

# BCR08AS-12

## Triac

Low Power Use

REJ03G0292-0200

Rev.2.00

Mar 22, 2007

### Features

- $I_{T(RMS)}$  : 0.8 A
- $V_{DRM}$  : 600 V
- $I_{FGTI}$ ,  $I_{RGTI}$ ,  $I_{RGT}$  : 5 mA
- $I_{FGT}$  : 10 mA
- Non-Insulated Type
- Planar Passivation Type
- Completed Pb Free

### Outline

RENESAS Package code: PLZZ0004CA-A (Package name: UPAK)	RENESAS Package code: PLZZ0004CB-A (Package name: SOT-89)	
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### Applications

Hybrid IC, solid state relay, electric fan, washing machine, and other general purpose control applications

### Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		12 (Mark BF)	
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	$I_{T(RMS)}$	0.8	A	Commercial frequency, sine full wave 360° conduction, $T_a = 40^\circ\text{C}$ <sup>Note3</sup>
Surge on-state current	$I_{TSM}$	8	A	60Hz sinewave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusing	$I^2t$	0.26	A <sup>2</sup> s	Value corresponding to 1 cycle of half wave 60Hz, 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	$V_{GM}$	10	V	
Peak gate current	$I_{GM}$	1	A	
Junction temperature	$T_j$	- 40 to +125	°C	
Storage temperature	$T_{stg}$	- 40 to +125	°C	
Mass	—	50	mg	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	$V_{TM}$	—	—	2.0	V	$T_c = 25^\circ\text{C}$ , $I_{TM} = 1.2\text{ A}$ , 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	
	III	$V_{RGTIII}$	—	—	2.0	
	IV	$V_{FGTIII}$	—	—	2.0	
Gate trigger current <sup>Note2</sup>	I	$I_{FGTI}$	—	—	5	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $R_L = 6\ \Omega$ , $R_G = 330\ \Omega$
	II	$I_{RGTI}$	—	—	5	
	III	$I_{RGTIII}$	—	—	5	
	IV	$I_{FGTIII}$	—	—	10	
Gate non-trigger voltage	$V_{GD}$	0.1	—	—	V	$T_j = 125^\circ\text{C}$ , $V_D = 1/2 V_{DRM}$
Thermal resistance	$R_{th(j-a)}$	—	—	65	$^\circ\text{C/W}$	Junction to ambient <sup>Note3</sup>
Critical-rate of rise of off-state commutating voltage <sup>Note4</sup>	$(dv/dt)_c$	0.5	—	—	$\text{V}/\mu\text{s}$	$T_j = 125^\circ\text{C}$

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

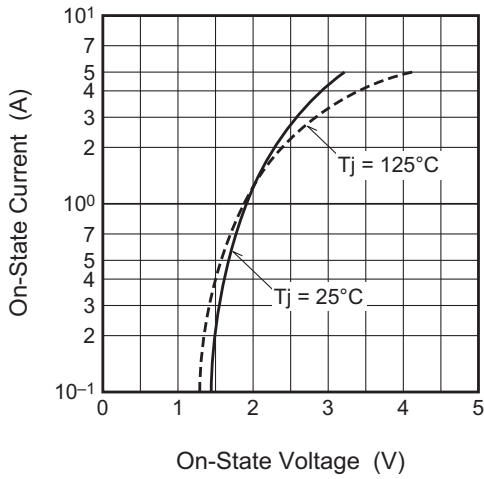
3. Soldering with ceramic plate (25 mm × 25 mm × t0.7 mm).

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

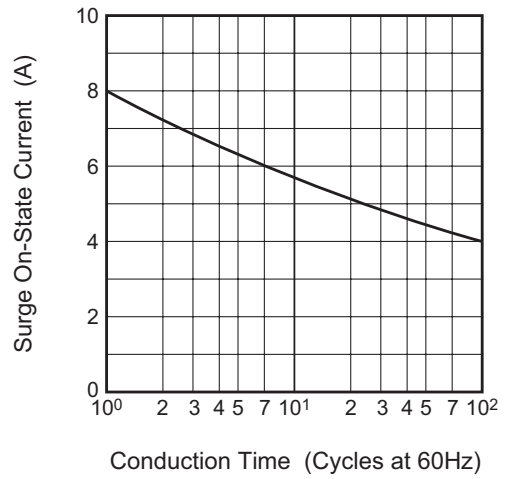
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c = -0.4\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

Performance Curves

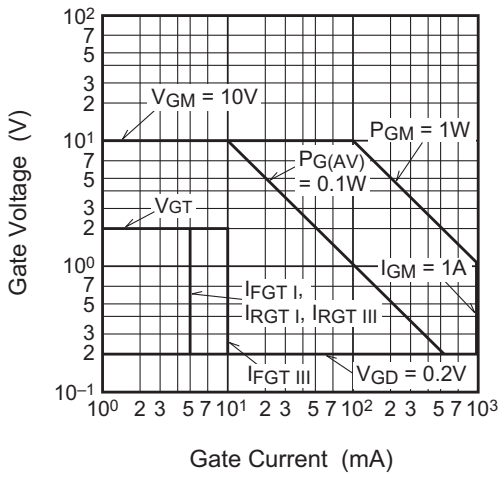
Maximum On-State Characteristics



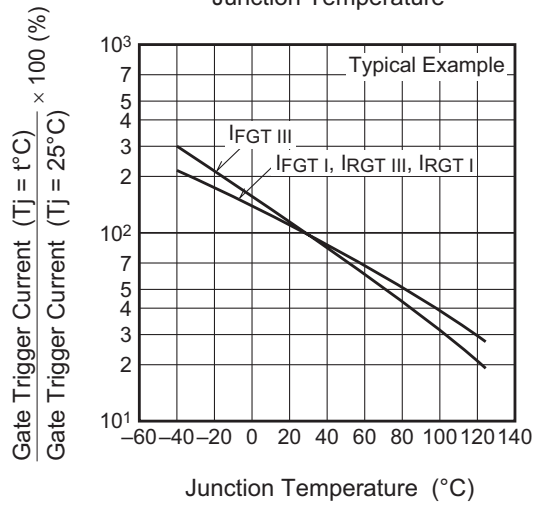
Rated Surge On-State Current



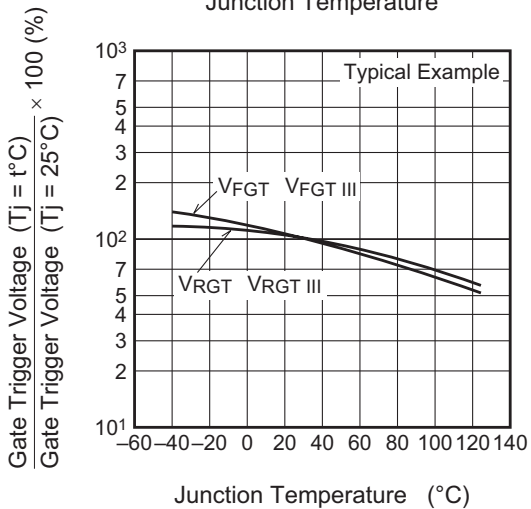
Gate Characteristics



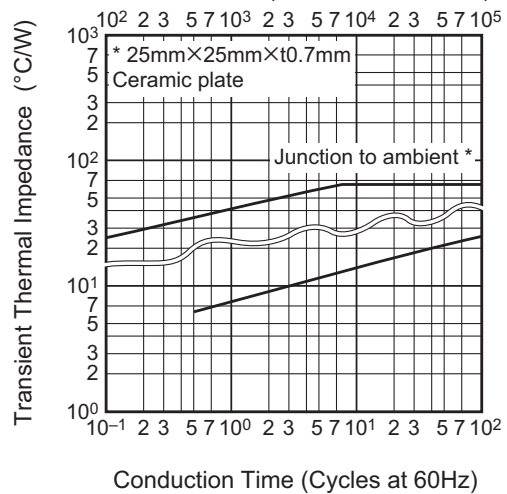
Gate Trigger Current vs. Junction Temperature



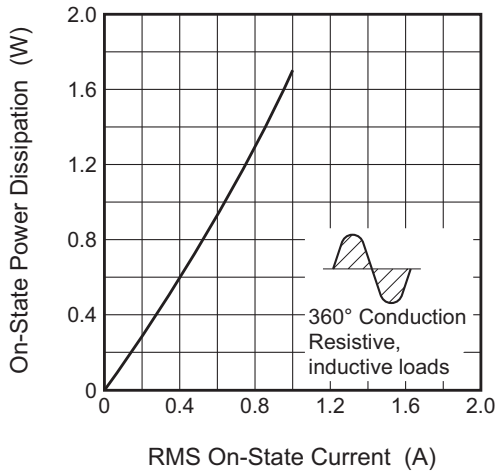
Gate Trigger Voltage vs. Junction Temperature



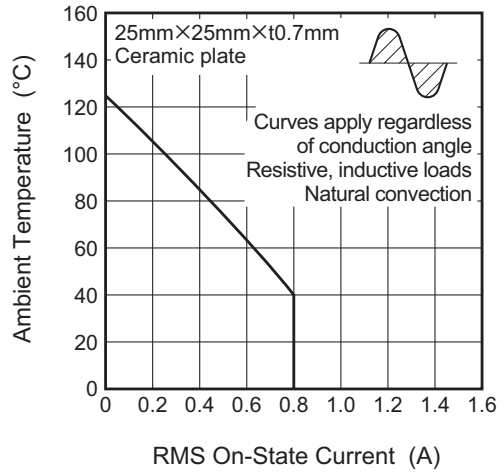
Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



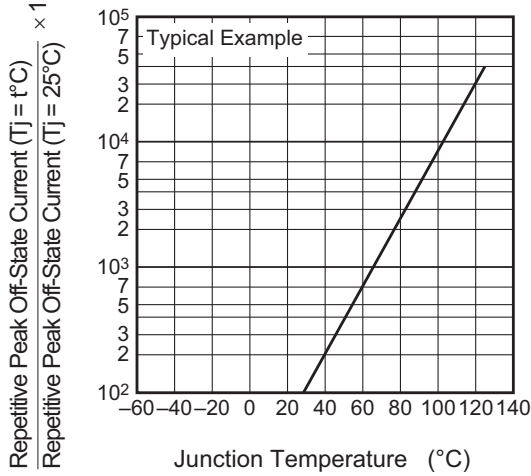
Maximum On-State Power Dissipation



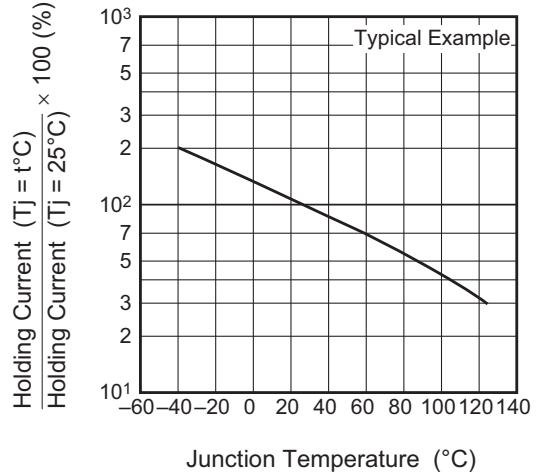
Allowable Ambient Temperature vs. RMS On-State Current



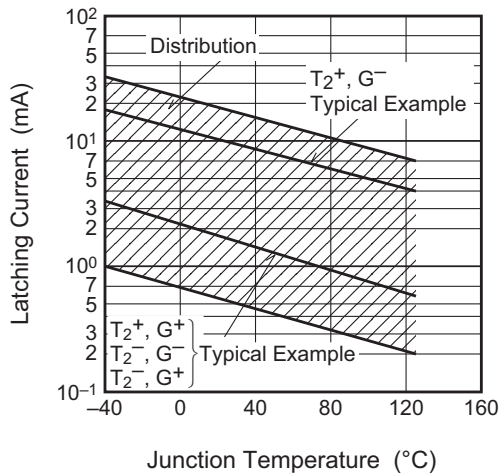
Repetitive Peak Off-State Current vs. Junction Temperature



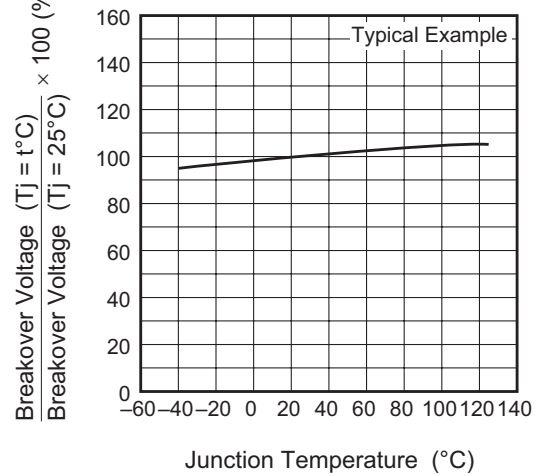
Holding Current vs. Junction Temperature

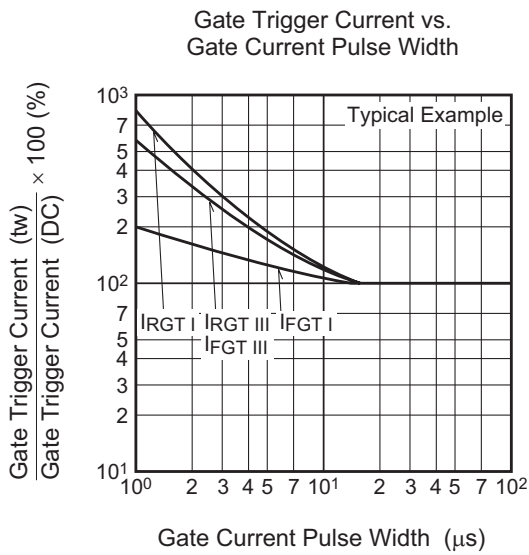
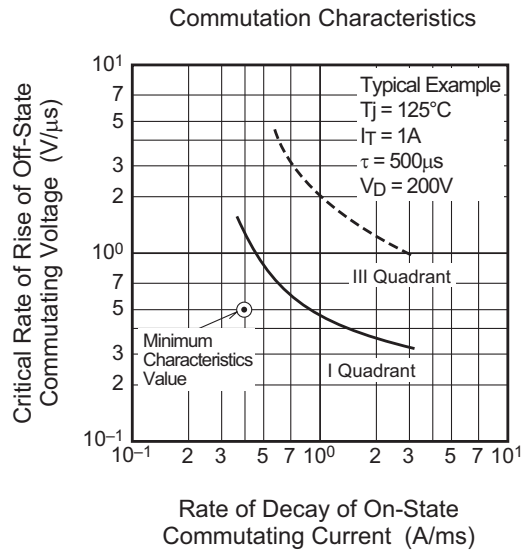
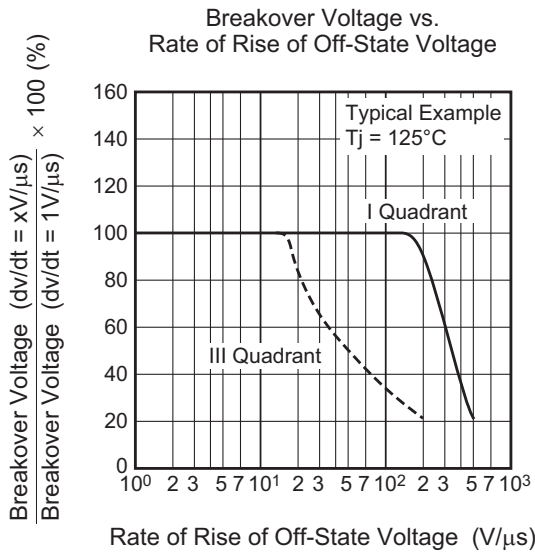


Latching Current vs. Junction Temperature

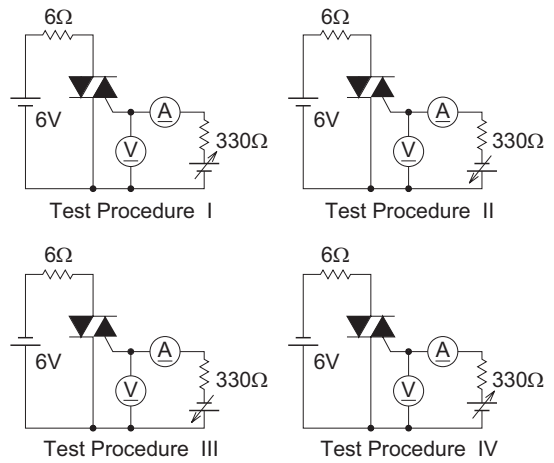


Breakover Voltage vs. Junction Temperature





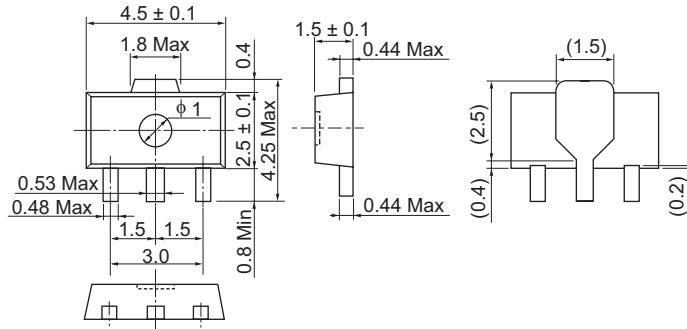
Gate Trigger Characteristics Test Circuits



Package Dimensions

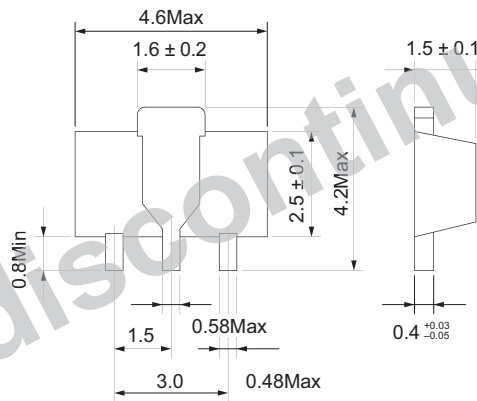
Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
UPAK	SC-62	PLZZ0004CA-A	UPAK / UPAKV	0.050g

Unit: mm



JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
SC-62	PLZZ0004CB-A	SOT-89	0.48g

Unit: mm



to be discontinued PKG

**Order Code**

<b>Lead form</b>	<b>Standard packing</b>	<b>Quantity</b>	<b>Standard order code</b>	<b>Standard order code example</b>
Surface-mounted type	Taping	4000	Type name +A -T +Direction (1 or 2)+4	BCR08AS-12A-T14

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

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