

# BCR8PM-14LJ

Triac  
Medium Power Use

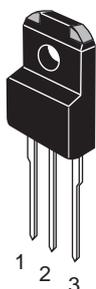
R07DS0515EJ0100  
Rev.1.00  
Oct 14, 2011

## Features

- $I_{T(RMS)}$  : 8 A
- $V_{DRM}$  : 800 V( $T_j=125^\circ\text{C}$ )
- $I_{FGTI}$ ,  $I_{RGTI}$ ,  $I_{RGT III}$  : 30 mA
- Viso: 2000 V
- The Product guaranteed maximum junction temperature  $150^\circ\text{C}$
- Insulated Type
- Planar Type
- UL Recognized: File No. E223904

## Outline

RENESAS Package code: PRSS0003AA-A  
(Package name: TO-220F)



1. T<sub>1</sub> Terminal
2. T<sub>2</sub> Terminal
3. Gate Terminal

## Applications

washing machine, inversion operation of capacitor motor, and other general purpose control applications

## Maximum Ratings

Parameter	Symbol	Voltage class	Unit	Conditions
		14		
Repetitive peak off-state voltage <sup>Note1</sup>	$V_{DRM}$	800	V	$T_j=125^\circ\text{C}$
		700	V	$T_j=150^\circ\text{C}$
Non-repetitive peak off-state voltage <sup>Note1</sup>	$V_{DSM}$	840	V	

Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	8	A	Commercial frequency, sine full wave 360°conduction, $T_c = 107^\circ\text{C}$
Surge on-state current	$I_{TSM}$	80	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusion	$I^2t$	26	$\text{A}^2\text{s}$	Value corresponding to 1 cycle of half wave 60 Hz, surge on-state current
Peak gate power dissipation	$P_{GM}$	5	W	
Average gate power dissipation	$P_{G(AV)}$	0.5	W	
Peak gate voltage	$V_{GM}$	10	V	
Peak gate current	$I_{GM}$	2	A	
Junction Temperature	$T_j$	-40 to +150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-40 to +150	$^\circ\text{C}$	
Mass	—	2.0	g	Typical value
Isolation voltage	$V_{iso}$	2000	V	$T_a=25^\circ\text{C}$ AC 1 minute, $T_1 T_2$ G terminal to case

## Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current	$I_{DRM}$	—	—	2.0	mA	$T_j = 150^\circ\text{C}$ , $V_{DRM}$ applied
On-state voltage	$V_{TM}$	—	—	1.6	V	$T_c = 25^\circ\text{C}$ , $I_{TM} = 12\text{A}$ , instantaneous measurement
Gate trigger voltage <sup>Note2</sup>	I $V_{FGTI}$	—	—	1.5	V	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{V}$ , $R_L = 6\ \Omega$ , $R_G = 330\ \Omega$
	II $V_{RGTI}$	—	—	1.5	V	
	III $V_{RGTIII}$	—	—	1.5	V	
Gate trigger current <sup>Note2</sup>	I $I_{FGTI}$	—	—	30	mA	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{V}$ , $R_L = 6\ \Omega$ , $R_G = 330\ \Omega$
	II $I_{RGTI}$	—	—	30	mA	
	III $I_{RGTIII}$	—	—	30	mA	
Gate non-trigger voltage	$V_{GD}$	0.2	—	—	V	$T_j = 125^\circ\text{C}$ , $V_D = 1/2 V_{DRM}$
		0.1	—	—	V	$T_j = 150^\circ\text{C}$ , $V_D = 1/2 V_{DRM}$
Thermal resistance	$R_{th(j-c)}$	—	—	4.3	$^\circ\text{C/W}$	Junction to case <sup>Note3</sup>
Critical-rate of rise of off-state commutation voltage <sup>Note4</sup>	$(dv/dt)_c$	10	—	—	$\text{V}/\mu\text{s}$	$T_j = 125^\circ\text{C}$
		1	—	—	$\text{V}/\mu\text{s}$	$T_j = 150^\circ\text{C}$

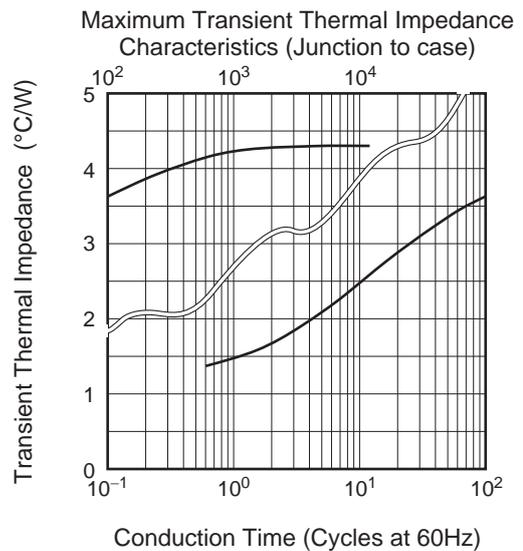
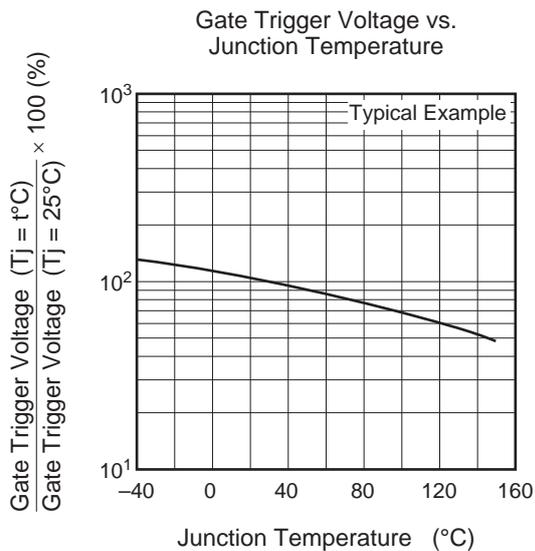
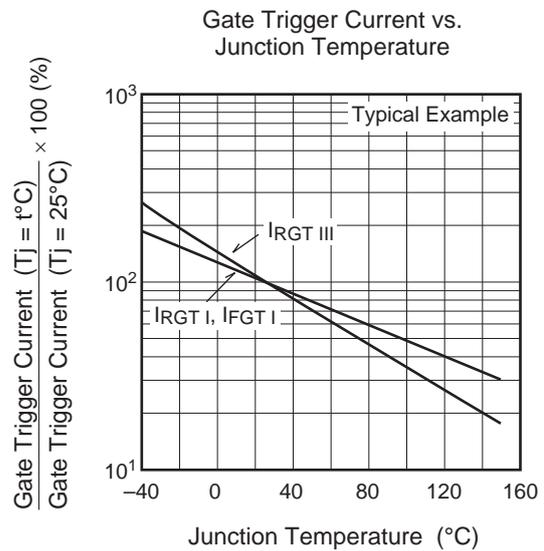
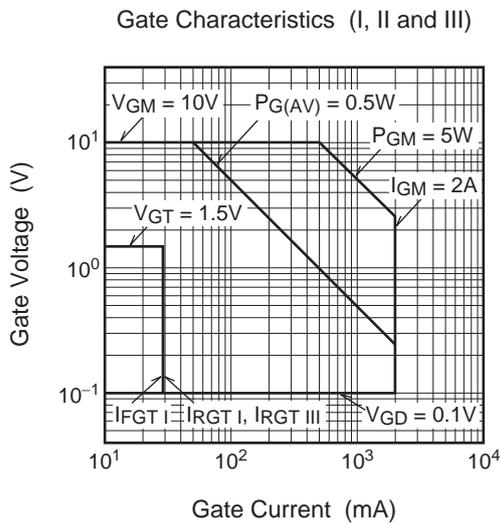
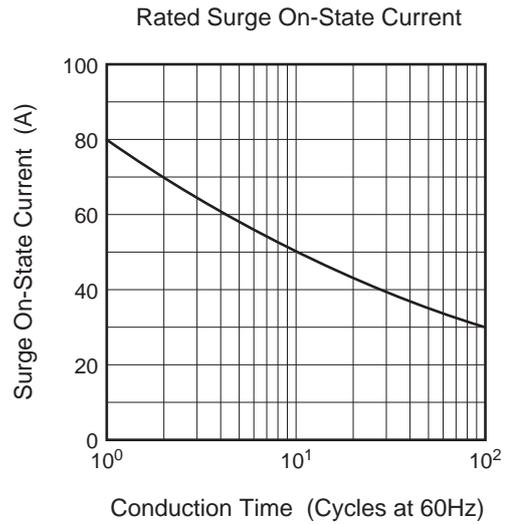
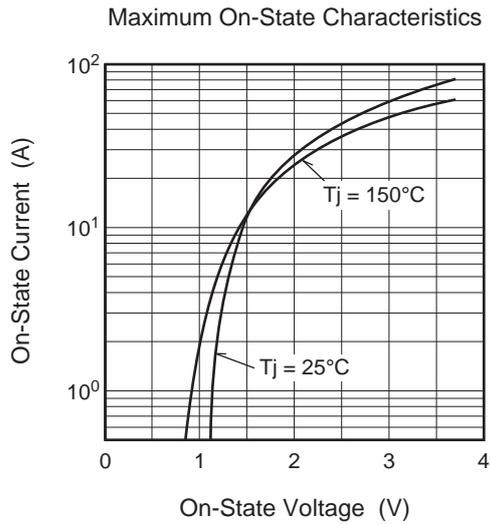
Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

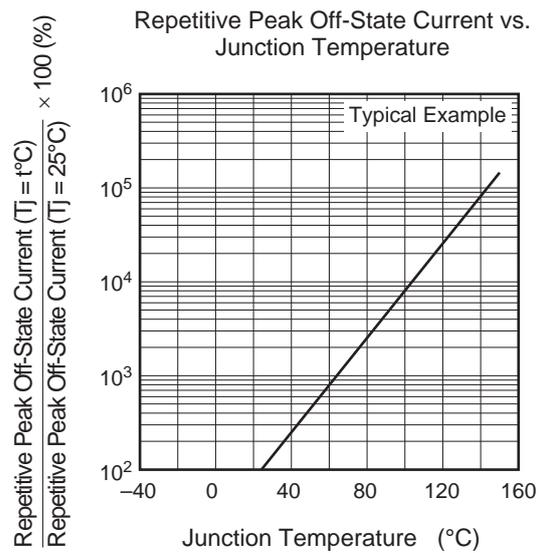
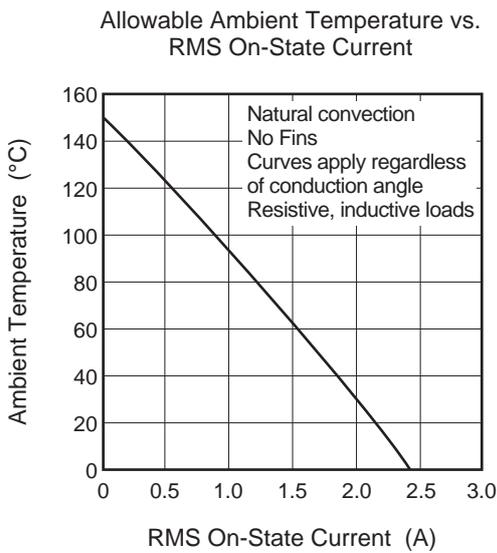
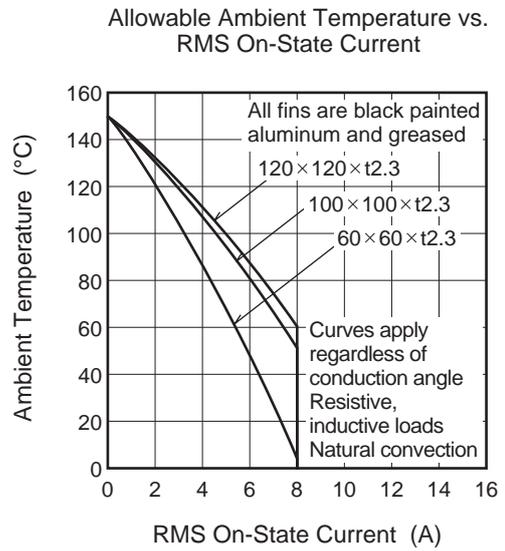
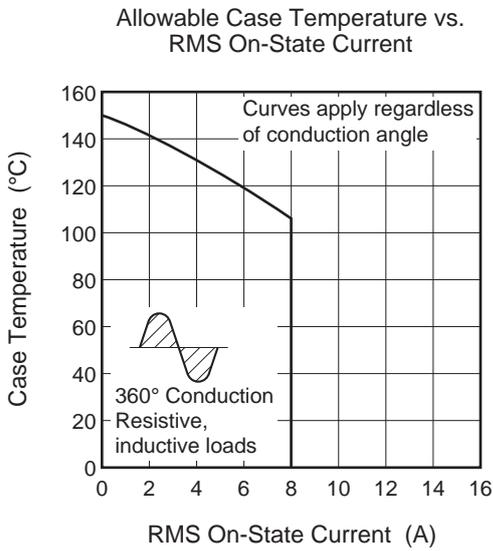
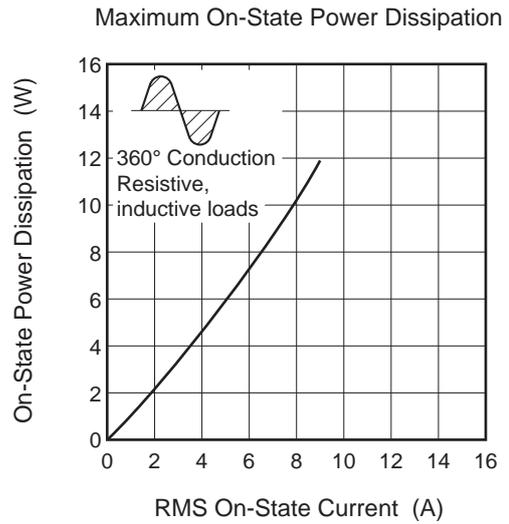
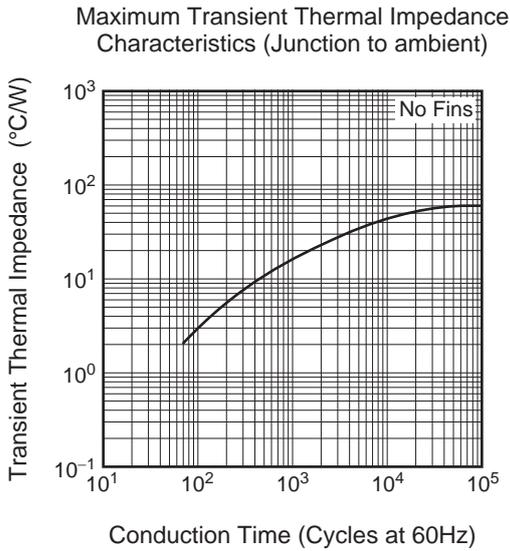
3. The contact thermal resistance  $R_{th(c-f)}$  in case of greasing is  $0.5^\circ\text{C/W}$ .

4. Test conditions of the critical-rate of decay of on-state commutation current are shown in the table below.

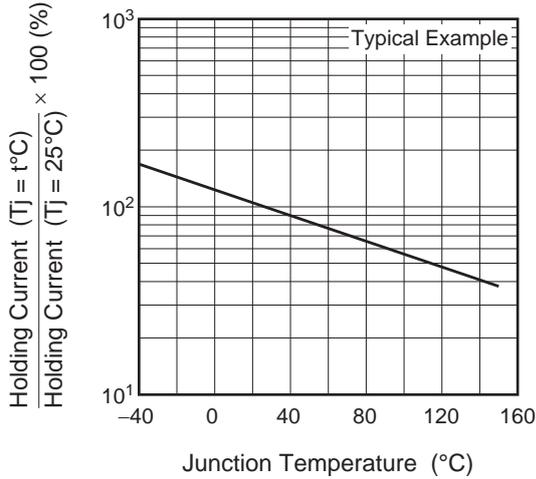
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C}/150^\circ\text{C}$ 2. Rate of rise of off-state commutating voltage $(dv/dt)_c = -4.0\ \text{A/ms}$ 3. Peak off-state voltage $V_D = 400\ \text{V}$	

Performance Curves

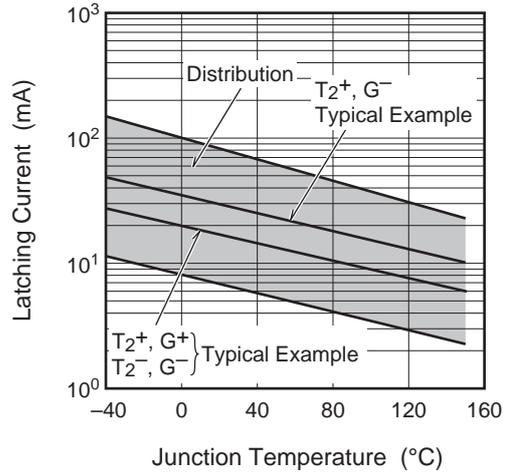




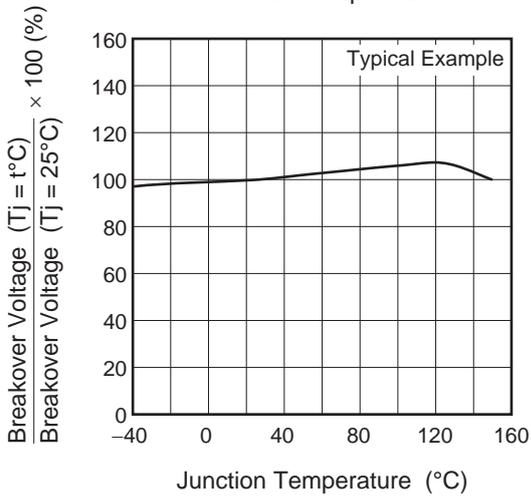
Holding Current vs. Junction Temperature



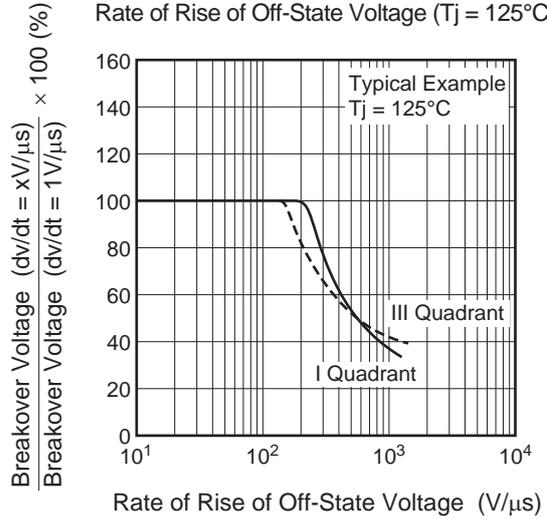
Latching Current vs. Junction Temperature



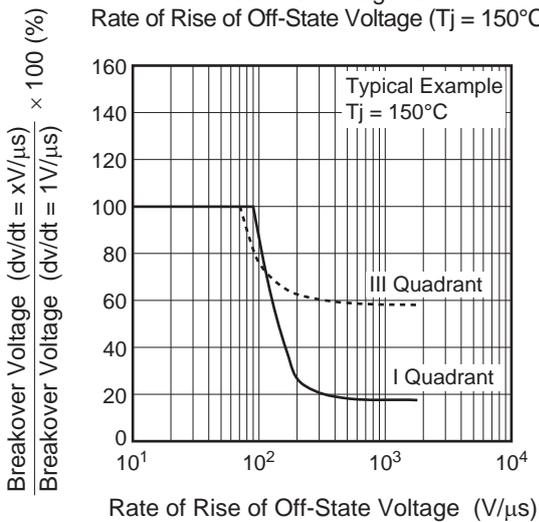
Breakover Voltage vs. Junction Temperature



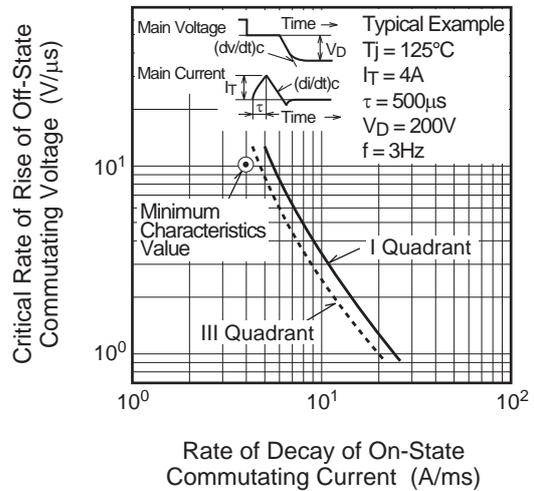
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj = 125°C)



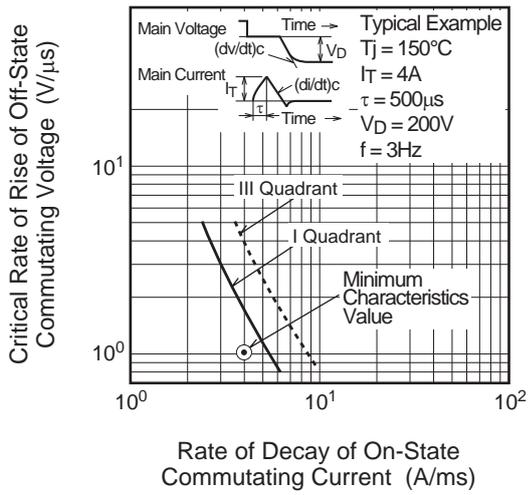
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj = 150°C)



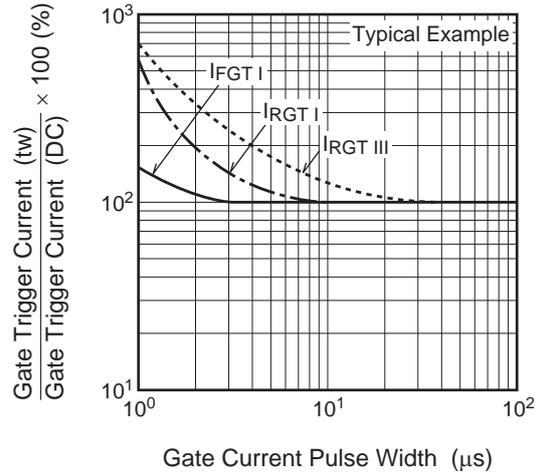
Commutation Characteristics (Tj = 125°C)



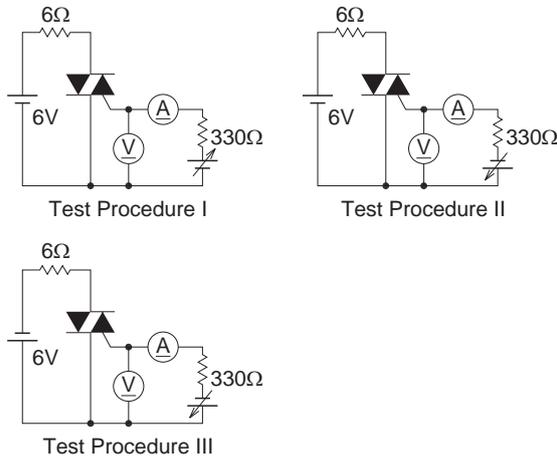
Commutation Characteristics ( $T_j = 150^\circ\text{C}$ )



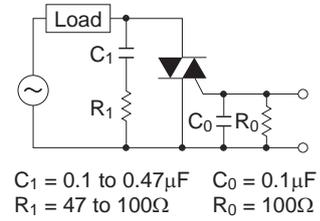
Gate Trigger Current vs. Gate Current Pulse Width



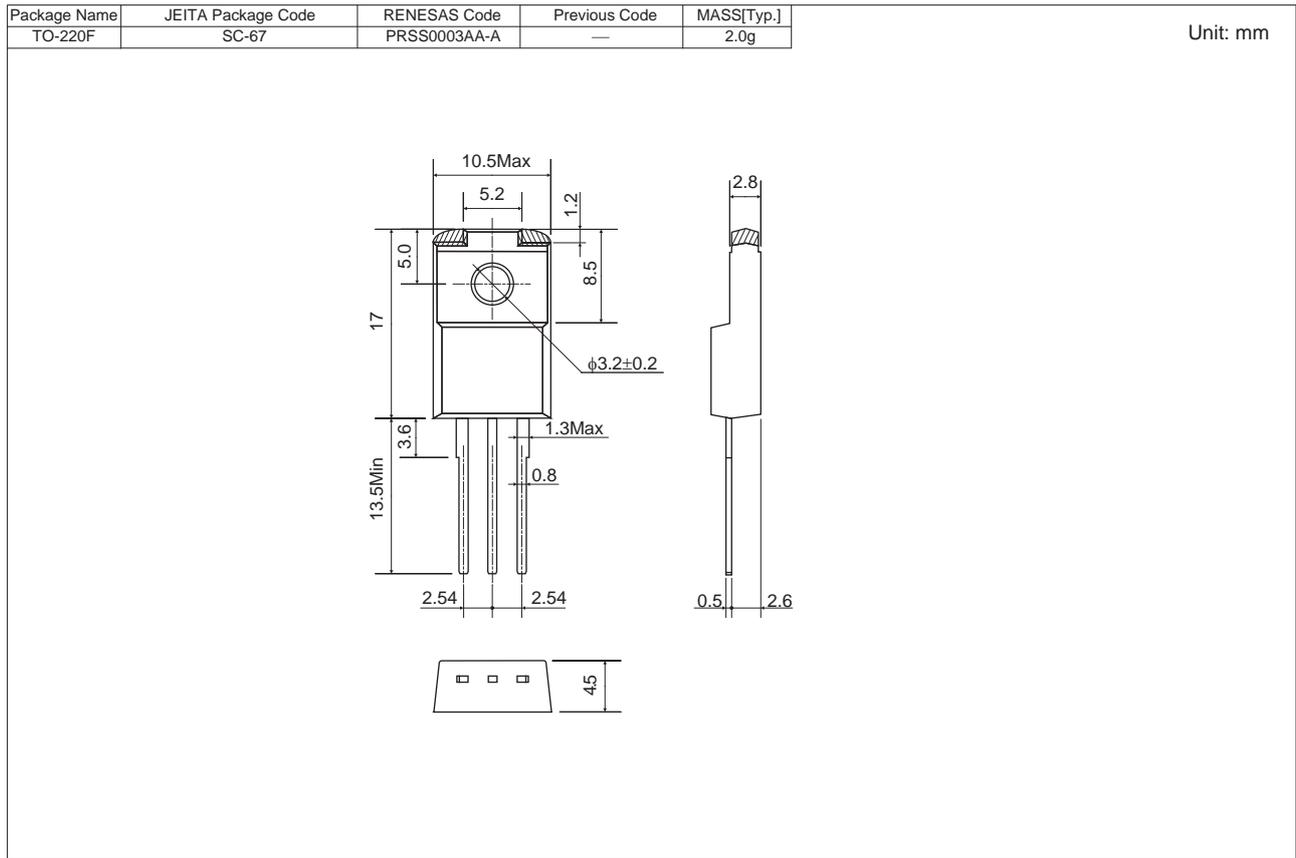
Gate Trigger Characteristics Test Circuits



Recommended Circuit Values Around The Triac



Package Dimensions



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR8PM-14LJ#B00	Bag	100 pcs.	Straight type
BCR8PM-14LJ-A8#B00	Tube	50 pcs.	A8 Lead form

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