

# BCR2PM-14LE

Triac  
Low Power Use

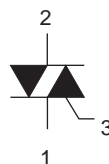
R07DS0233EJ0100  
Rev.1.00  
Jan 05, 2011

## Features

- $I_{T(RMS)}$  : 2 A
- $V_{DRM}$  : 800 V ( $T_j = 125^\circ\text{C}$ )
- $I_{FGT I}$ ,  $I_{RGT I}$ ,  $I_{RGT III}$  : 10 mA
- Planar Passivation Type
- The product guaranteed maximum junction temperature  $150^\circ\text{C}$ .

## Outline

RENESAS Package code: PRSS0003AA-B  
(Package name: TO-220F(2) )



1.  $T_1$  Terminal
2.  $T_2$  Terminal
3. Gate Terminal

## Applications

Electric rice cooker, electric pot, and controller for other heater

## Precautions on Usage

When the BCR2PM-14LE is used, do not attach the heat radiating fin.

## Maximum Ratings

Parameter	Symbol	Voltage class	Unit	Condition
		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	

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T (RMS)$	2	A	Commercial frequency, sine full wave 360° conduction
Surge on-state current	$I_{TSM}$	10	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusing	$I^2t$	0.41	A <sup>2</sup> s	Value corresponding to 1 cycle of half wave 60 Hz, surge on-state current
Peak gate power dissipation	$P_{GM}$	1	W	
Average gate power dissipation	$P_{G(AV)}$	0.1	W	
Peak gate voltage	$V_{GM}$	6	V	
Peak gate current	$I_{GM}$	1	A	
Junction temperature	$T_j$	-40 to +150	°C	
Storage temperature	$T_{stg}$	-40 to +150	°C	
Mass	—	2.0	g	Typical value

Notes: 1. Gate open.

## Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions	
Repetitive peak off-state current	$I_{DRM}$	—	—	1.0	mA	$T_j = 150^\circ\text{C}$ , $V_{DRM}$ applied	
On-state voltage	$V_{TM}$	—	—	2.1	V	$T_j = 25^\circ\text{C}$ , $I_{TM} = 3\text{ A}$ , Instantaneous measurement	
Gate trigger voltage <sup>Note2</sup>	I	$V_{FGTI}$	—	—	2.0	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $R_L = 6\ \Omega$ , $R_G = 330\ \Omega$	
	II	$V_{RGTI}$	—	—	2.0		V
	III	$V_{RGTIII}$	—	—	2.0		V
Gate trigger current <sup>Note2</sup>	I	$I_{FGTI}$	—	—	10	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $R_L = 6\ \Omega$ , $R_G = 330\ \Omega$	
	II	$I_{RGTI}$	—	—	10		mA
	III	$I_{RGTIII}$	—	—	10		mA
Gate non-trigger voltage	$V_{GD}$	0.1	—	—	V	$T_j = 150^\circ\text{C}$ , $V_D = 1/2 V_{DRM}$	
Thermal resistance	$R_{th(j-a)}$	—	—	45	°C/W	Junction to ambient, Natural convection	
Critical-rate of rise of off-state commutation voltage <sup>Note3</sup>	$(dv/dt)_c$	0.5	—	—	V/ $\mu\text{s}$	$T_j = 125^\circ\text{C}$	

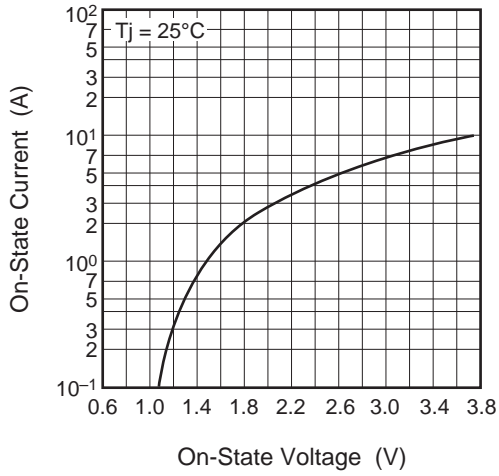
Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

3. Test conditions of the critical-rate of rise of off-state commutation voltage is shown in the table below.

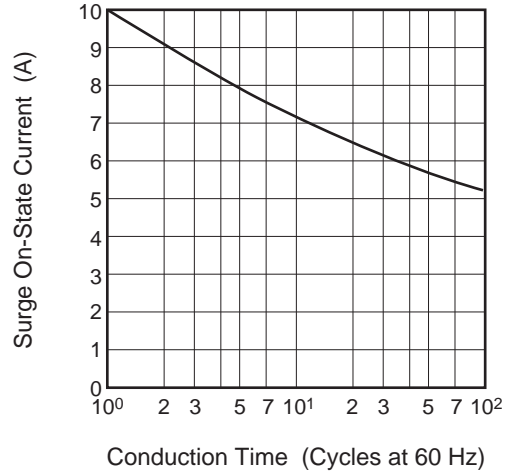
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c = -1.0\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

Performance Curves

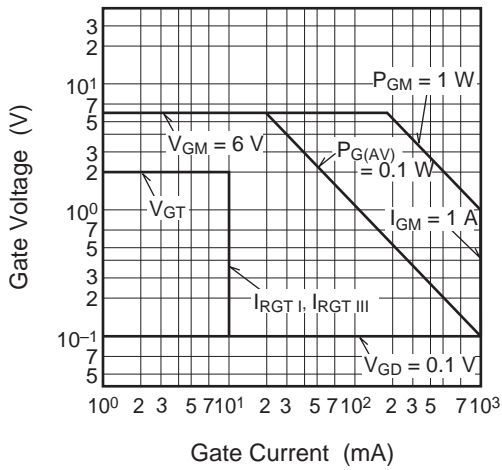
Maximum On-State Characteristics



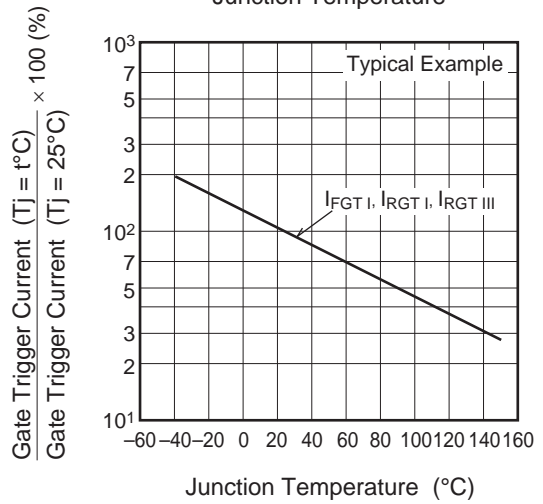
Rated Surge On-State Current



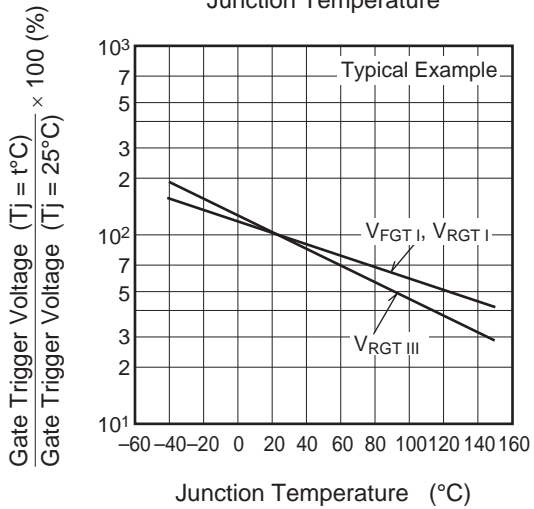
Gate Characteristics (II and III)



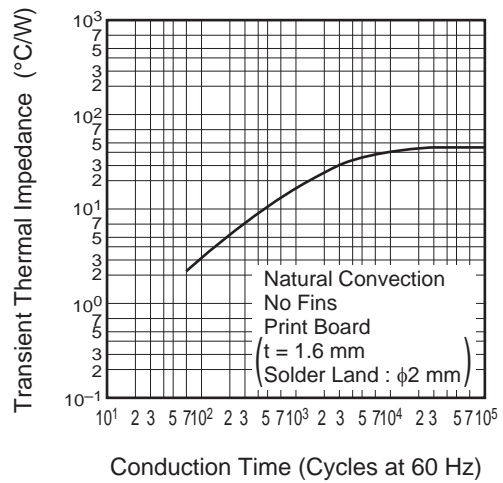
Gate Trigger Current vs. Junction Temperature



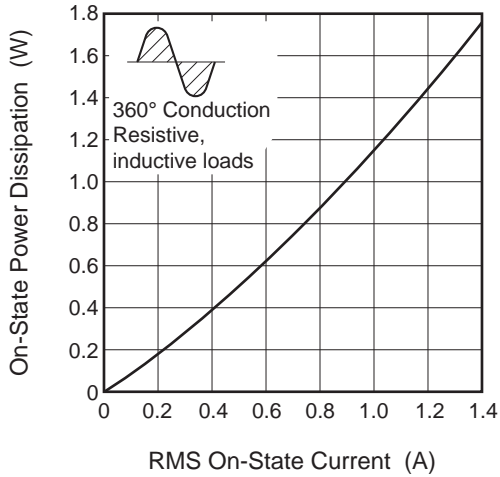
Gate Trigger Voltage vs. Junction Temperature



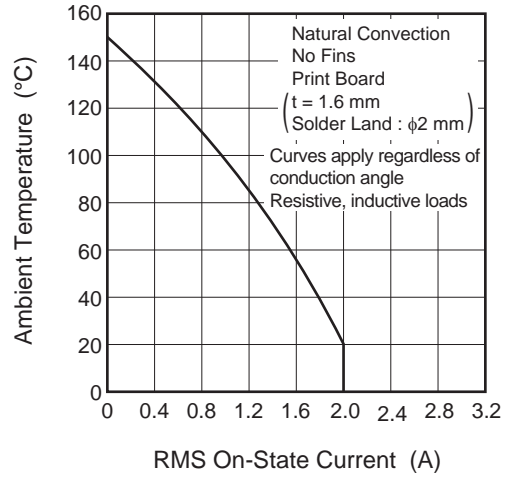
Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



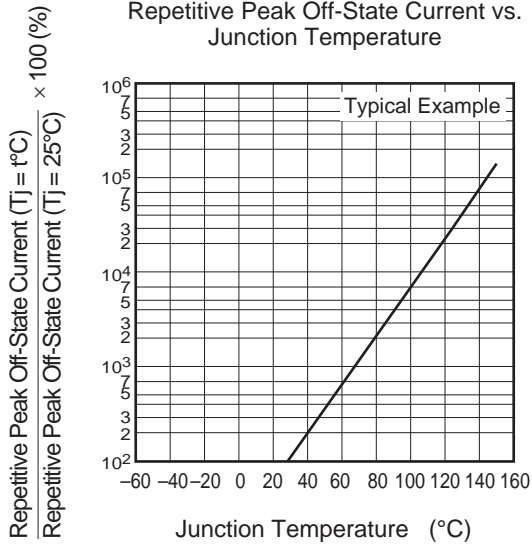
Maximum On-State Power Dissipation



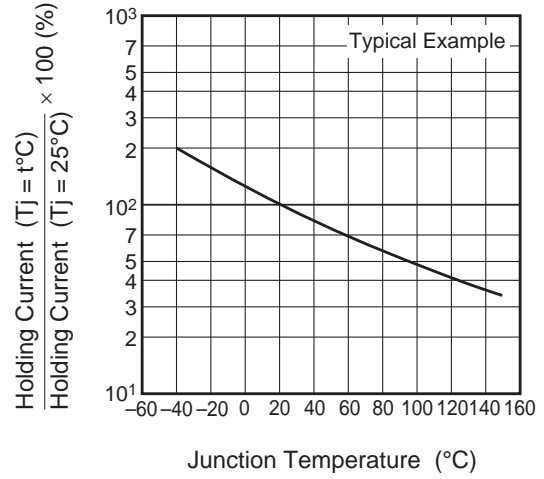
Allowable Ambient Temperature vs. RMS On-State Current



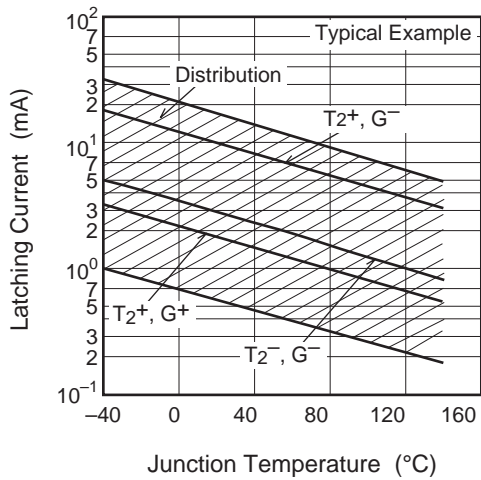
Repetitive Peak Off-State Current vs. Junction Temperature



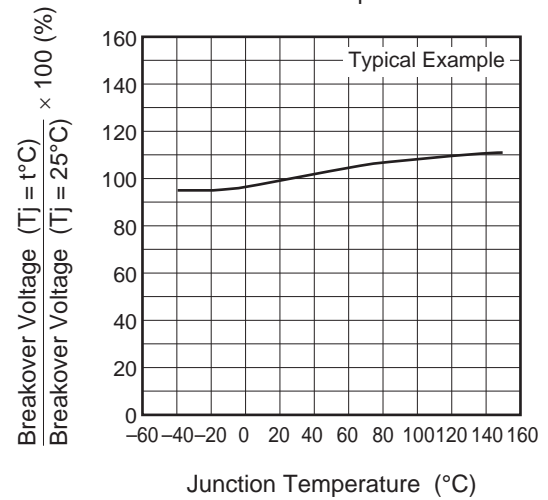
Holding Current vs. Junction Temperature



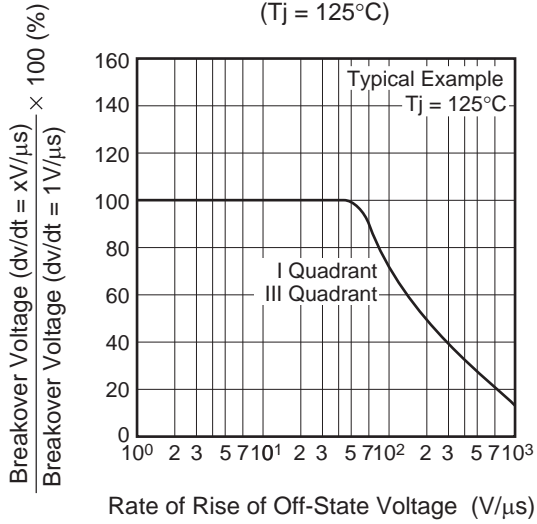
Latching Current vs. Junction Temperature



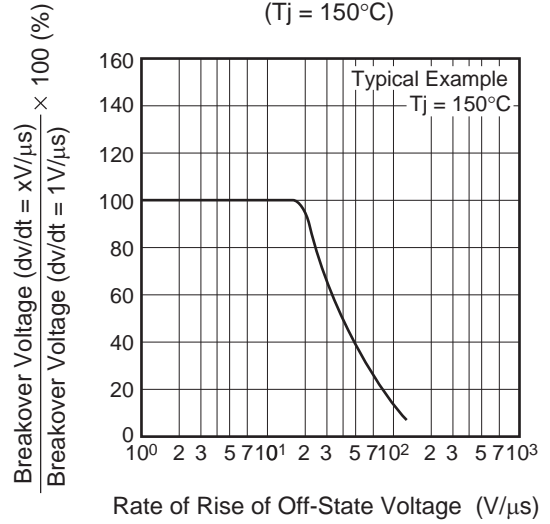
Breakover Voltage vs. Junction Temperature



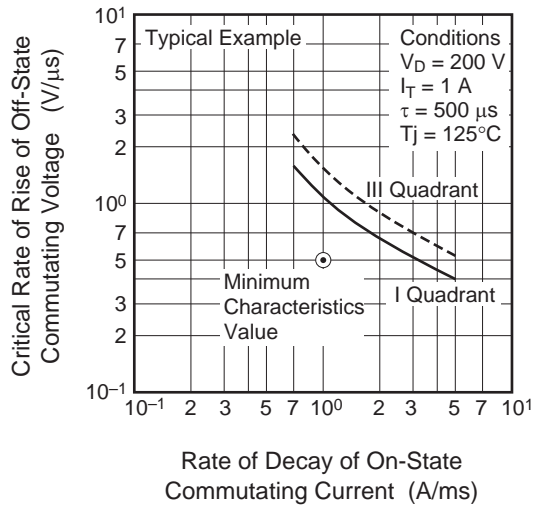
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj = 125°C)



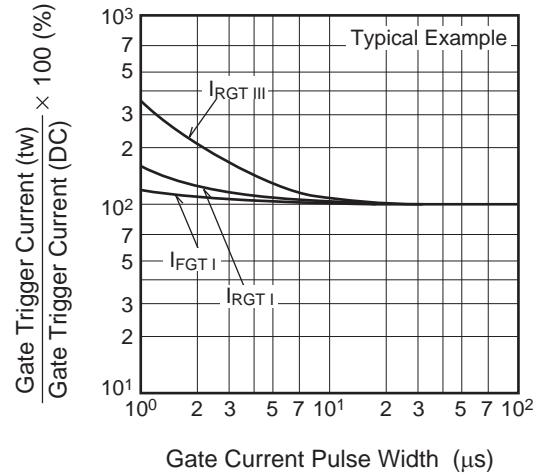
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj = 150°C)



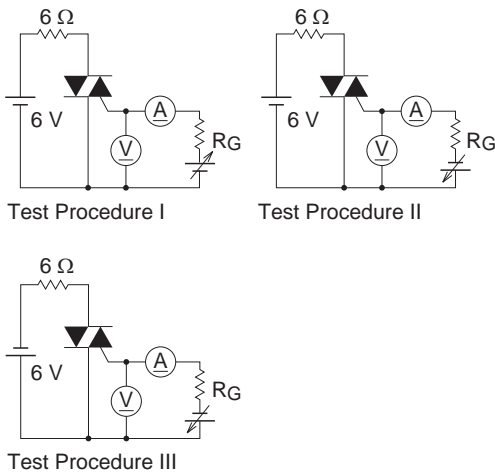
Commutation Characteristics



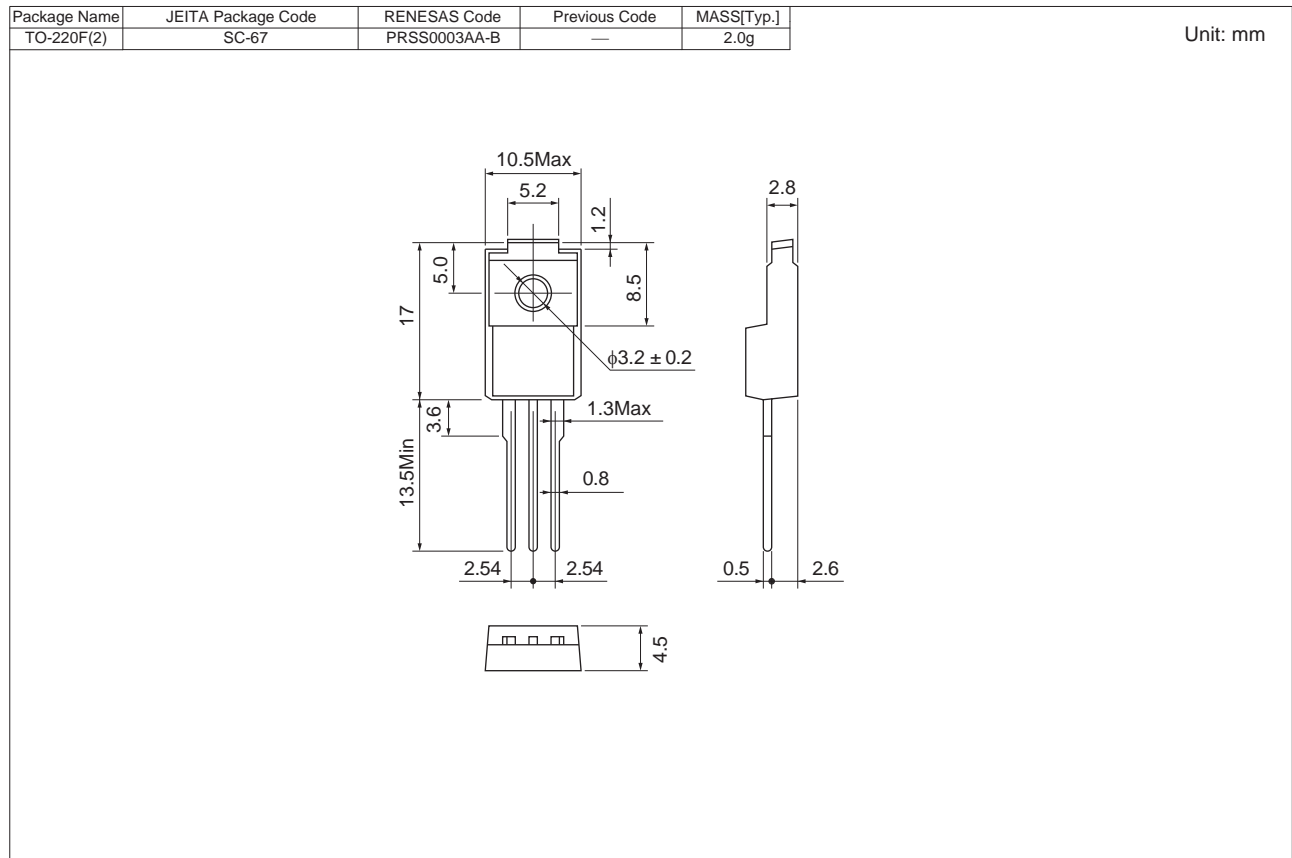
Gate Trigger Current vs. Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



## Package Dimensions



## Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR2PM-14LE#B00	Bag	100 pcs.	Straight type
BCR2PM-14LE-AS#B00	Tube	50 pcs.	AS Lead form

Note : Please confirm the specification about the shipping in detail.

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