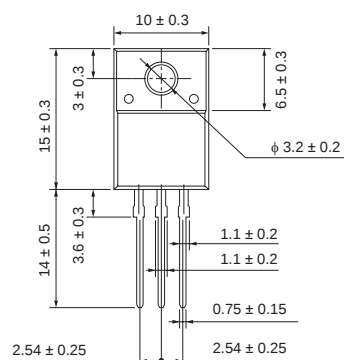


$C_1 = 0.1 \text{ to } 0.47 \mu\text{F}$ $C_0 = 0.1 \mu\text{F}$
 $R_1 = 47 \text{ to } 100 \Omega$ $R_0 = 100 \Omega$

Package Dimensions

TO-220FN

EIAJ Package Code	JEDEC Code	Mass (g) (reference value)	Lead Material
—	—	2.0	Cu alloy



Note 1) The dimensional figures indicate representative values unless otherwise the tolerance is specified.

Symbol	Dimension in Millimeters		
	Min	Typ	Max
A	—	—	—
A ₁	—	—	—
A ₂	—	—	—
b	—	—	—
D	—	—	—
E	—	—	—
e	—	—	—
x	—	—	—
y	—	—	—
y ₁	—	—	—
ZD	—	—	—
ZE	—	—	—

Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Plastic Magazine (Tube)	50	Type name +RB	BCR5KM-12RB
Lead form	Plastic Magazine (Tube)	50	Type name +RB – Lead forming code	BCR5KM-12RB-A8

Note : Please confirm the specification about the shipping in detail.

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