BCR08DS-14A

700V-0.8A-Triac

Low Power Use

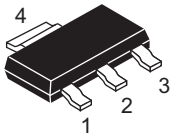
R07DS0258EJ0300
Rev.3.00
Dec 01, 2014

Features

- $I_{T\ (RMS)}$: 0.8 A
- V_{DRM} :700 V
- I_{FGTI}, I_{RGTI}, I_{RGTIII} : 5 mA
- Planar Passivation Type
- Surface Mounted Type
- Completed Pb Free

Outline

RENESAS Package code: PRSP0004ZB-A
(Package name: SOT-223)



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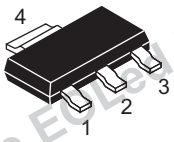
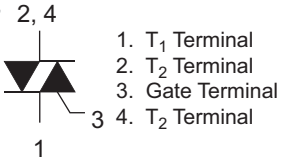




Applications

Washing machine, electric fan, air cleaner, other general purpose control applications

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		14	
Repetitive peak off-state voltage[Note1]	V_{DRM}	700	V
Non- repetitive peak off-state voltage[Note1]	V_{DSM}	840	V

Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T\ (RMS)}$	0.8	A	Commercial frequency, sine full wave 360° conduction, Tc= 96°C[Note3]
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^2s	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}	6	V	
Peak gate current	I_{GM}	0.5	A	
Junction temperature	Tj	– 40 to +125	°C	
Storage temperature	Tstg	– 40 to +125	°C	
Mass	—	0.12	g	Typical value

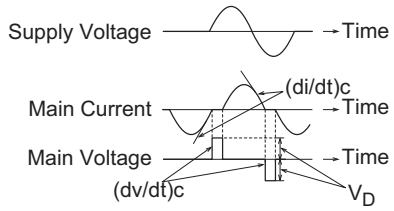
Electrical Characteristics

Parameter		Symbol	BCR08DS-14A#B10 BCR08DS-14A#BD0			BCR08DS-14A#B11			Unit	Test conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Repetitive peak off-state current		I_{DRM}	—	—	1.0	—	—	1.0	mA	Tj = 125°C V_{DRM} applied
On-state voltage		V_{TM}	—	—	2.0	—	—	2.0	V	Tc = 25°C, I_{TM} =1.2 A instantaneous measurement
Gate trigger voltage[Note2]	I	V_{FGTI}	—	—	2.0	—	—	2.0	V	Tj = 25°C, V_D = 6 V R_L = 6 Ω, R_G = 330 Ω
	II	V_{RGTI}	—	—	2.0	—	—	2.0	V	
	III	V_{RGTIII}	—	—	2.0	—	—	2.0	V	
	IV	V_{FGTIII}	—	—	—	—	—	2.0	V	
Gate trigger current[Note2]	I	I_{FGTI}	—	—	5	—	—	5	mA	Tj = 25°C, V_D = 6 V R_L = 6 Ω, R_G = 330 Ω
	II	I_{RGTI}	—	—	5	—	—	5	mA	
	III	I_{RGTIII}	—	—	5	—	—	5	mA	
	IV	I_{FGTIII}	—	—	—	—	—	7	mA	
Gate non-trigger voltage		V_{GD}	0.2	—	—	0.2	—	—	V	Tj = 125°C V_D = 1/2 V_{DRM}
Thermal resistance		$R_{th\ (j-c)}$	—	—	25	—	—	25	°C/W	Junction to case[Note3]
Critical-rate of rise of off-state commutating voltage[Note4]		(dv/dt)c	0.5	—	—	0.5	—	—	V/µs	Tj = 125°C
Critical-rate of rise of off-state voltage[Note5]		dv/dt	200	—	—	200	—	—	V/µs	Tj = 125°C

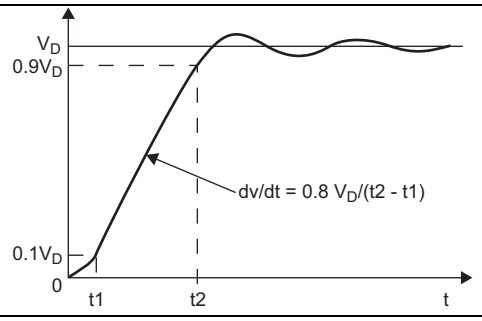
Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

3. Case temperature is measured on the T_2 tab.

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

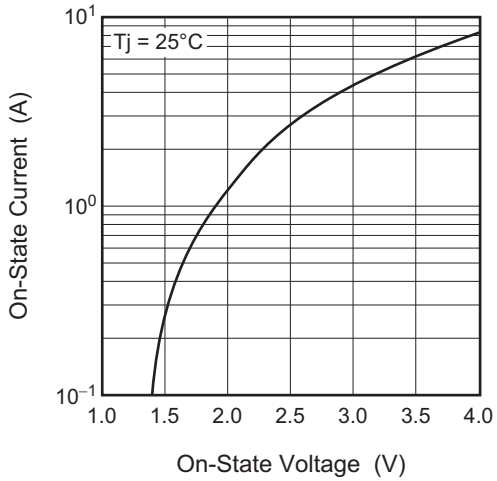
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature Tj = 125°C 2. Rate of decay of on-state commutating current (di/dt)c = – 0.4 A/ms 3. Peak off-state voltage V_D = 400 V	

5. Test conditions of the critical-rate of rise of off-state voltage are shown in the table below.

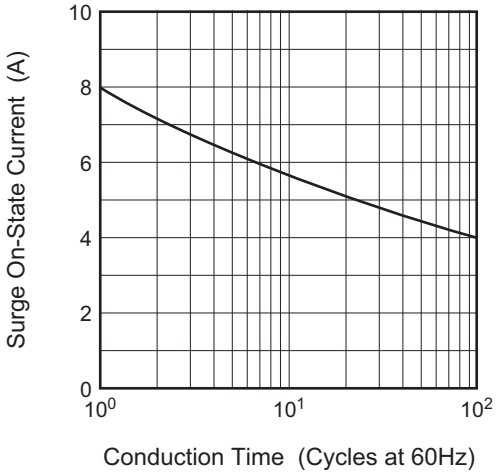
Test conditions	Off-state voltage waveforms
1. Junction temperature Tj = 125°C 2. Off-state voltage waveform Linear waveform 3. Peak off-state voltage V_D = 200 V 4. Gate open	

Performance Curves

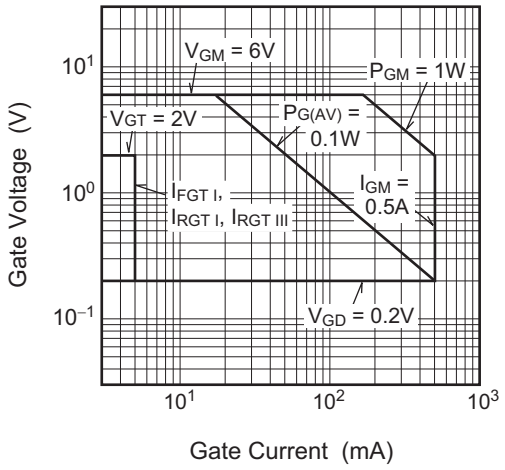
Maximum On-State Characteristics



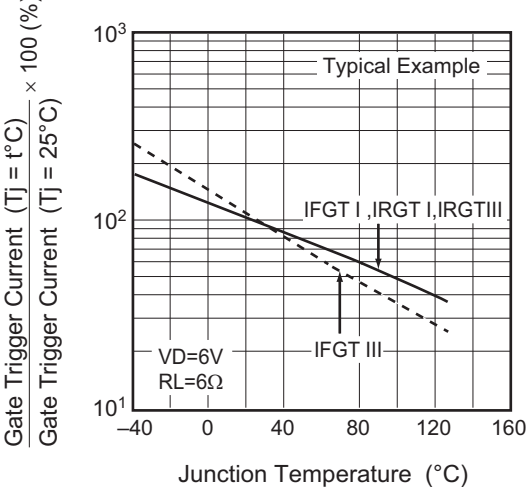
Rated Surge On-State Current



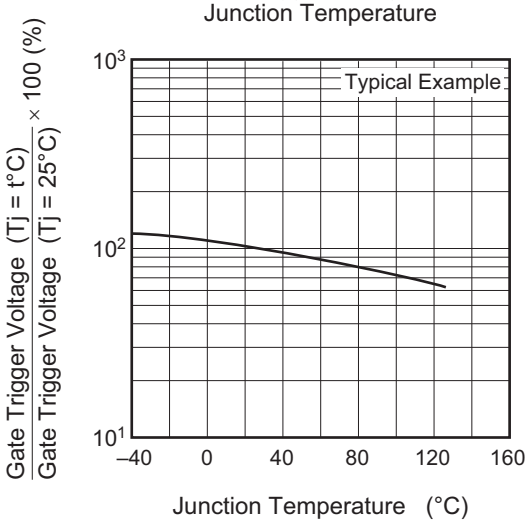
Gate Characteristics



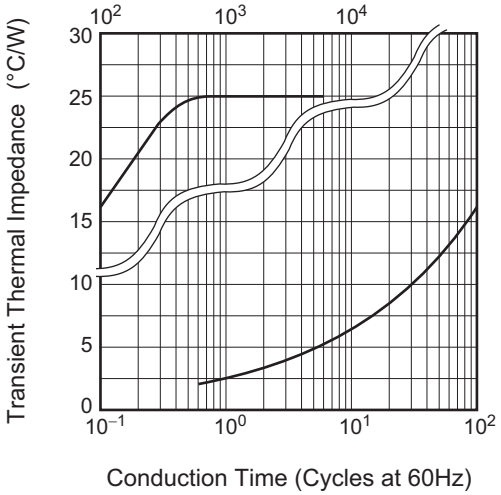
Gate Trigger Current vs. Junction Temperature



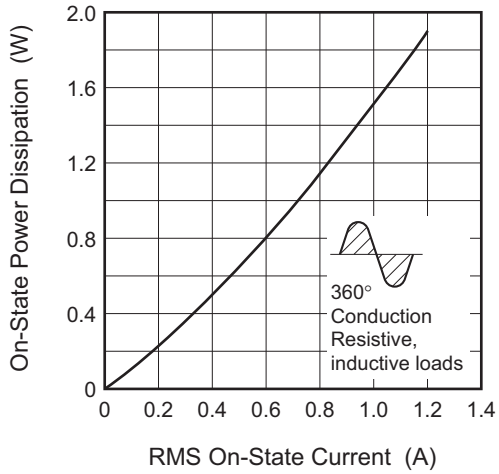
Gate Trigger Voltage vs. Junction Temperature



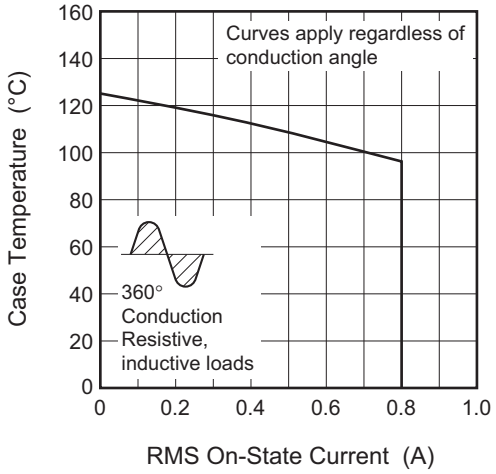
Maximum Transient Thermal Impedance Characteristics (Junction to case)



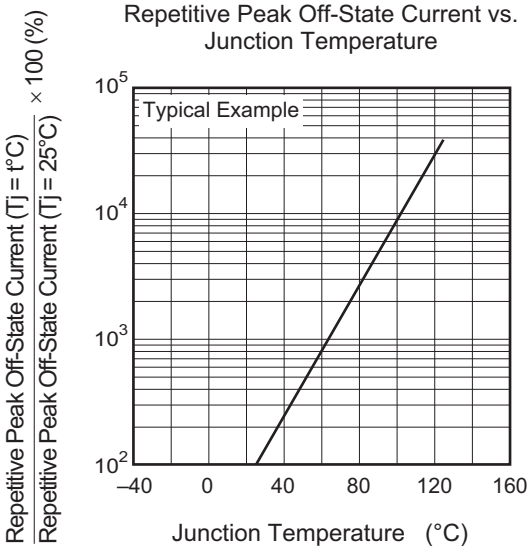
Maximum On-State Power Dissipation



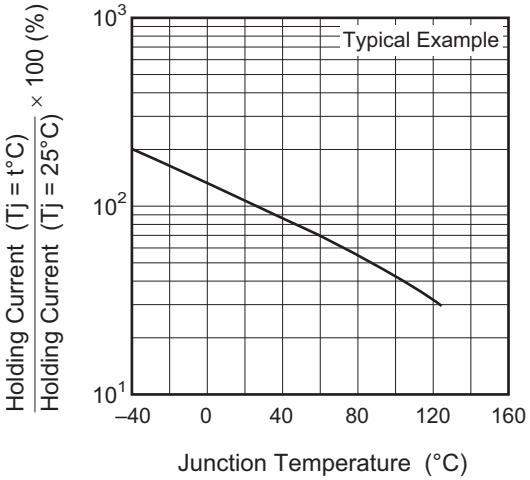
Allowable Case Temperature vs. RMS On-State Current



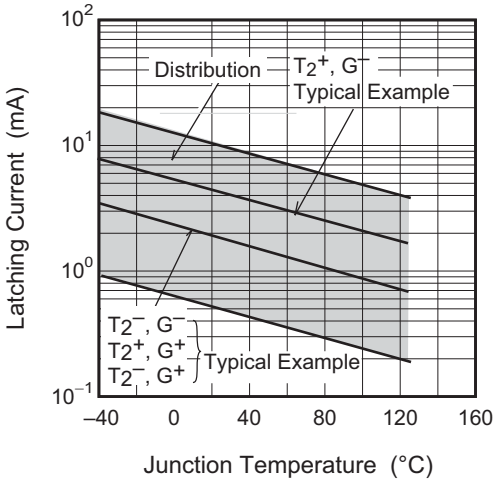
Repetitive Peak Off-State Current vs. Junction Temperature



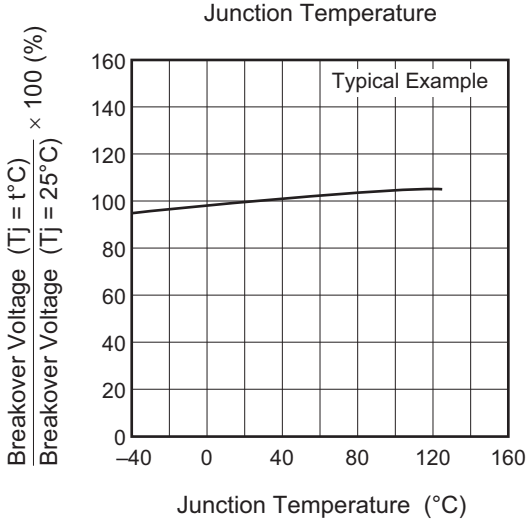
Holding Current vs. Junction Temperature



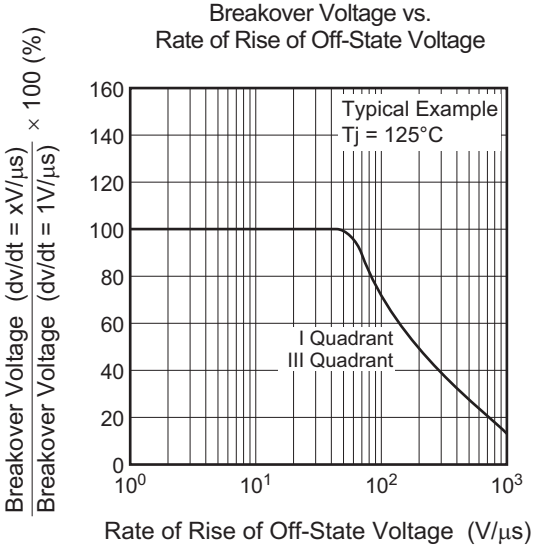
Latching Current vs. Junction Temperature



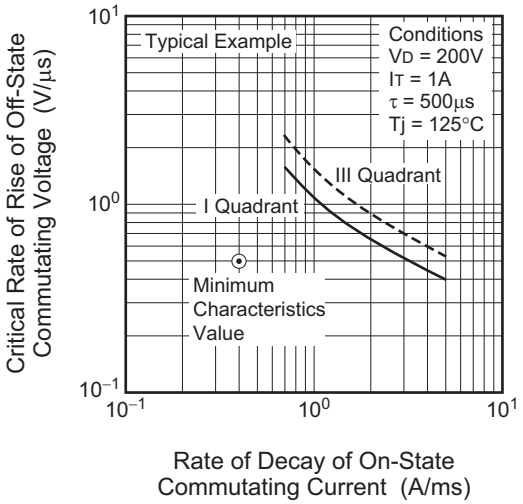
Breakover Voltage vs. Junction Temperature



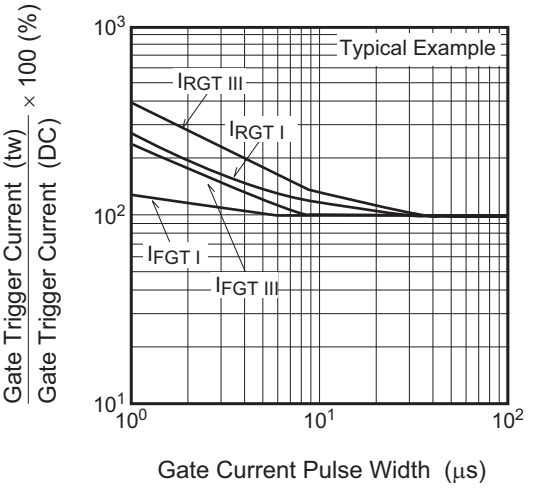
Breakover Voltage vs.
Rate of Rise of Off-State Voltage



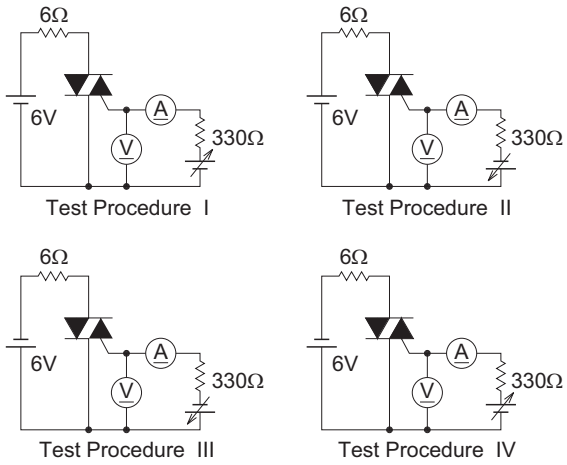
Commutation Characteristics (Tj=125°C)



Gate Trigger Current vs.
Gate Current Pulse Width



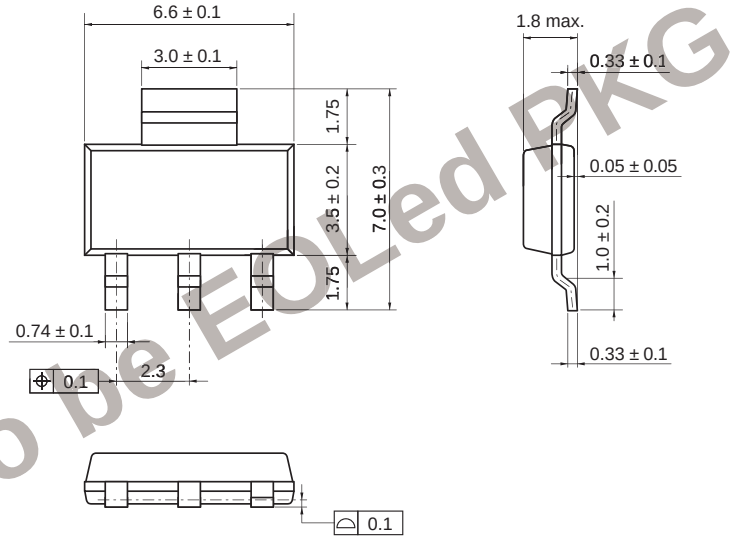
Gate Trigger Characteristics Test Circuits



Package Dimensions

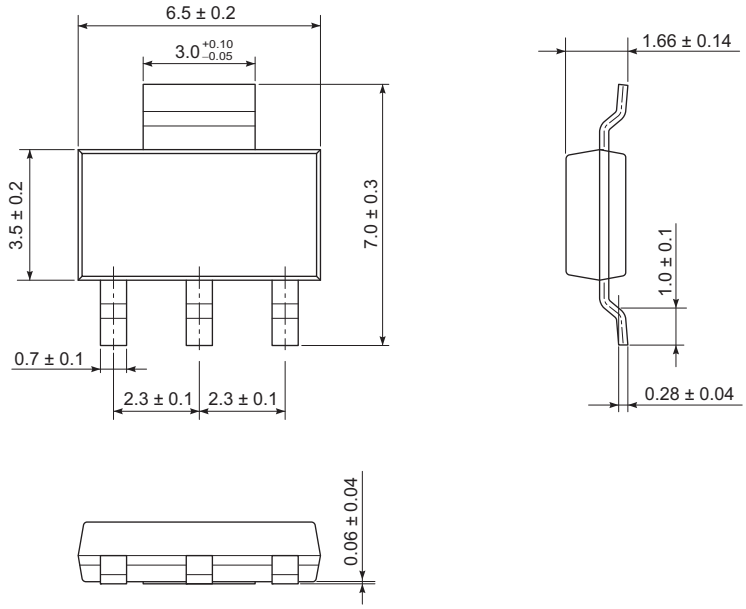
Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
SOT-223	—	PRSP0004ZA-A	—	0.12g

Unit: mm



Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
SOT-223	–	PRSP0004ZB-A	SOT-223A	0.12g

Unit: mm



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR08DS-14AT13#B10	Embossed Tape	3000 pcs.	Not Recommended for New Design
BCR08DS-14AT13#B11	Embossed Tape	3000 pcs.	Not Recommended for New Design
BCR08DS-14AT13#BD0	Embossed Tape	3000 pcs.	Taping direction “T1”

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

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