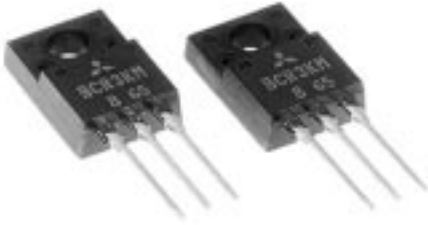


# BCR3KM

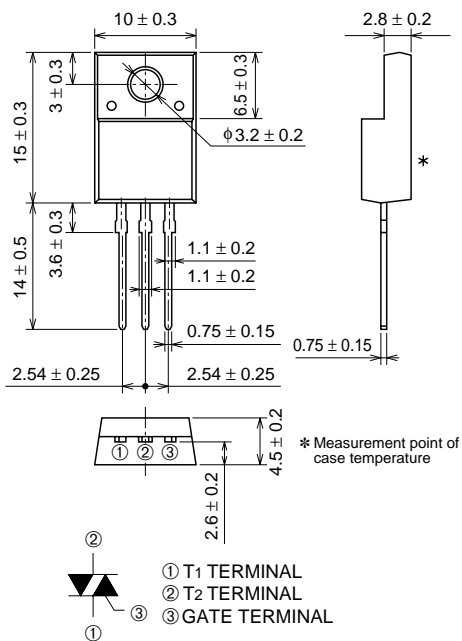
LOW POWER USE  
INSULATED TYPE, PLANAR PASSIVATION TYPE

**BCR3KM**



- IT (RMS) ..... 3A
- VDRM ..... 400V / 600V
- IFGT I , IRGT I , IRGT III ..... 15mA (10mA) \*2
- UL Recognized : File No. E80271

**OUTLINE DRAWING** Dimensions in mm



\* Measurement point of case temperature

**TO-220FN**

① T1 TERMINAL  
② T2 TERMINAL  
③ GATE TERMINAL

## APPLICATION

Control of heater such as electric rice cooker, electric pot

## MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		8	12	
V <sub>DRM</sub>	Repetitive peak off-state voltage*1	400	600	V
V <sub>DSM</sub>	Non-repetitive peak off-state voltage*1	500	720	V

Symbol	Parameter	Conditions	Ratings	Unit
I <sub>T (RMS)</sub>	RMS on-state current	Commercial frequency, sine full wave 360° conduction, T <sub>c</sub> =111°C	3	A
I <sub>TSM</sub>	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	30	A
I <sub>t</sub> <sup>2</sup>	I <sub>t</sub> <sup>2</sup> for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	3.7	A <sup>2</sup> s
P <sub>GM</sub>	Peak gate power dissipation		3	W
P <sub>G (AV)</sub>	Average gate power dissipation		0.3	W
V <sub>GM</sub>	Peak gate voltage		6	V
I <sub>GM</sub>	Peak gate current		0.5	A
T <sub>j</sub>	Junction temperature		-40 ~ +125	°C
T <sub>stg</sub>	Storage temperature		-40 ~ +125	°C
—	Weight		2.0	g
V <sub>iso</sub>	Isolation voltage	T <sub>a</sub> =25°C, AC 1 minute, T <sub>1</sub> · T <sub>2</sub> · G terminal to case	2000	V

\*1. Gate open.

# BCR3KM

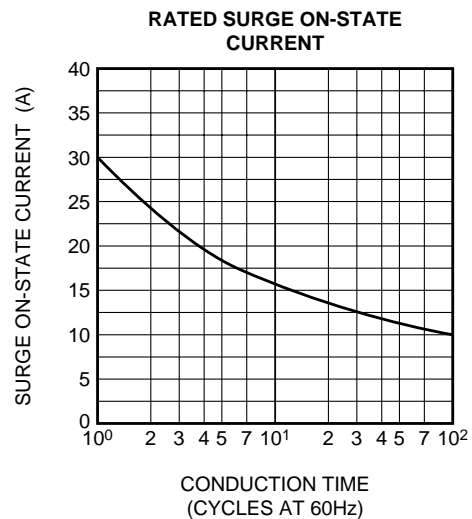
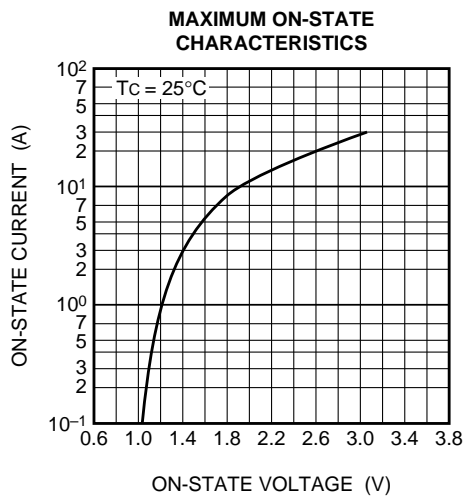
LOW POWER USE  
INSULATED TYPE, PLANAR PASSIVATION TYPE

## ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit	
			Min.	Typ.	Max.		
IDRM	Repetitive peak off-state current	T <sub>j</sub> =125°C, V <sub>DRM</sub> applied	—	—	2.0	mA	
V <sub>TM</sub>	On-state voltage	T <sub>c</sub> =25°C, I <sub>TM</sub> =4.5A, Instantaneous measurement	—	—	1.5	V	
V <sub>FGT I</sub>	Gate trigger voltage *2	T <sub>j</sub> =25°C, V <sub>D</sub> =6V, R <sub>L</sub> =6Ω, R <sub>G</sub> =330Ω	I	—	—	1.5	V
V <sub>RGT I</sub>			II	—	—	1.5	V
V <sub>RGT III</sub>			III	—	—	1.5	V
I <sub>FGT I</sub>	Gate trigger current *2	T <sub>j</sub> =25°C, V <sub>D</sub> =6V, R <sub>L</sub> =6Ω, R <sub>G</sub> =330Ω	I	—	—	15*2	mA
I <sub>RGT I</sub>			II	—	—	15*2	mA
I <sub>RGT III</sub>			III	—	—	15*2	mA
V <sub>GD</sub>	Gate non-trigger voltage	T <sub>j</sub> =125°C, V <sub>D</sub> =1/2V <sub>DRM</sub>	0.2	—	—	V	
R <sub>th (j-c)</sub>	Thermal resistance	Junction to case *3	—	—	4.0	°C/W	
R <sub>th (j-a)</sub>	Thermal resistance	Junction to ambient	—	—	50	°C/W	

\*2. High sensitivity (I<sub>GT</sub> ≤ 10mA) is also available. (IGT item ①)  
 \*3. The contact thermal resistance R<sub>th (c-f)</sub> in case of greasing is 0.5°C/W.

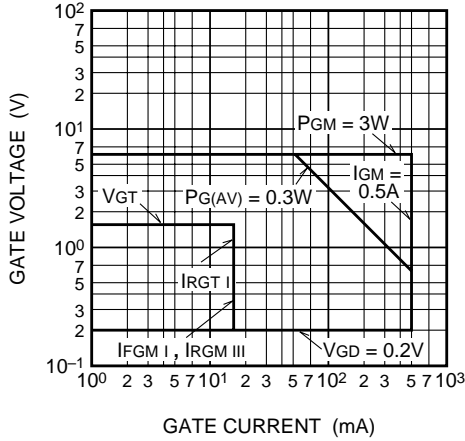
## PERFORMANCE CURVES



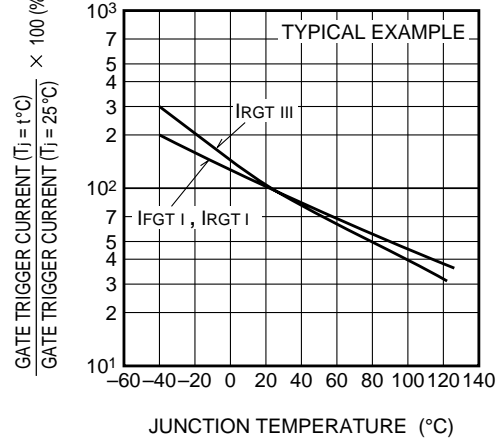
# BCR3KM

LOW POWER USE  
INSULATED TYPE, PLANAR PASSIVATION TYPE

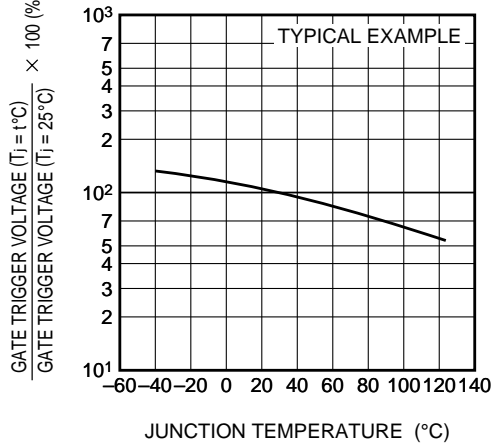
**GATE CHARACTERISTICS  
(I, II AND III)**



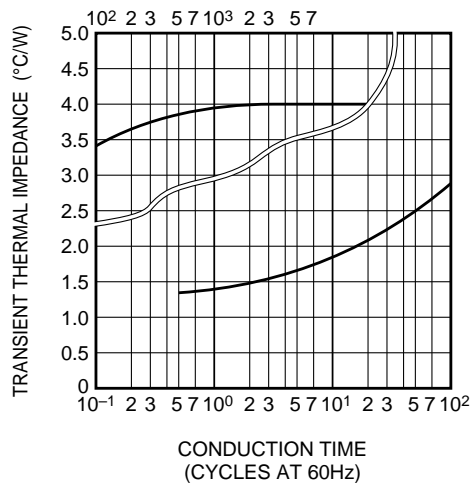
**GATE TRIGGER CURRENT VS.  
JUNCTION TEMPERATURE**



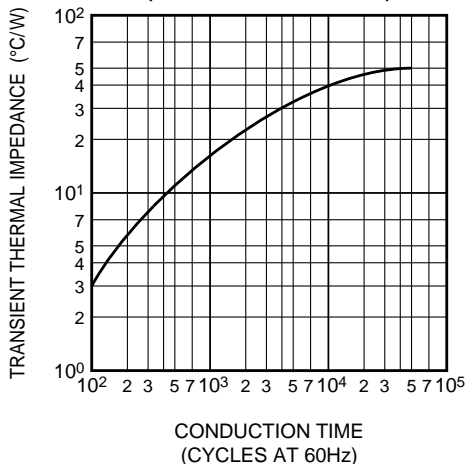
**GATE TRIGGER VOLTAGE VS.  
JUNCTION TEMPERATURE**



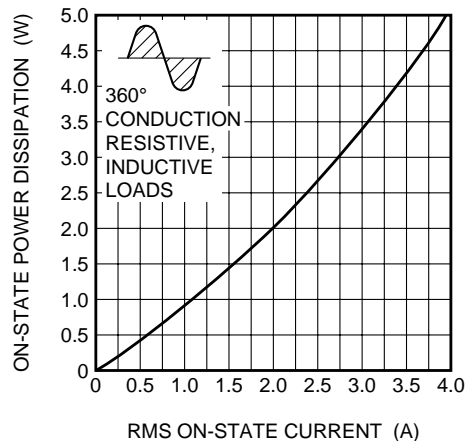
**MAXIMUM TRANSIENT THERMAL  
IMPEDANCE CHARACTERISTICS  
(JUNCTION TO CASE)**



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



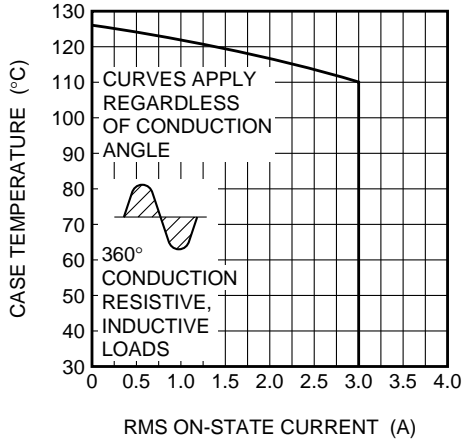
**MAXIMUM ON-STATE POWER  
DISSIPATION**



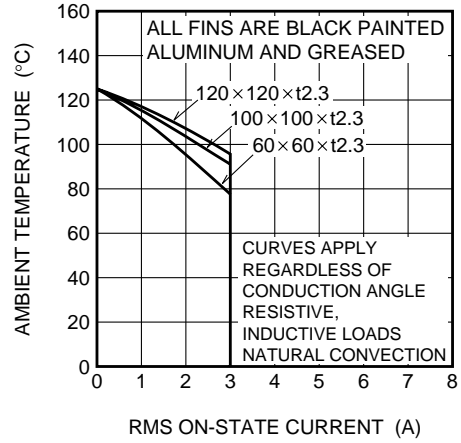
# BCR3KM

LOW POWER USE  
INSULATED TYPE, PLANAR PASSIVATION TYPE

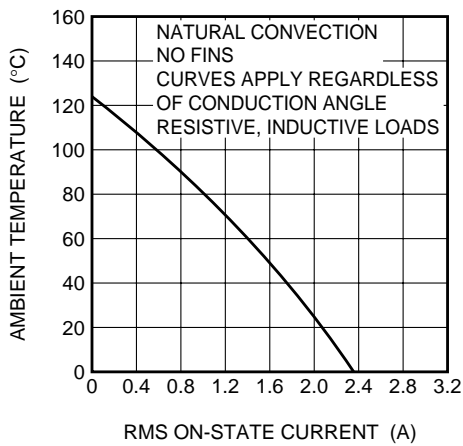
**ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT**



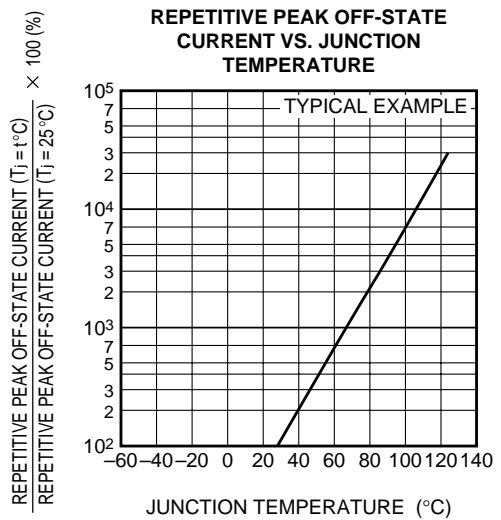
**ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT**



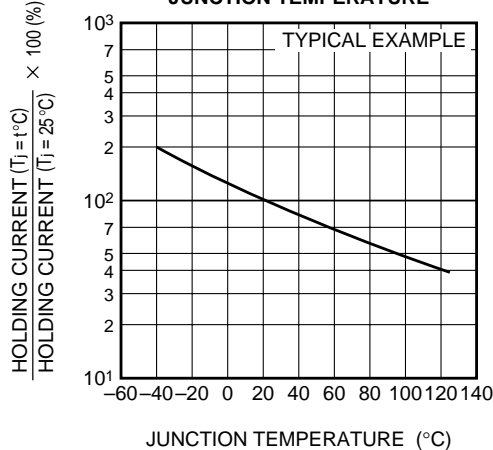
**ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT**



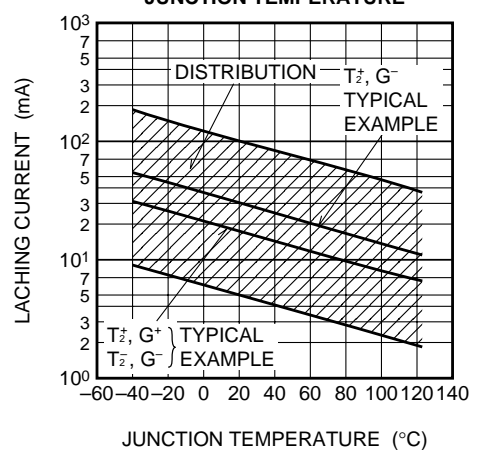
**REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE**



**HOLDING CURRENT VS. JUNCTION TEMPERATURE**



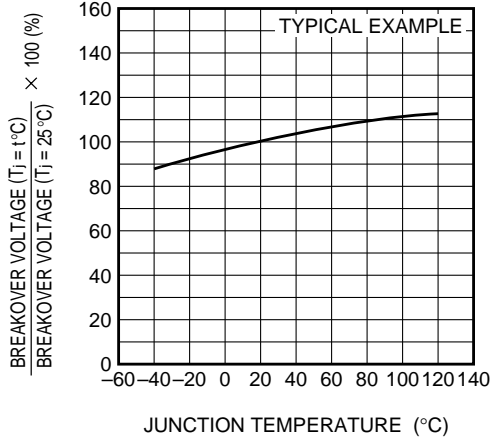
**LACHING CURRENT VS. JUNCTION TEMPERATURE**



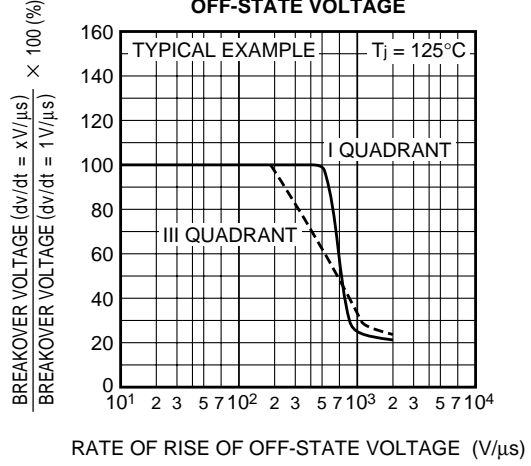
# BCR3KM

LOW POWER USE  
INSULATED TYPE, PLANAR PASSIVATION TYPE

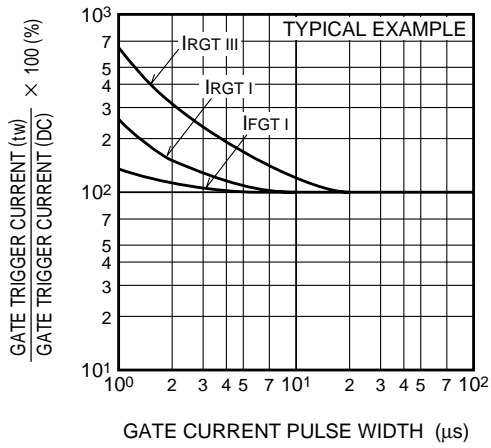
**BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE**



**BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE**



**GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH**



**GATE TRIGGER CHARACTERISTICS TEST CIRCUITS**

