

# BCR8PM-16

MEDIUM POWER USE  
INSULATED TYPE, PLANAR PASSIVATION TYPE

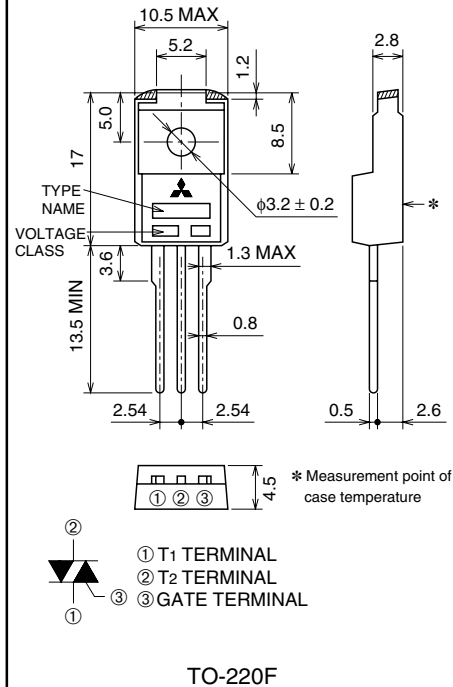
## BCR8PM-16



- $I_T$  (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, T1 · T2 · 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	$T_j=125^\circ\text{C}$ , $V_{\text{DRM}}$ applied	—	—	2.0	mA	
$V_{\text{TM}}$	On-state voltage	$T_c=25^\circ\text{C}$ , $I_{\text{TM}}=12\text{A}$ , Instantaneous measurement	—	—	1.6	V	
$V_{\text{FGT I}}$	Gate trigger voltage *2	$T_j=25^\circ\text{C}$ , $V_{\text{D}}=6\text{V}$ , $R_{\text{L}}=6\Omega$ , $R_{\text{G}}=330\Omega$	I	—	—	1.5	V
$V_{\text{RGT I}}$			II	—	—	1.5	V
$V_{\text{RGT III}}$			III	—	—	1.5	V
$I_{\text{FGT I}}$	Gate trigger current *2	$T_j=25^\circ\text{C}$ , $V_{\text{D}}=6\text{V}$ , $R_{\text{L}}=6\Omega$ , $R_{\text{G}}=330\Omega$	I	—	—	30	mA
$I_{\text{RGT I}}$			II	—	—	30	mA
$I_{\text{RGT III}}$			III	—	—	30	mA
$V_{\text{GD}}$	Gate non-trigger voltage	$T_j=125^\circ\text{C}$ , $V_{\text{D}}=1/2V_{\text{DRM}}$	0.2	—	—	V	
$R_{\text{th (j-c)}}$	Thermal resistance	Junction to case *3	—	—	3.7	$^\circ\text{C}/\text{W}$	
$(dv/dt)_c$	Critical-rate of rise of off-state commutating voltage *4	$T_j=125^\circ\text{C}$	10	—	—	$\text{V}/\mu\text{s}$	

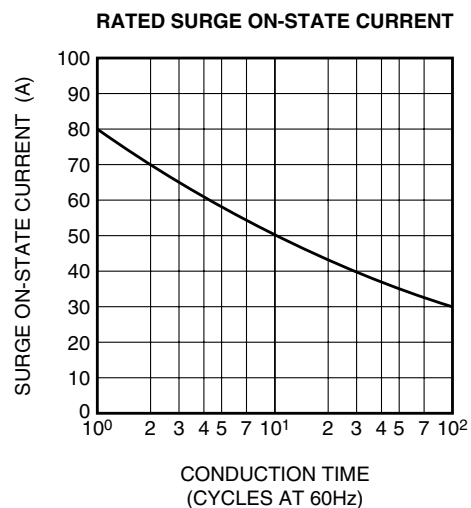
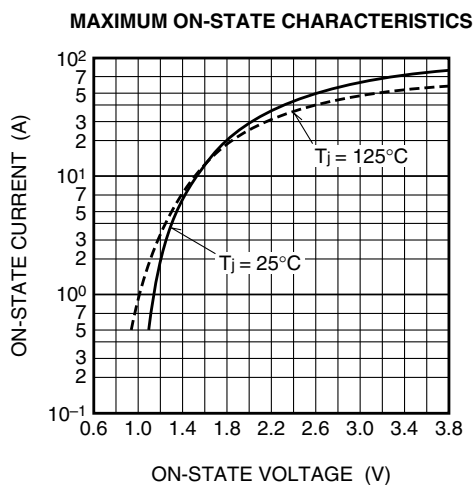
\*2. Measurement using the gate trigger characteristics measurement circuit.

\*3. The contact thermal resistance  $R_{\text{th (c-f)}}$  in case of greasing is  $0.5^\circ\text{C}/\text{W}$ .

\*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 $T_j=125^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c=-4.0\text{A}/\text{ms}$ 3. Peak off-state voltage $V_{\text{D}}=400\text{V}$	

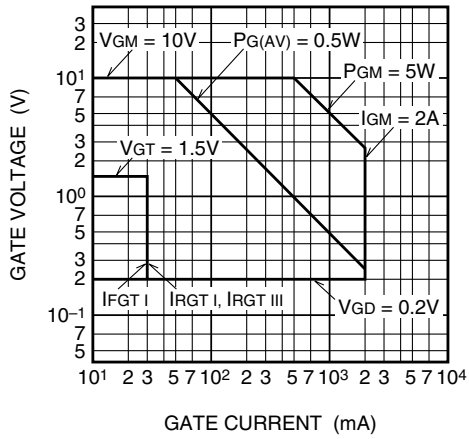
## PERFORMANCE CURVES



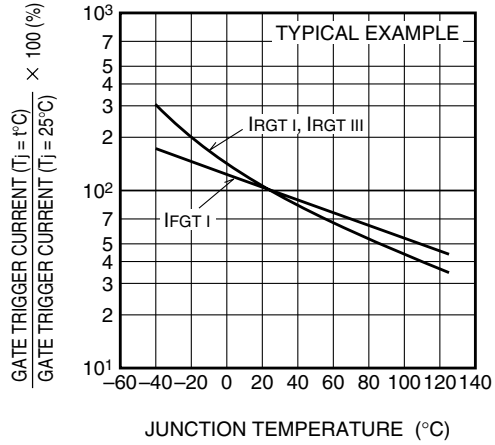
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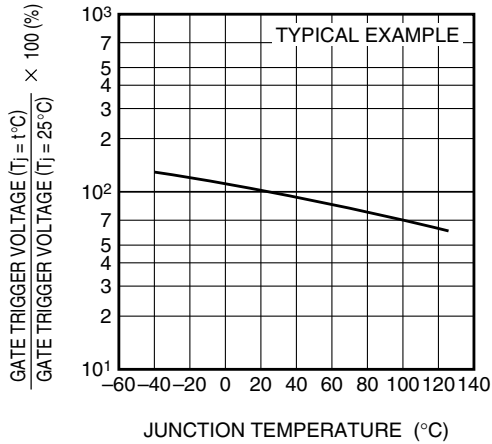
**GATE CHARACTERISTICS**



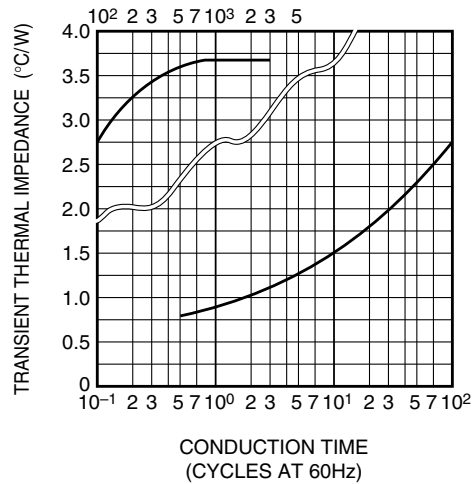
**GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE**



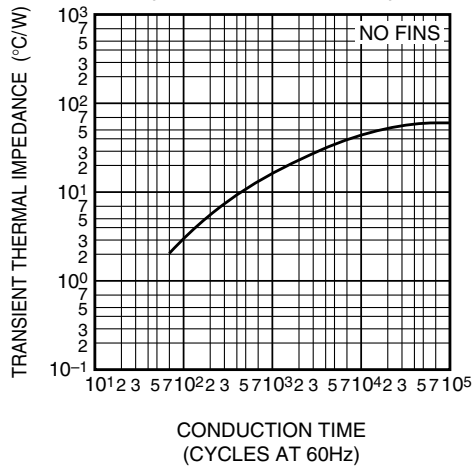
**GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE**



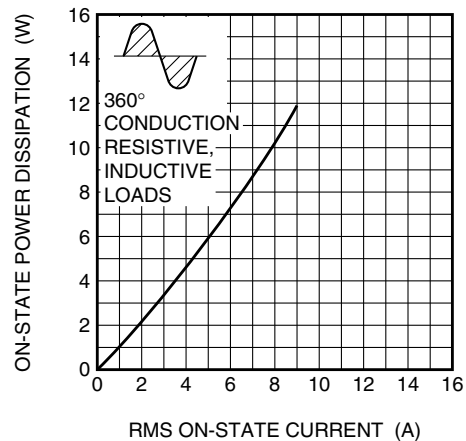
**MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)**



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



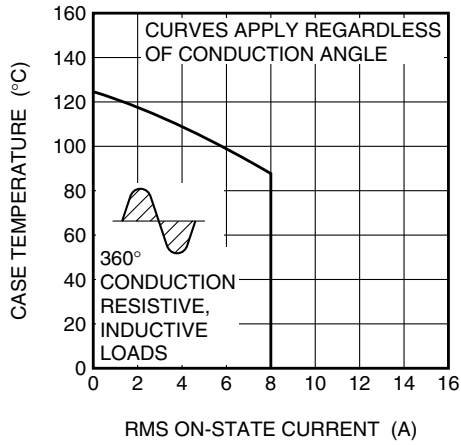
**MAXIMUM ON-STATE POWER DISSIPATION**



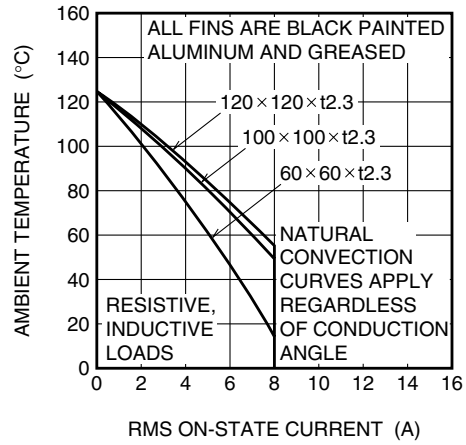
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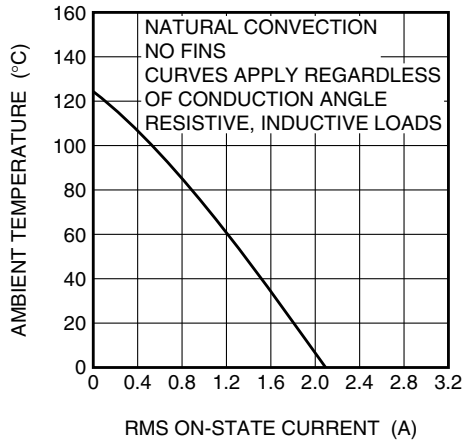
**ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT**



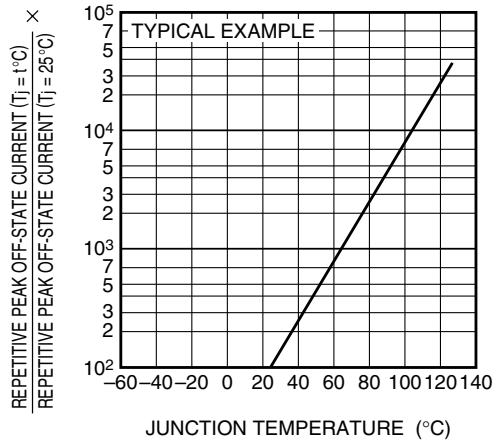
**ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT**



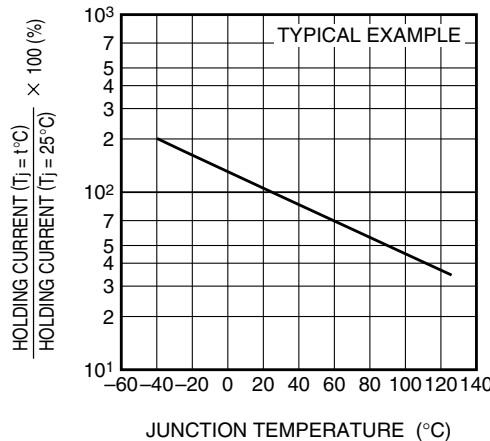
**ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT**



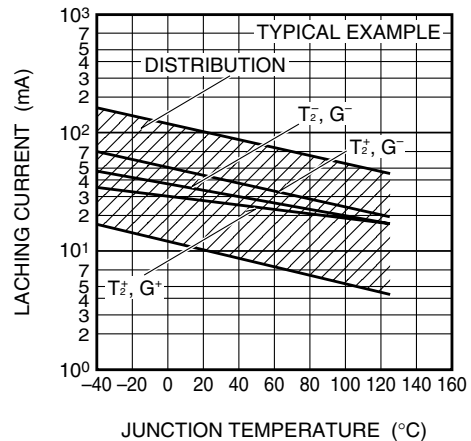
**REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE**



**HOLDING CURRENT VS. JUNCTION TEMPERATURE**



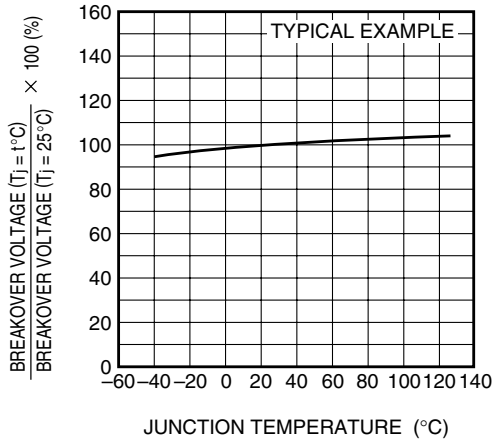
**LACHING CURRENT VS. JUNCTION TEMPERATURE**



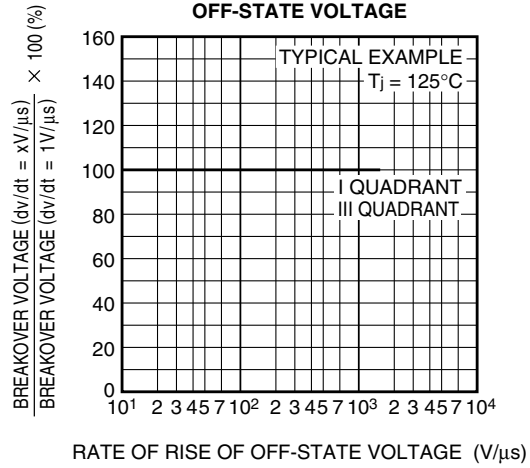
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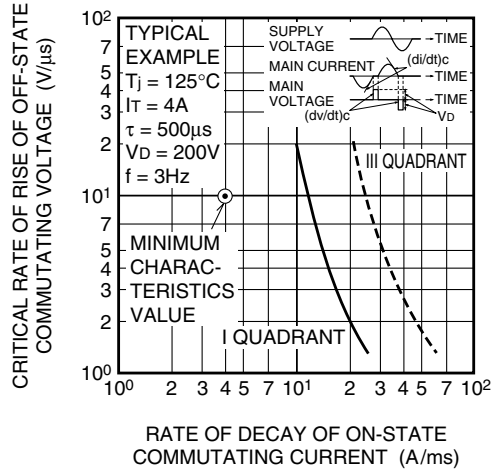
**BREAKEOVER VOLTAGE VS. JUNCTION TEMPERATURE**



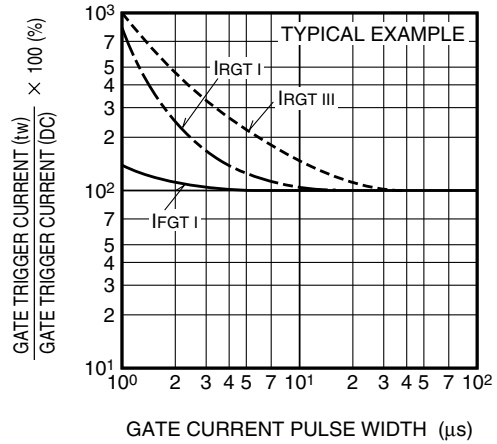
**BREAKEOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE**



**COMMUTATION CHARACTERISTICS**



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



**GATE TRIGGER CHARACTERISTICS TEST CIRCUITS**

