

# BCR8PM-16

MEDIUM POWER USE  
INSULATED TYPE, PLANAR PASSIVATION TYPE

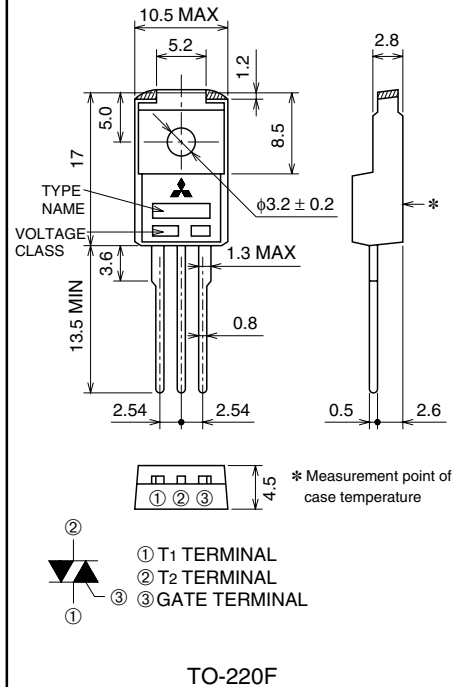
## BCR8PM-16



- $I_T$  (RMS) ..... 8A
- $V_{DRM}$  ..... 800V
- IFGT I, IRGT I, IRGT III ..... 30mA
- $V_{iso}$  ..... 2000V
- UL Recognized: Yellow Card No. E80276(N)  
File No. E80271

## OUTLINE DRAWING

Dimensions  
in mm



## APPLICATION

Washing machine, other general purpose control applications

## MAXIMUM RATINGS

Symbol	Parameter	Voltage class	
		16	Unit
$V_{DRM}$	Repetitive peak off-state voltage *1	800	V
$V_{DSM}$	Non-repetitive peak off-state voltage *1	960	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_T$ (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, $T_c=88^\circ\text{C}$	8	A
$I_{TSM}$	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	80	A
$I_t^2$	$I_t^2$ for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	26	A <sup>2</sup> s
$P_{GM}$	Peak gate power dissipation		5	W
$P_{G(AV)}$	Average gate power dissipation		0.5	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	Typical value	2.0	g
$V_{iso}$	Isolation voltage	$T_a=25^\circ\text{C}$ , AC 1 minute, T <sub>1</sub> · T <sub>2</sub> · G terminal to case	2000	V

\*1. Gate open.

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## 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> =12A, Instantaneous measurement	—	—	1.6	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	—	30	mA
I <sub>RGT I</sub>			II	—	30	mA
I <sub>RGT III</sub>			III	—	30	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	—	—	3.7	°C/W
(dv/dt) <sub>c</sub>	Critical-rate of rise of off-state commutating voltage *4	T <sub>j</sub> =125°C	10	—	—	V/μs

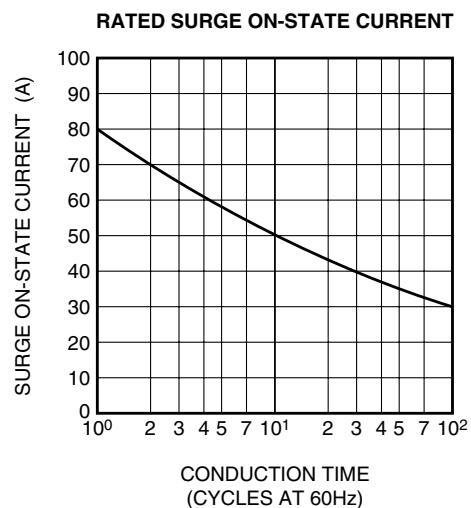
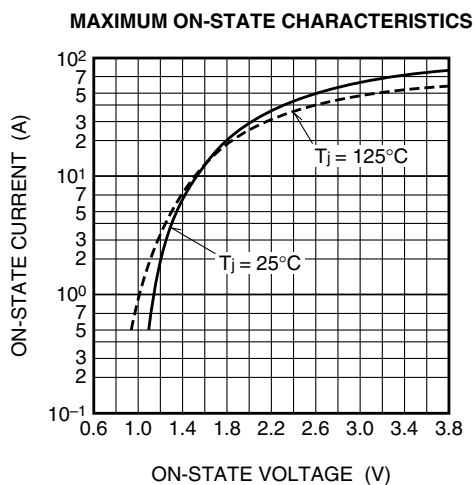
\*2. Measurement using the gate trigger characteristics measurement circuit.

\*3. The contact thermal resistance R<sub>th (c-f)</sub> in case of greasing is 0.5°C/W.

\*4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature T <sub>j</sub> =125°C  2. Rate of decay of on-state commutating current (di/dt) <sub>c</sub> =-4.0A/ms  3. Peak off-state voltage V <sub>D</sub> =400V	

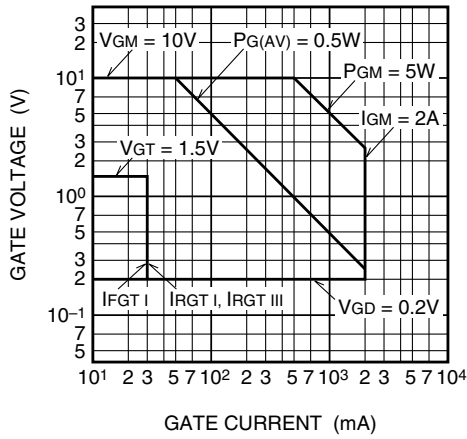
## PERFORMANCE CURVES



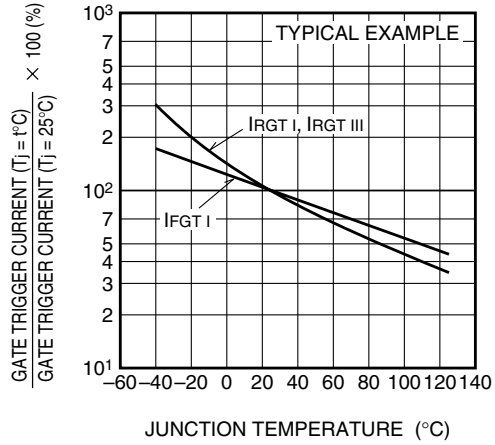
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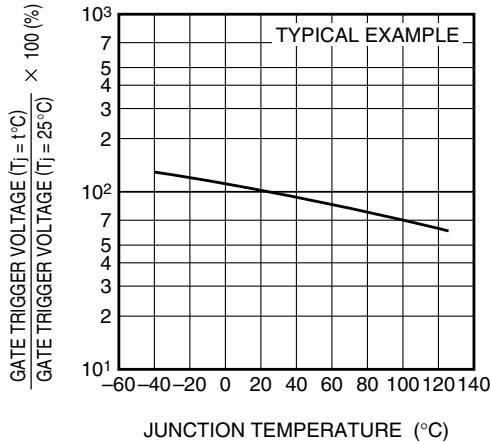
**GATE CHARACTERISTICS**



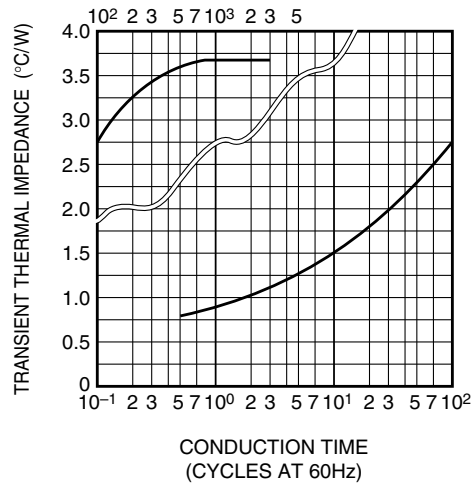
**GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE**



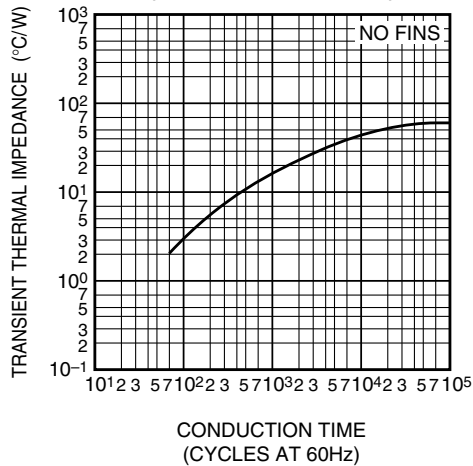
**GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE**



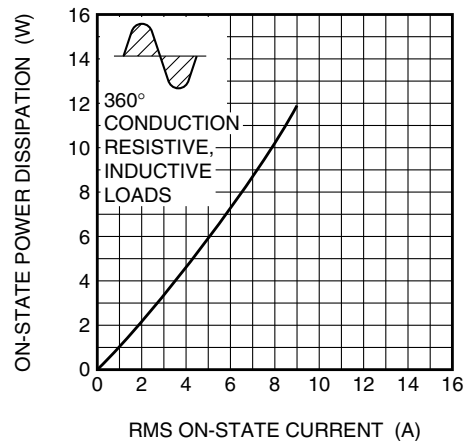
**MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)**



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



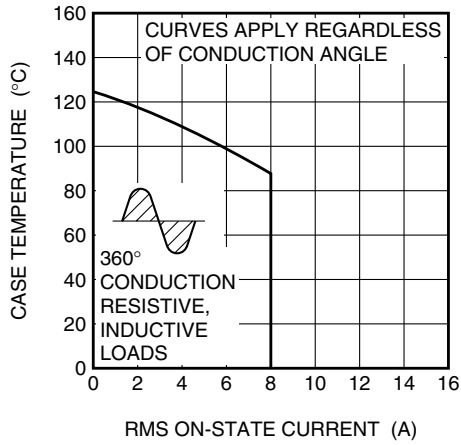
**MAXIMUM ON-STATE POWER DISSIPATION**



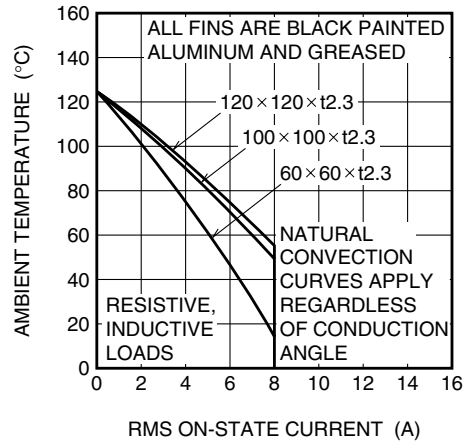
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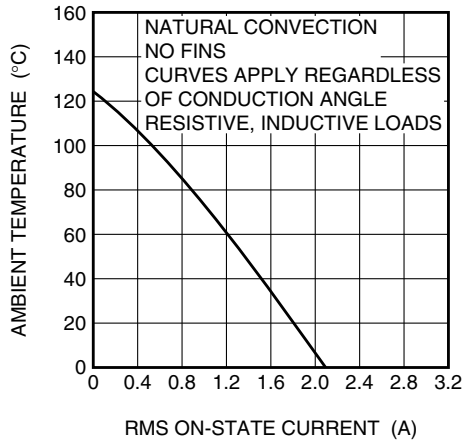
**ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT**



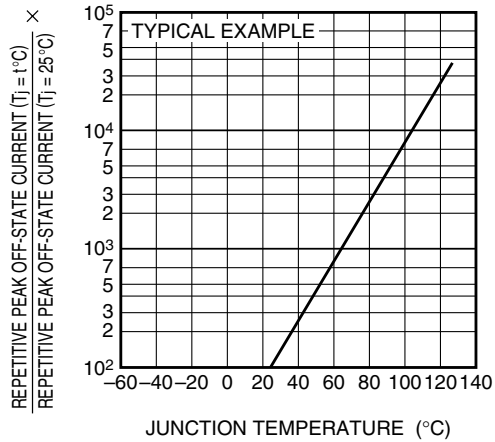
**ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT**



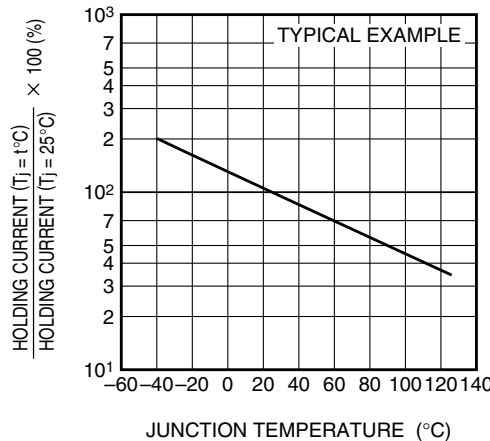
**ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT**



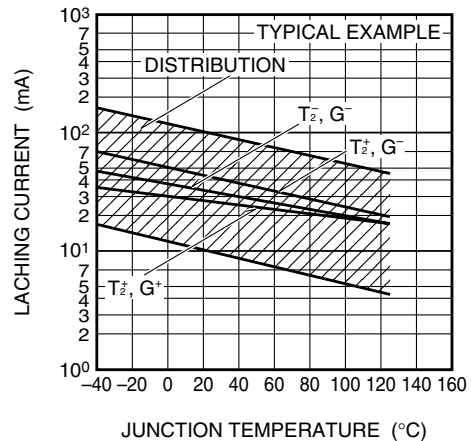
**REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE**



**HOLDING CURRENT VS. JUNCTION TEMPERATURE**



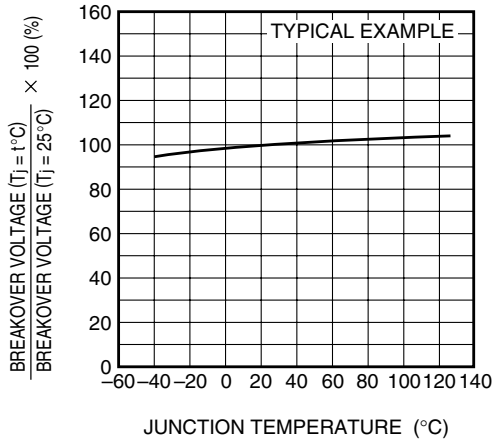
**LACHING CURRENT VS. JUNCTION TEMPERATURE**



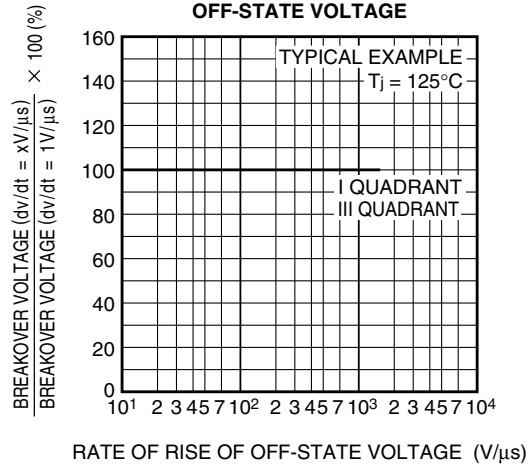
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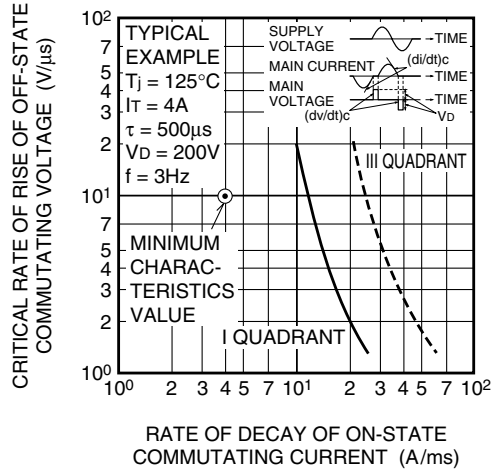
**BREAKEOVER VOLTAGE VS. JUNCTION TEMPERATURE**



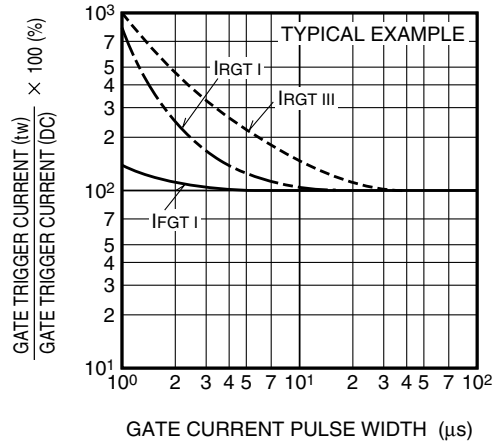
**BREAKEOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE**



**COMMUTATION CHARACTERISTICS**



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



**GATE TRIGGER CHARACTERISTICS TEST CIRCUITS**

