

# BCR5AS-12A

Triac

Medium Power Use

REJ03G0291-0200

Rev.2.00

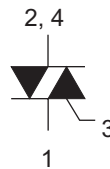
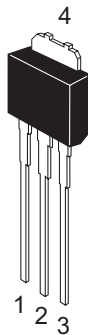
Nov 30, 2007

## Features

- $I_{T(RMS)}$  : 5 A
- $V_{DRM}$  : 600 V
- $I_{FGTI}$ ,  $I_{RGTI}$ ,  $I_{RGT III}$  : 30 mA
- Non-Insulated Type
- Planar Passivation Type
- Lead Mounted Type

## Outline

RENESAS Package code: PRSS0004ZD-D  
(Package name: DPAK(L)-3)



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, electric fan, electric blanket, washing machine, and other general purpose control applications

## Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		12	
Repetitive peak off-state voltage <sup>Note1</sup>	$V_{DRM}$	600	V
Non-repetitive peak off-state voltage <sup>Note1</sup>	$V_{DSM}$	720	V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T$ (RMS)	5	A	Commercial frequency, sine full wave 360° conduction, $T_c = 103^\circ\text{C}$ <sup>Note3</sup>
Surge on-state current	$I_{TSM}$	50	A	60Hz sinewave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusing	$I^2t$	10.4	$\text{A}^2\text{s}$	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	$T_j$	-40 to +125	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-40 to +125	$^\circ\text{C}$	
Mass	—	0.26	g	Typical value

Notes: 1. Gate open.

## 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	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	$T_j = 125^\circ\text{C}$ , $V_D = 1/2 V_{DRM}$	
Thermal resistance	$R_{th(j-c)}$	—	—	3.0	$^\circ\text{C}/\text{W}$	Junction to case <sup>Note3</sup>	
Critical-rate of rise of off-state commutating voltage <sup>Note4</sup>	$(dv/dt)_c$	5	—	—	$\text{V}/\mu\text{s}$	$T_j = 125^\circ\text{C}$	

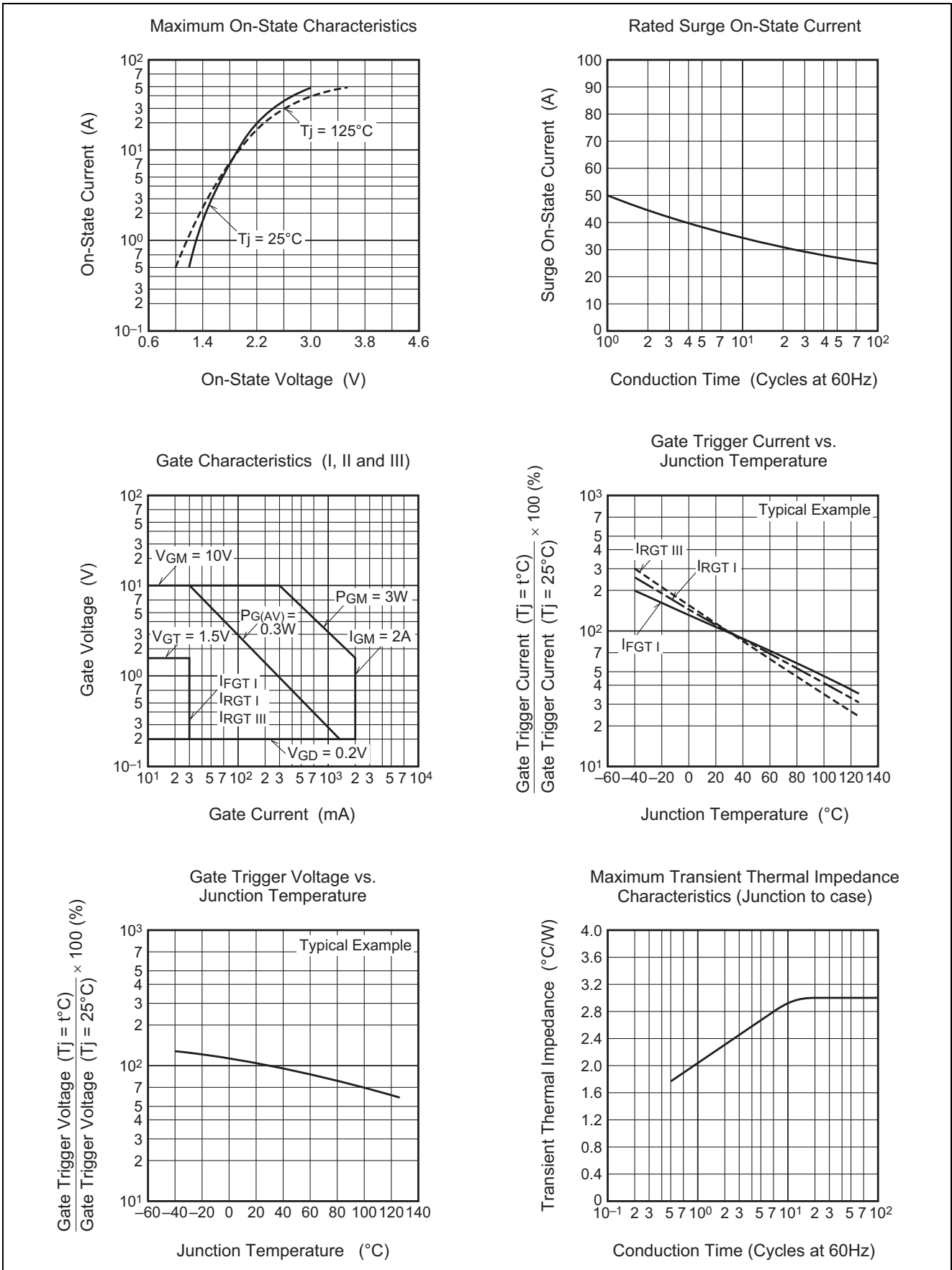
Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

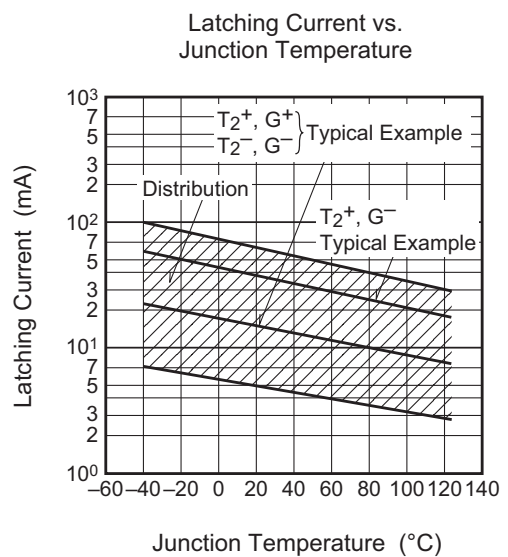
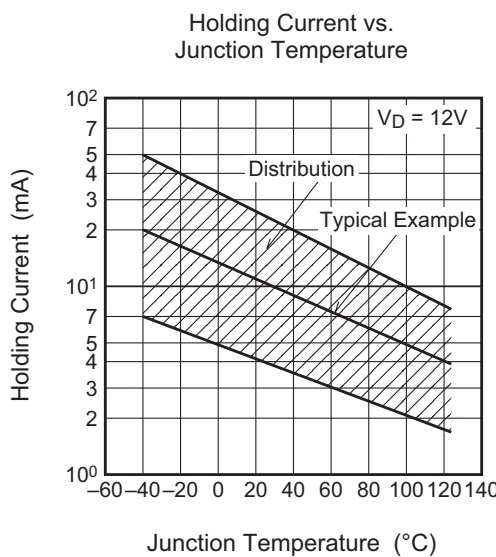
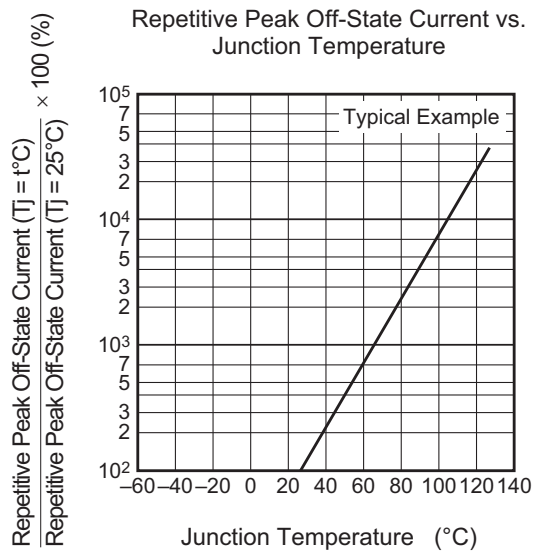
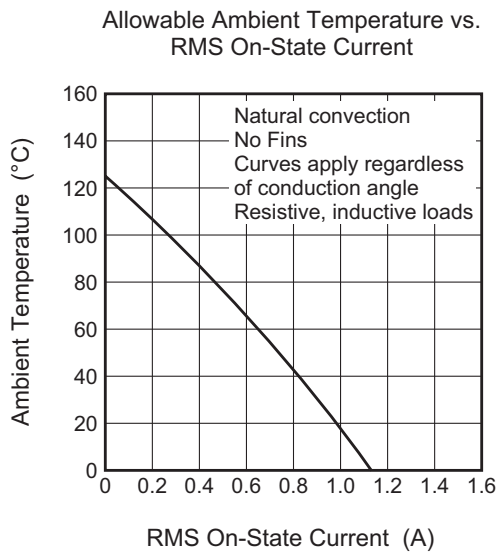
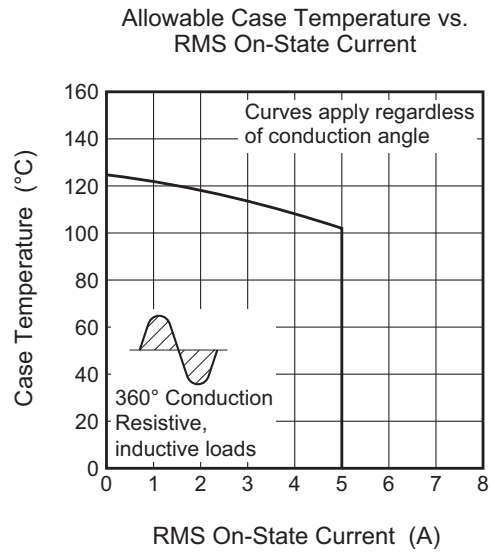
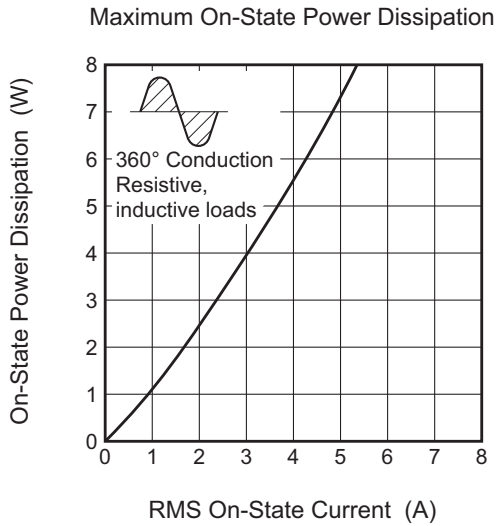
3. Case temperature is measured on the  $T_2$  tab.

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

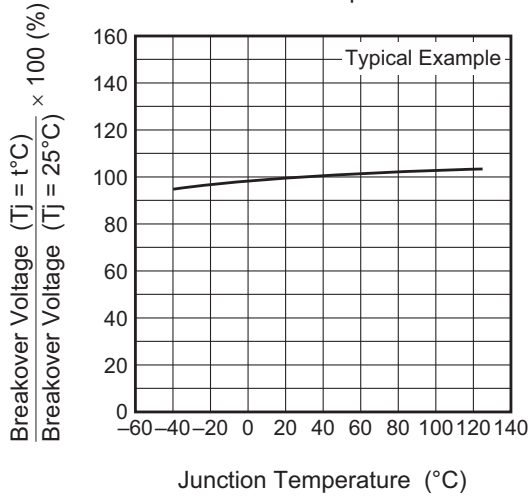
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c = -2.5\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

Performance Curves

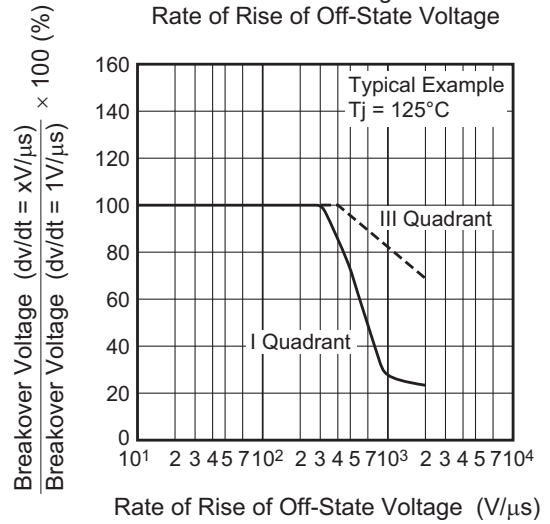




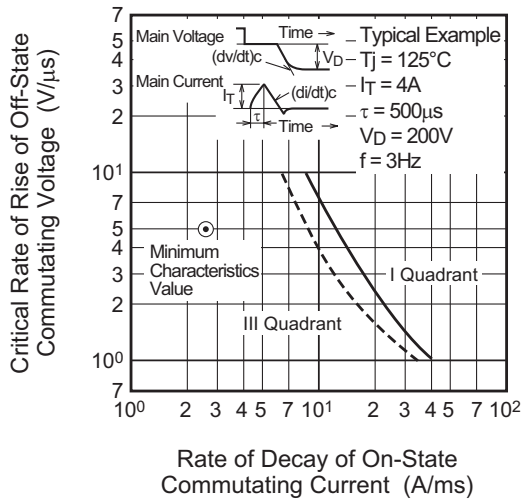
Breakover Voltage vs. Junction Temperature



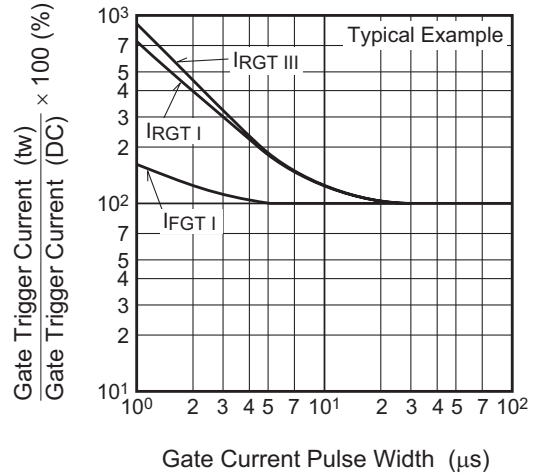
Breakover Voltage vs. Rate of Rise of Off-State Voltage



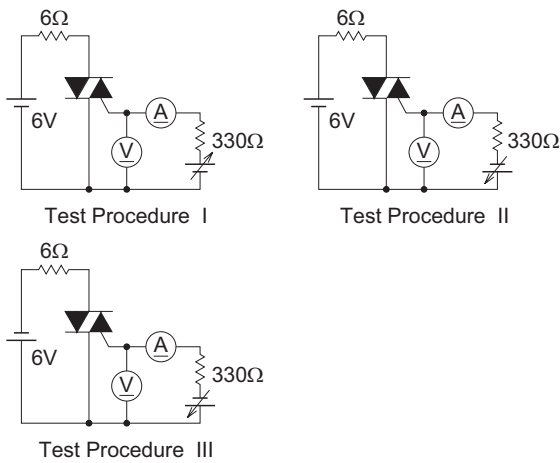
Commutation Characteristics



Gate Trigger Current vs. Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



## Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]	Unit: mm
DPAK(L)-(3)	—	PRSS0004ZD-D	DPAK(L)-(3)/DPAK(L)-(3)V	0.36g	

The drawing shows the following dimensions (all in mm):

- Top view: Overall width  $6.5 \pm 0.5$ , inner width  $5.4 \pm 0.5$ .
- Side view: Total height  $8.2 \pm 0.6$ , mounting pad height  $6.9 \pm 0.5$ , lead height  $5.5 \pm 0.5$ .
- Lead view: Lead length  $16.2 \pm 0.5$ , lead diameter  $0.55 \pm 0.1$ , lead spacing  $2.29$ .
- Other dimensions:  $1.15 \pm 0.1$ ,  $0.8 \pm 0.1$ ,  $0.6 \pm 0.1$ ,  $0.6 \pm 0.1$ ,  $4.7 \pm 0.5$ ,  $2.3 \pm 0.2$ ,  $0.55 \pm 0.1$ ,  $1.2 \pm 0.3$ ,  $0.55 \pm 0.1$ .

## Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Vinyl sack	100	Type name – A1	BCR5AS-12A-A1

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

Notes:

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