

# BCR5AS-14A

Triac

R07DS0671EJ0100

Rev.1.00

Medium Power Use

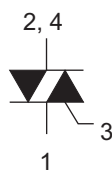
Jul 23, 2012

## Features

- $I_T (RMS)$  : 5 A
- $I_{FGT}$ ,  $I_{RGT}$ ,  $I_{RGT III}$  : 30 mA
- Non-Insulated Type
- Planar Passivation Type

## Outline

RENESAS Package code: PRSS0004ZG-A  
(Package name: MP-3A)



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

## Applications

Hybrid IC, Solid state relay, Switching mode power supply, light dimmer, electronic switch, electric fans, electronic blanket, and Washing machine, small motor controller and other general purpose control applications

## Maximum Ratings

Parameter	Symbol	Voltage class	
		14	Unit
Repetitive peak off-state voltage <sup>Note1</sup>	$V_{DRM}$	700	V
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	$I_T (RMS)$	5	A	Commercial frequency, sine full wave 360°conduction, T <sub>c</sub> = 103°C
Surge on-state current	$I_{TSM}$	50	A	60Hz sinewave 1 full cycle, peak value, non-repetitive
I <sup>2</sup> t for fusion	I <sup>2</sup> t	10.4	A <sup>2</sup> s	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	$P_{GM}$	3	W	
Average gate power dissipation	$P_{G(AV)}$	0.3	W	
Peak gate voltage	$V_{GM}$	10	V	
Peak gate current	$I_{GM}$	2	A	
Junction Temperature	T <sub>j</sub>	-40 to +125	°C	
Storage temperature	T <sub>stg</sub>	-40 to +125	°C	
Mass	—	0.26	g	Typical value

## Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current	$I_{DRM}$	—	—	2.0	mA	$T_j = 125^\circ\text{C}$ , $V_{DRM}$ applied
On-state voltage	$V_{TM}$	—	—	1.8	V	$T_c = 25^\circ\text{C}$ , $I_{TM} = 7\text{ A}$ , instantaneous measurement
Gate trigger voltage <sup>Note2</sup>	I	$V_{FGTI}$	—	—	1.5	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $R_L = 6\ \Omega$ , $R_G = 330\ \Omega$
	II	$V_{RGTI}$	—	—	1.5	
	III	$V_{RGTIII}$	—	—	1.5	
Gate trigger current <sup>Note2</sup>	I	$I_{FGTI}$	—	—	30	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $R_L = 6\ \Omega$ , $R_G = 330\ \Omega$
	II	$I_{RGTI}$	—	—	30	
	III	$I_{RGTIII}$	—	—	30	
Gate non-trigger voltage	$V_{GD}$	0.2	—	—	V	$T_j = 125^\circ\text{C}$ , $V_D = 1/2 V_{DRM}$
Thermal resistance	$R_{th(j-c)}$	—	—	3.0	$^\circ\text{C/W}$	Junction to case <sup>Note3</sup>
Critical-rate of rise of off-state commutation voltage <sup>Note4</sup>	$(dv/dt)_c$	5	—	—	V/ $\mu\text{s}$	$T_j = 125^\circ\text{C}$

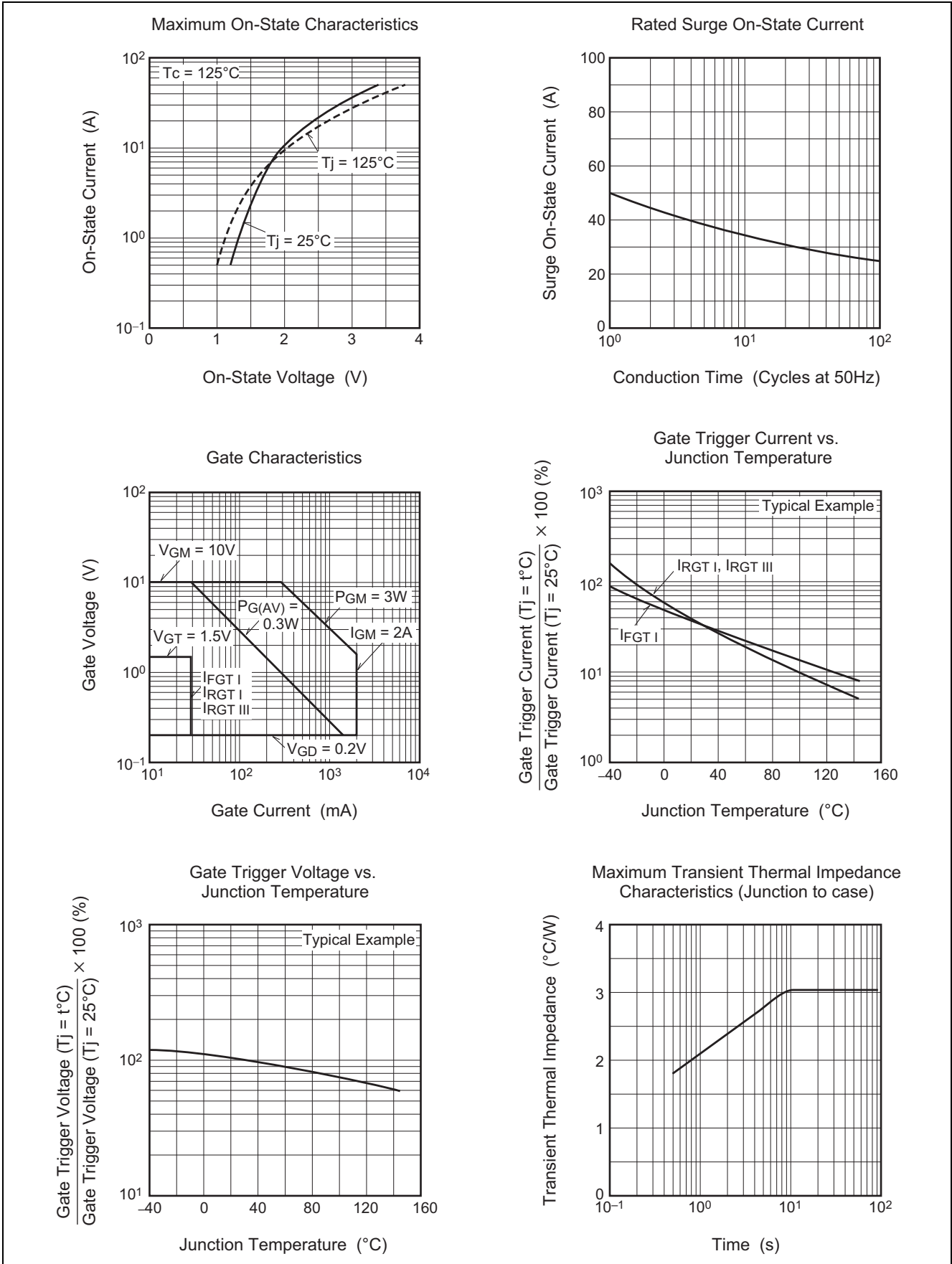
Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

3. Case temperature is measured on the T2 tab.

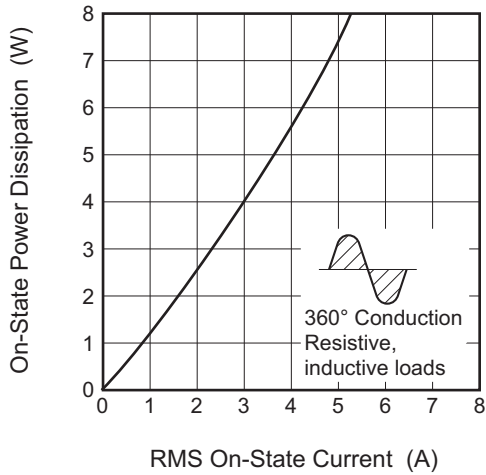
4. Test conditions of the critical-rate of rise of off-state commutation voltage is shown in the table below.

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 $(di/dt)_c = -2.5\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

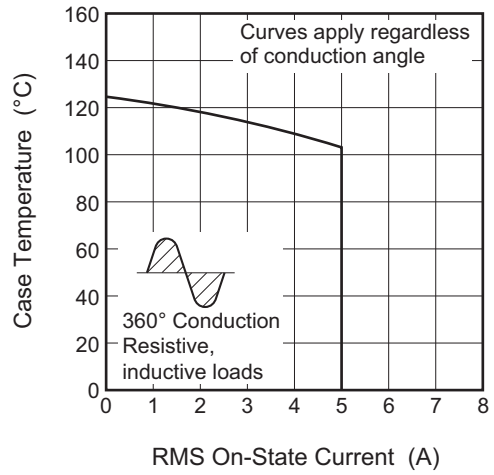
Performance Curves



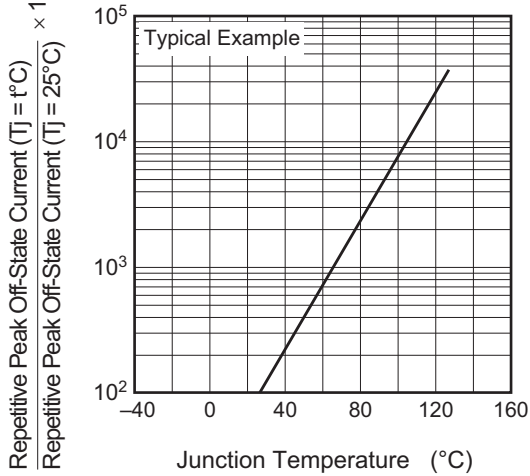
Maximum On-State Power Dissipation



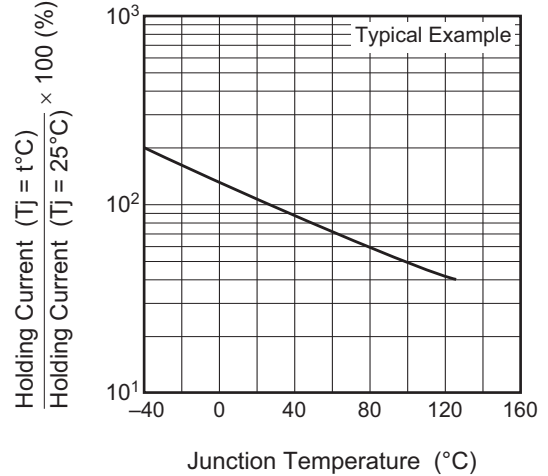
Allowable Case Temperature vs. RMS On-State Current



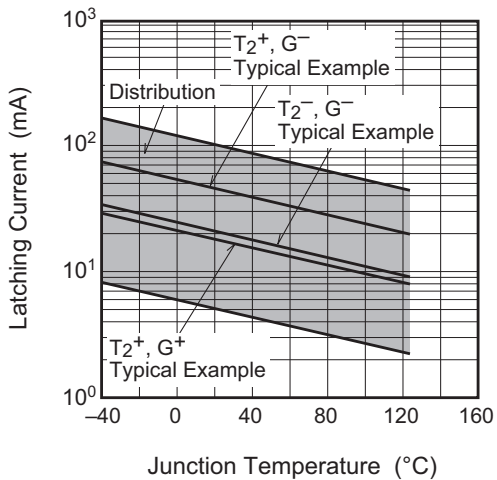
Repetitive Peak Off-State Current vs. Junction Temperature



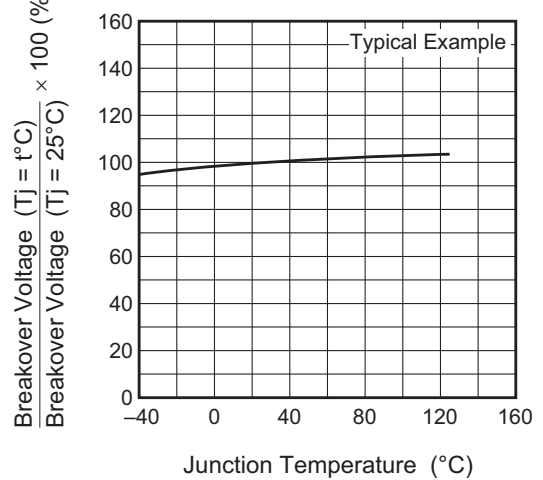
Holding Current vs. Junction Temperature

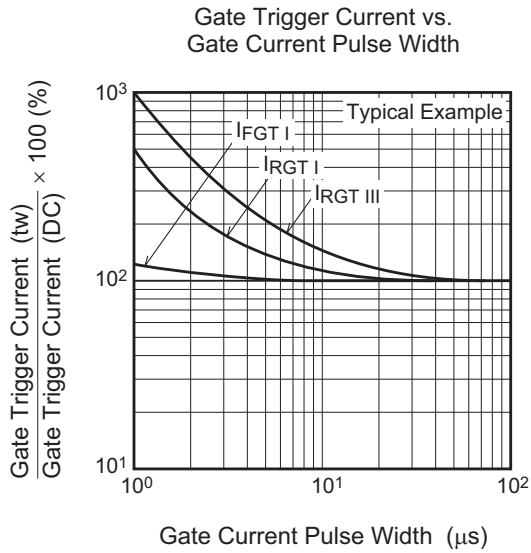
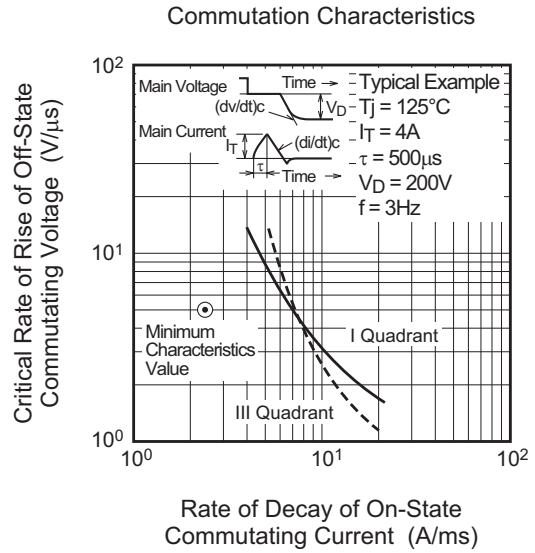
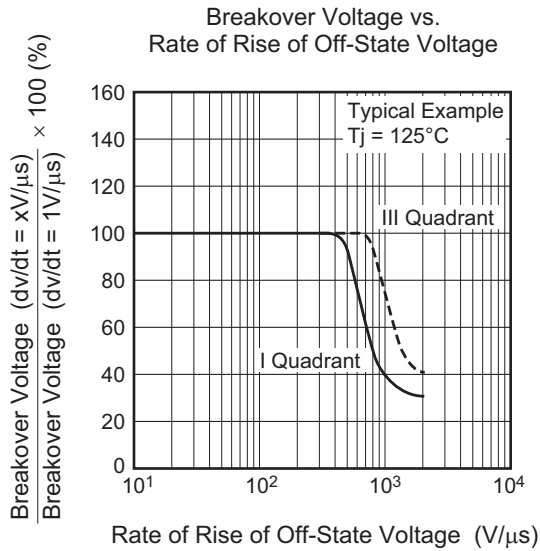


Latching Current vs. Junction Temperature

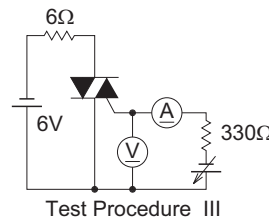
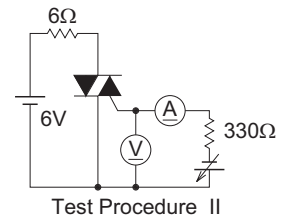
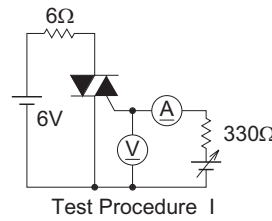


Breakover Voltage vs. Junction Temperature





Gate Trigger Characteristics Test Circuits



## Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]	Unit: mm
MP-3A	SC-63	PRSS0004ZG-A	—	0.32g	

The drawing shows three views of the package:

- Top View:** Overall width is 6.6 mm. The main body width is  $5.3 \pm 0.2$  mm. The distance between the two leads is  $2.3 \pm 0.2$  mm. The lead width is  $0.76 \pm 0.2$  mm. The lead thickness is 1 mm. The lead length is  $2.5 \text{ Min}$  to  $10.4 \text{ Max}$  mm. The distance from the lead tip to the main body edge is  $1 \pm 0.2$  mm.
- Side View:** The package height is  $2.3$  mm. The distance from the top edge to the lead tip is  $0.5 \pm 0.2$  mm. The distance from the lead tip to the bottom edge is  $1.4 \pm 0.2$  mm. The distance from the bottom edge to the lead tip is  $0.5 \pm 0.2$  mm. The distance from the lead tip to the main body edge is  $0.1 \pm 0.1$  mm.
- Bottom View:** Shows the lead width of  $0.76 \pm 0.2$  mm and the lead thickness of 1 mm.

## Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR5AS-14A#B00	Tube	75 pcs.	MP-3A package
BCR5AS-14A -T13#B00	Embossed Tape	3000 pcs.	MP-3A package, Taping direction "T1"

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

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