


BCR5KM

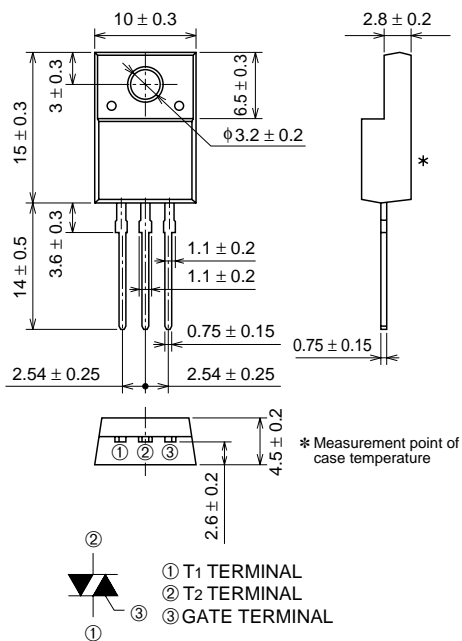
MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

BCR5KM



- I_T (RMS) 5A
- V_{DRM} 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

APPLICATION

Control of heater such as electric rice cooker, electric pot

MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		8	12	
V_{DRM}	Repetitive peak off-state voltage*1	400	600	V
V_{DSM}	Non-repetitive peak off-state voltage*1	500	720	V

Symbol	Parameter	Conditions	Ratings	Unit
I_T (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, $T_c=103^\circ\text{C}$	5	A
I_{TSM}	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	50	A
I_t^2	I_t^2 for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	10.4	A ² s
P_{GM}	Peak gate power dissipation		3	W
$P_{G(AV)}$	Average gate power dissipation		0.3	W
V_{GM}	Peak gate voltage		10	V
I_{GM}	Peak gate current		2	A
T_j	Junction temperature		-40 ~ +125	°C
T_{stg}	Storage temperature		-40 ~ +125	°C
—	Weight		2.0	g
V_{iso}	Isolation voltage	$T_a=25^\circ\text{C}$, AC 1 minute, T1 · T2 · G terminal to case	2000	V

*1. Gate open.

BCR5KM

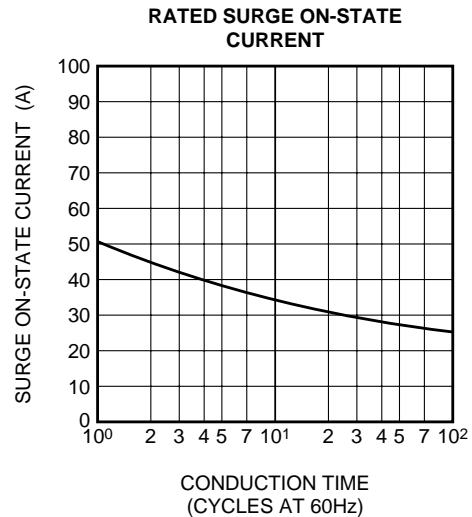
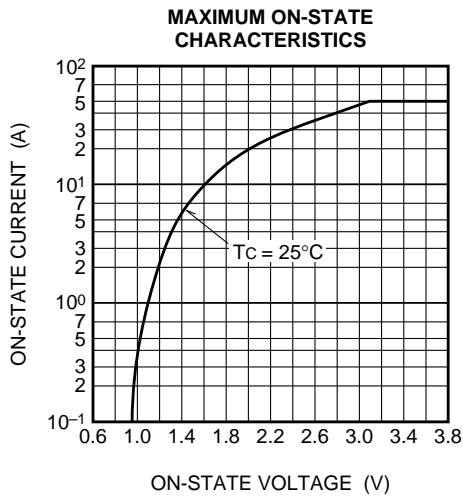
MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit	
			Min.	Typ.	Max.		
IDRM	Repetitive peak off-state current	T _j =125°C, V _{DRM} applied	—	—	2.0	mA	
VTM	On-state voltage	T _c =25°C, I _{TM} =7A, Instantaneous measurement	—	—	1.5	V	
VFGT I	Gate trigger voltage *2	T _j =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	I	—	—	1.5	V
VRGT I			II	—	—	1.5	V
VRGT III			III	—	—	1.5	V
IFGT I	Gate trigger current *2	T _j =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	I	—	—	15*2	mA
IRGT I			II	—	—	15*2	mA
IRGT III			III	—	—	15*2	mA
VGD	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	—	—	3.8	°C/W	
R _{th} (j-a)	Thermal resistance	Junction to ambient	—	—	50	°C/W	

*2. High sensitivity (I_{GT} ≤ 10mA) is also available. (IGT item ①)
 *3. The contact thermal resistance R_{th} (c-f) in case of greasing is 0.5°C/W.

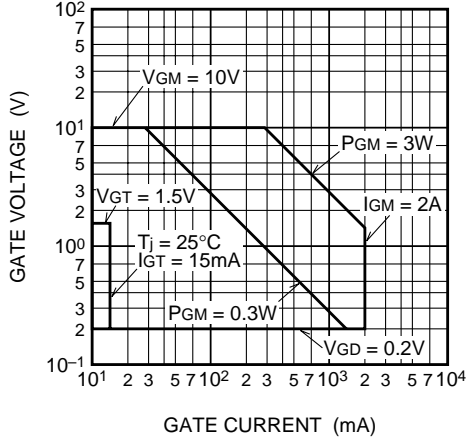
PERFORMANCE CURVES



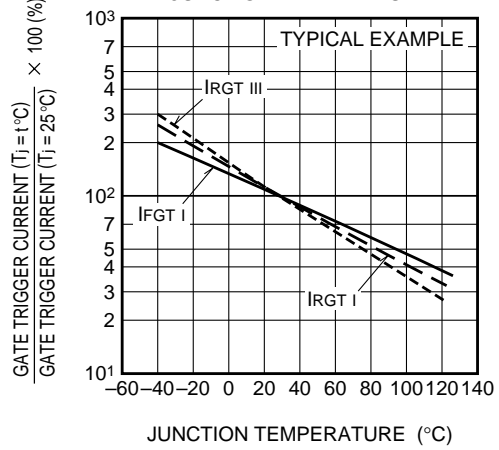
BCR5KM

MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

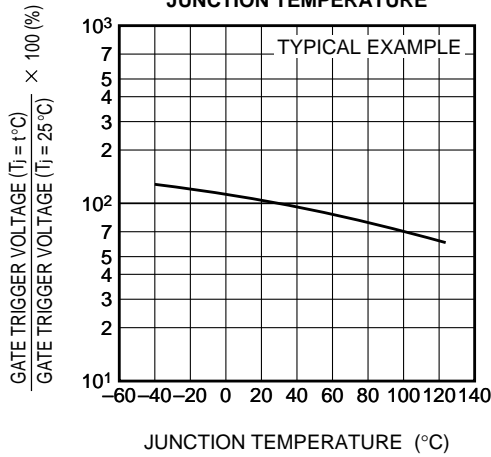
**GATE CHARACTERISTICS
(I, II AND III)**



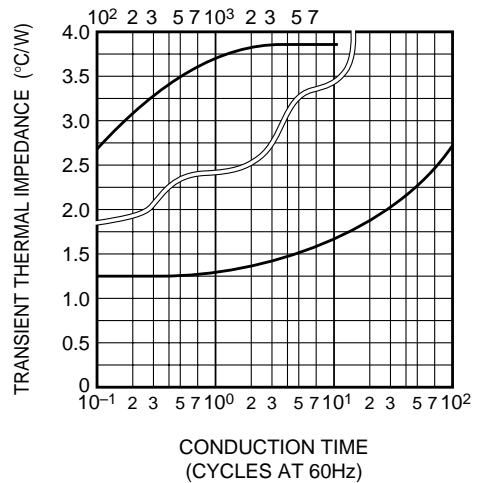
**GATE TRIGGER CURRENT VS.
JUNCTION TEMPERATURE**



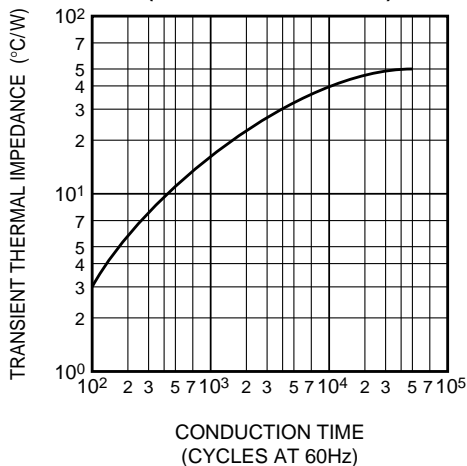
**GATE TRIGGER VOLTAGE VS.
JUNCTION TEMPERATURE**



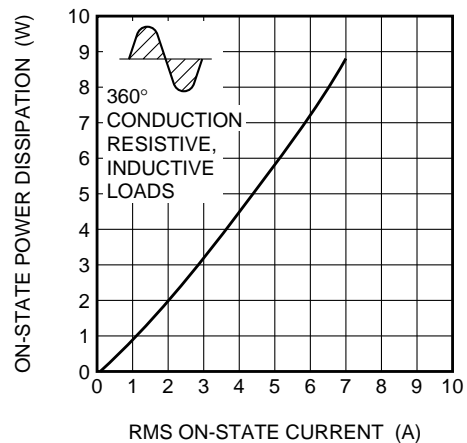
**MAXIMUM TRANSIENT THERMAL
IMPEDANCE CHARACTERISTICS
(JUNCTION TO CASE)**



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



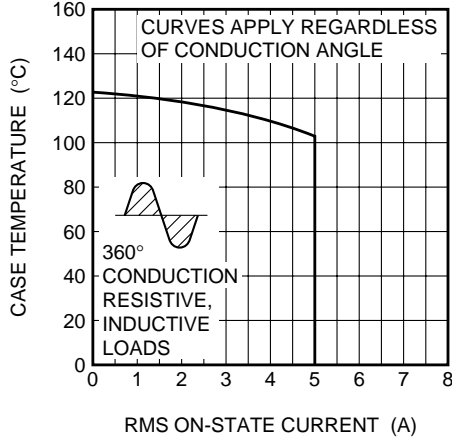
**MAXIMUM ON-STATE POWER
DISSIPATION**



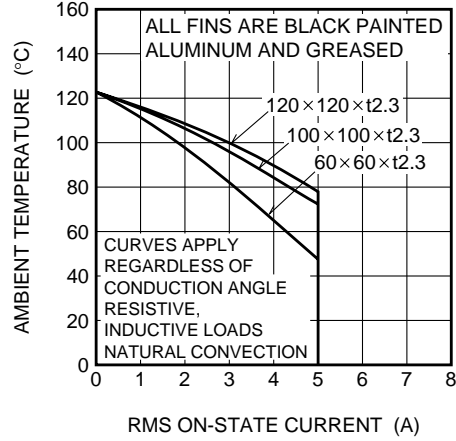
BCR5KM

MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

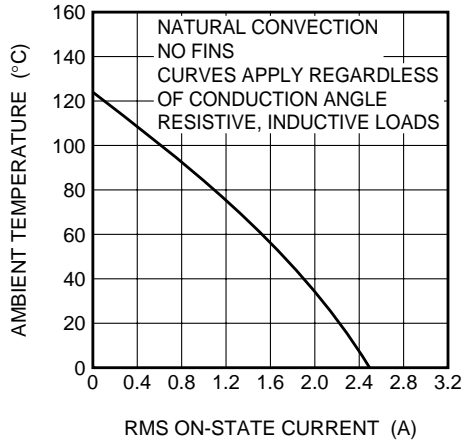
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



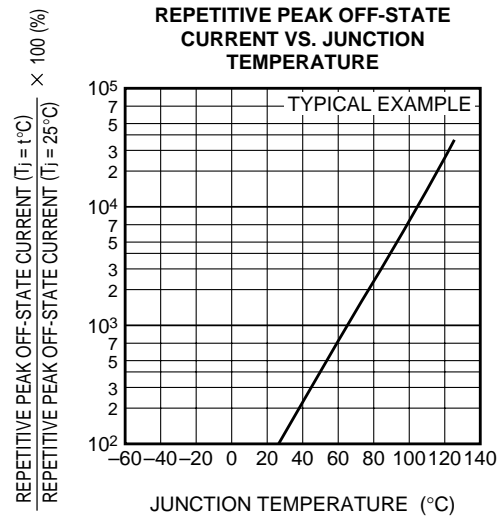
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



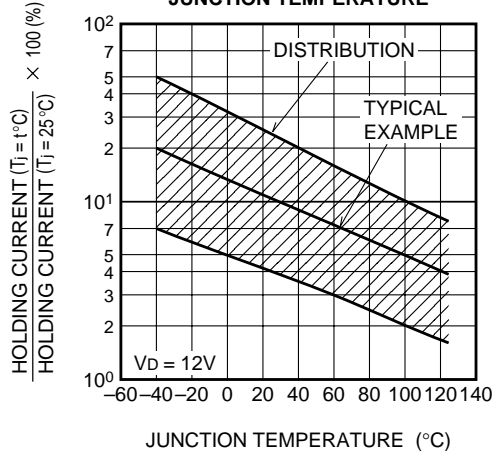
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



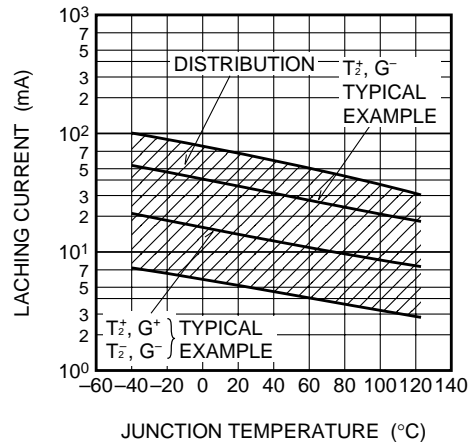
REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE



HOLDING CURRENT VS. JUNCTION TEMPERATURE



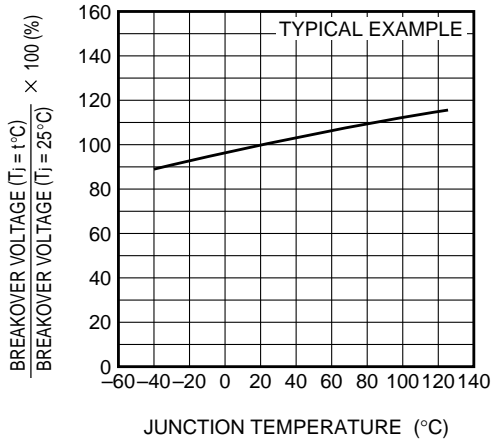
LACHING CURRENT VS. JUNCTION TEMPERATURE



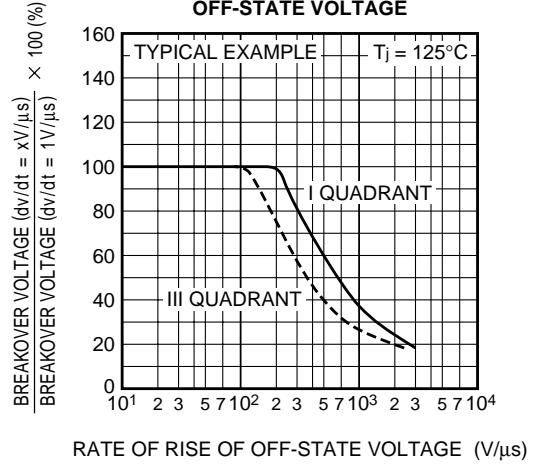
BCR5KM

MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

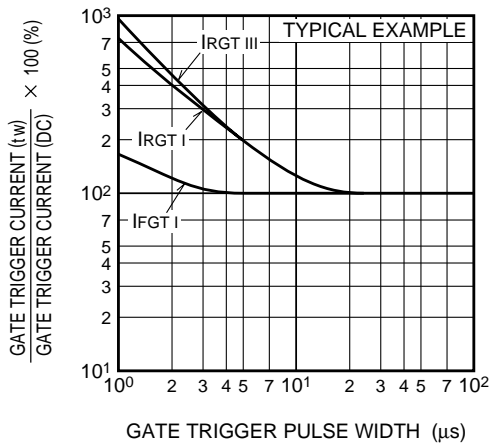
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE



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



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

