


BCR5KM

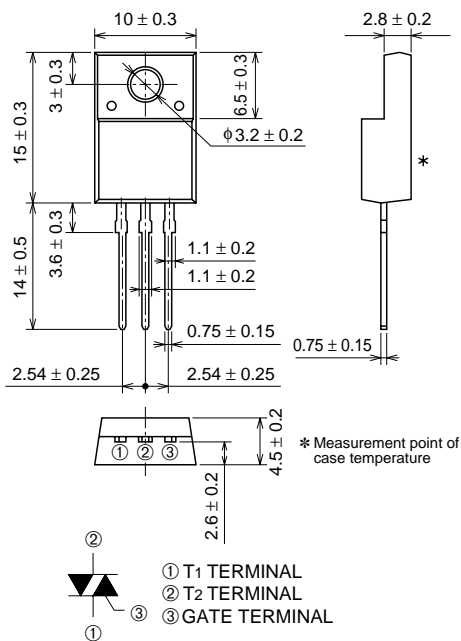
MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

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

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_{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.

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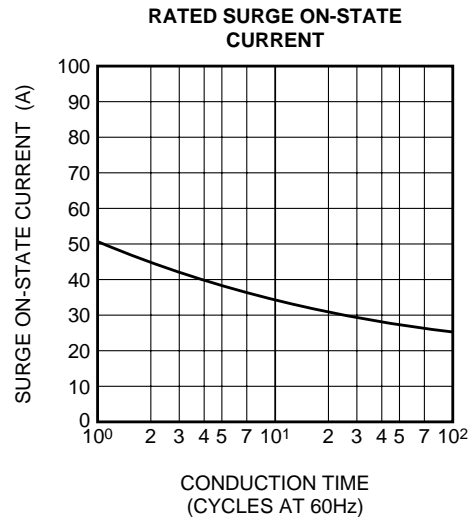
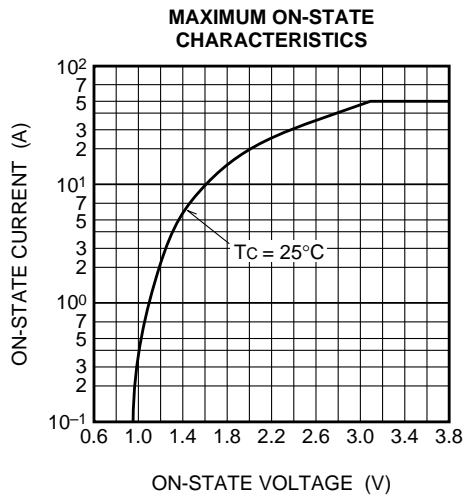
MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

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.

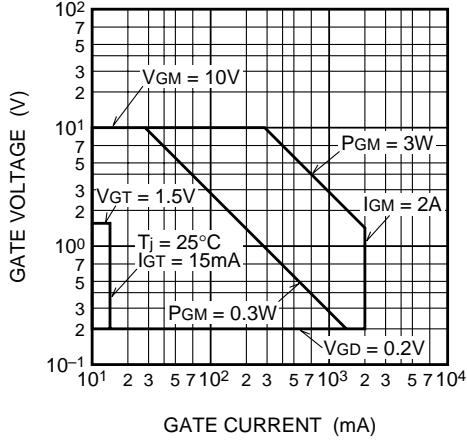
PERFORMANCE CURVES



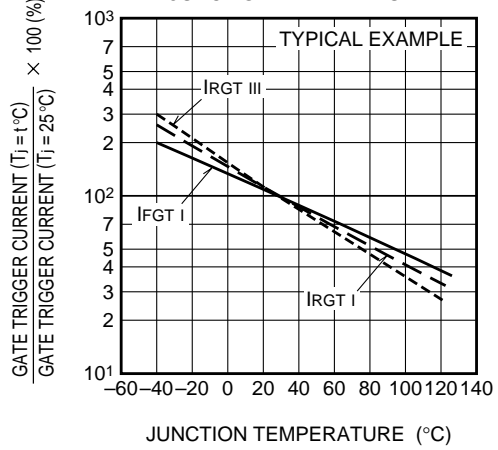
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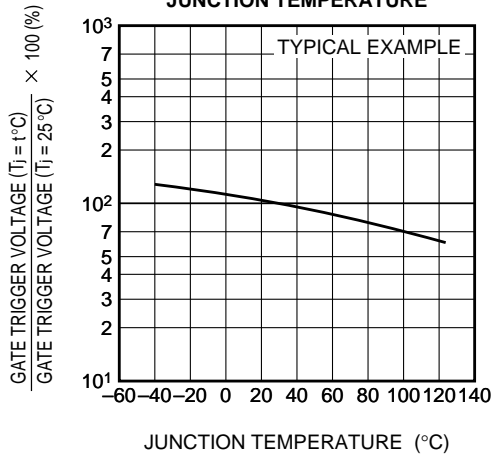
**GATE CHARACTERISTICS
(I, II AND III)**



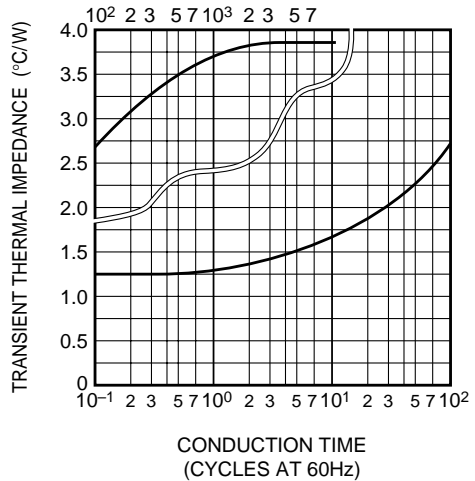
**GATE TRIGGER CURRENT VS.
JUNCTION TEMPERATURE**



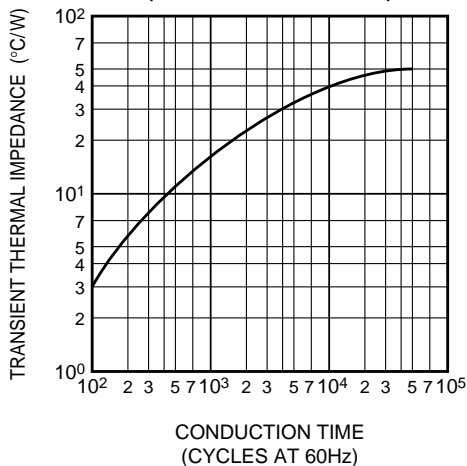
**GATE TRIGGER VOLTAGE VS.
JUNCTION TEMPERATURE**



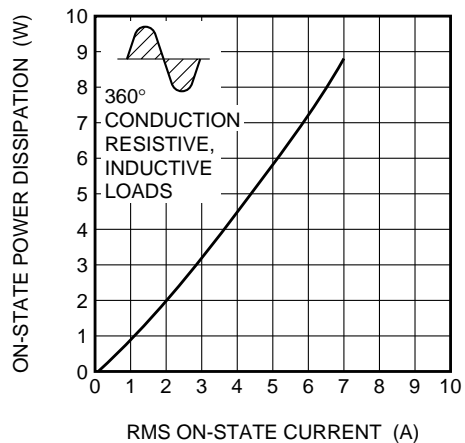
**MAXIMUM TRANSIENT THERMAL
IMPEDANCE CHARACTERISTICS
(JUNCTION TO CASE)**



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



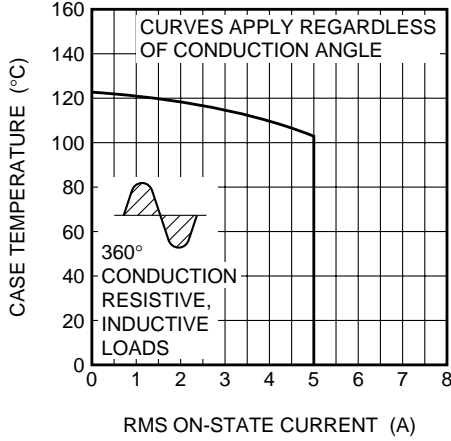
**MAXIMUM ON-STATE POWER
DISSIPATION**



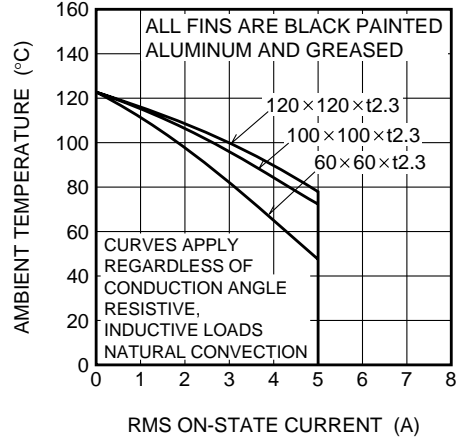
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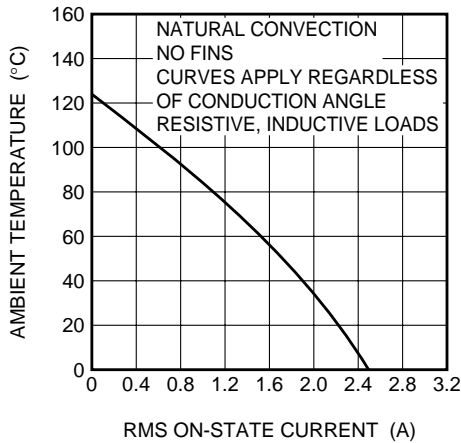
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



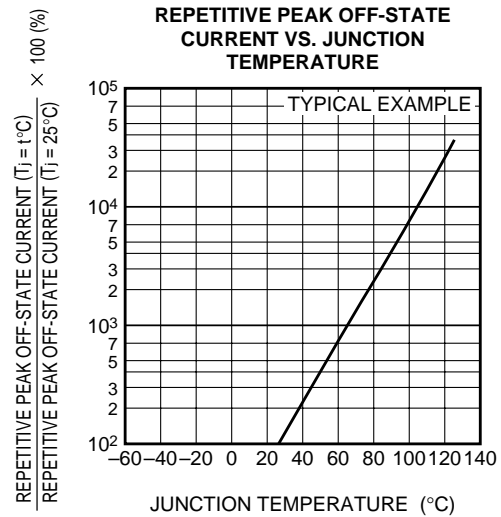
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



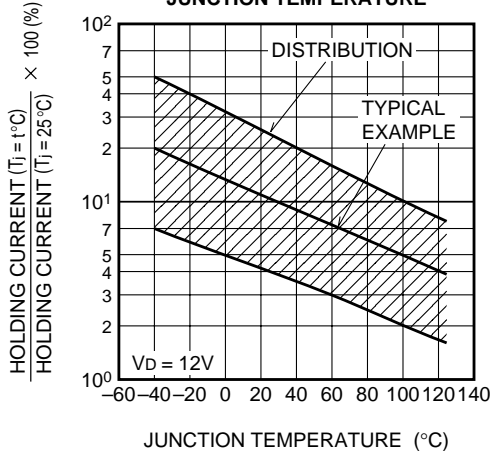
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



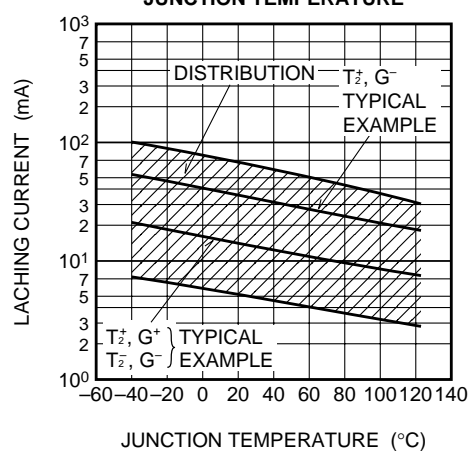
REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE



HOLDING CURRENT VS. JUNCTION TEMPERATURE



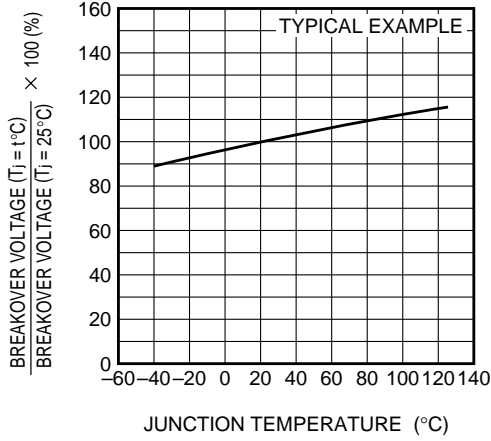
LACHING CURRENT VS. JUNCTION TEMPERATURE



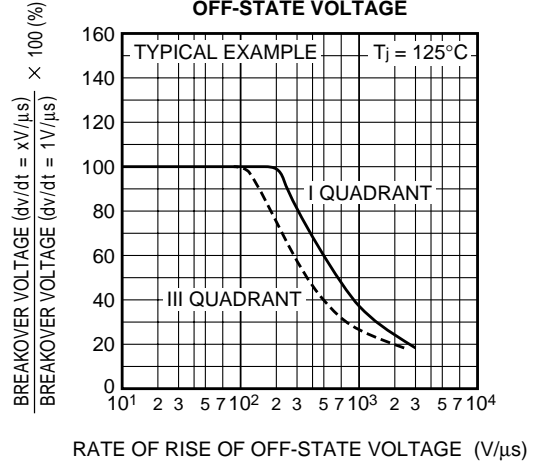
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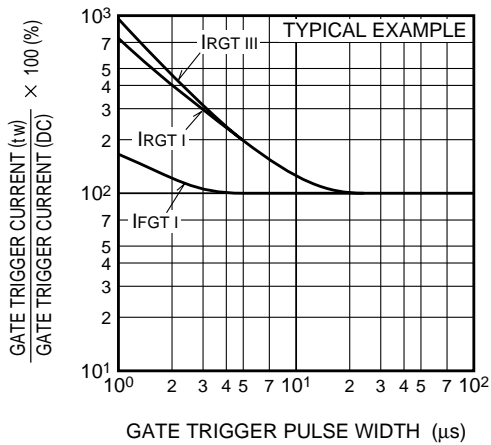
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE



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



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

