BCR08AS-12

Triac

Low Power Use

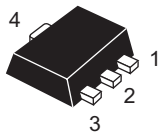
REJ03G0292-0100
Rev.1.00
Aug.20.2004

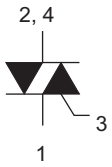
Features

- $I_{T\,(RMS)}$: 0.8 A
- V_{DRM} : 600 V
- I_{FGTI}, I_{RGTI}, I_{RGTIII} : 5 mA
- I_{FGTIII} : 10 mA
- Non-Insulated Type
- Planar Passivation Type

Outline

SOT-89





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

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[Note1]	V_{DRM}	600	V
Non-repetitive peak off-state voltage[Note1]	V_{DSM}	720	V

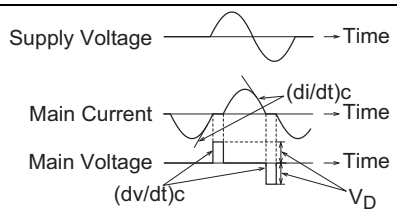
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T\ (RMS)}$	0.8	A	Commercial frequency, sine full wave 360° conduction, Ta = 40°C[Note3]
Surge on-state current	I_{TSM}	8	A	60Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	0.26	A^2s	Value corresponding to 1 cycle 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}	10	V	
Peak gate current	I_{GM}	1	A	
Junction temperature	Tj	– 40 to +125	°C	
Storage temperature	Tstg	– 40 to +125	°C	
Mass	—	48	mg	Typical value

Notes: 1. Gate open.

Electrical Characteristics

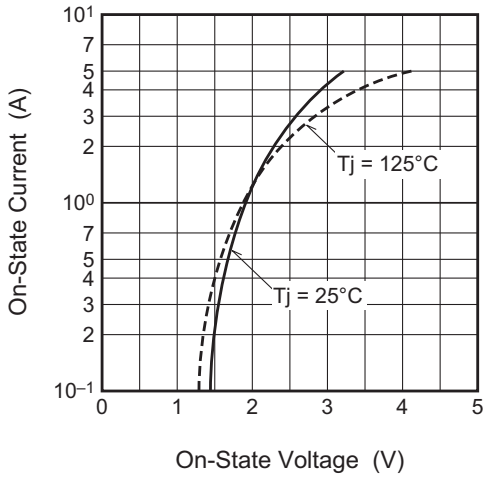
Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current		I_{DRM}	—	—	2.0	mA	Tj = 125°C, V_{DRM} applied
On-state voltage		V_{TM}	—	—	2.0	V	Tc = 25°C, I_{TM} = 1.2 A, Instantaneous measurement
Gate trigger voltage[Note2]	I	V_{FGTI}	—	—	2.0	V	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	V_{RGTI}	—	—	2.0	V	
	III	V_{RGTIII}	—	—	2.0	V	
	IV	V_{FGTIII}	—	—	2.0	V	
Gate trigger current[Note2]	I	I_{FGTI}	—	—	5	mA	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	I_{RGTI}	—	—	5	mA	
	III	I_{RGTIII}	—	—	5	mA	
	IV	I_{FGTIII}	—	—	10	mA	
Gate non-trigger voltage		V_{GD}	0.1	—	—	V	Tj = 125°C, V_D = 1/2 V_{DRM}
Thermal resistance		$R_{th\ (j-a)}$	—	—	65	°C/W	Junction to ambient[Note3]
Critical-rate of rise of off-state commutating voltage[Note4]		(dv/dt)c	0.5	—	—	V/µs	Tj = 125°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.

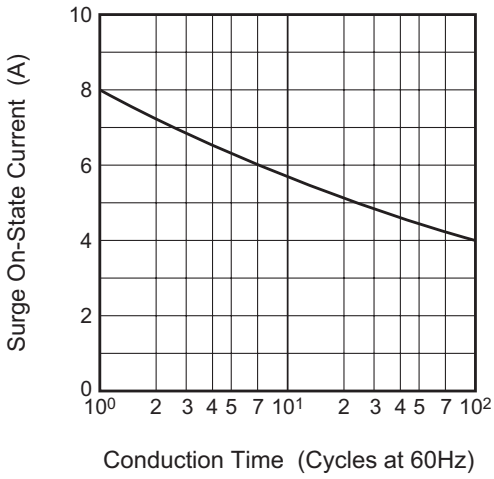
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature Tj = 125°C 2. Rate of decay of on-state commutating current (di/dt)c = – 0.4 A/ms 3. Peak off-state voltage V_D = 400 V	

Performance Curves

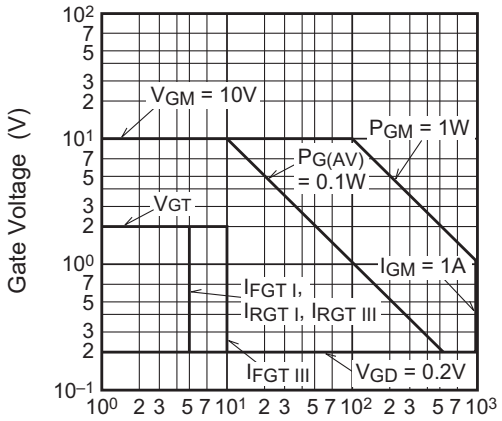
Maximum On-State Characteristics



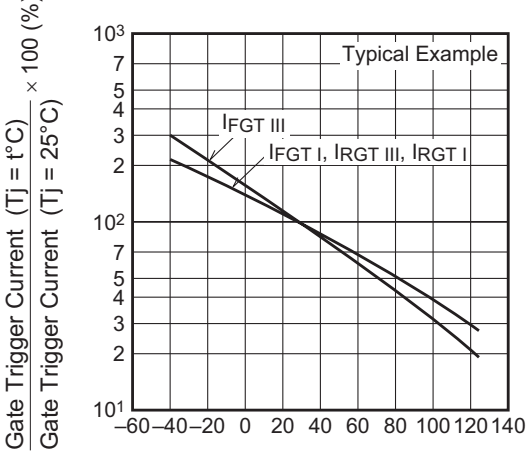
Rated Surge On-State Current



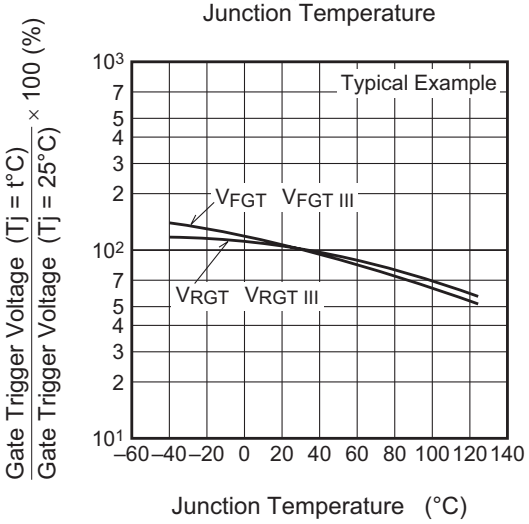
Gate Characteristics



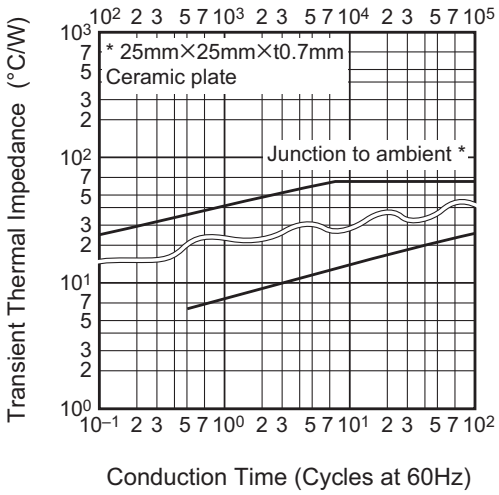
Gate Trigger Current vs. Junction Temperature



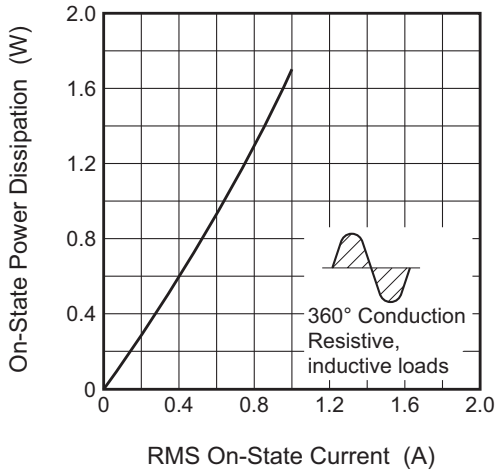
Gate Trigger Voltage vs. Junction Temperature



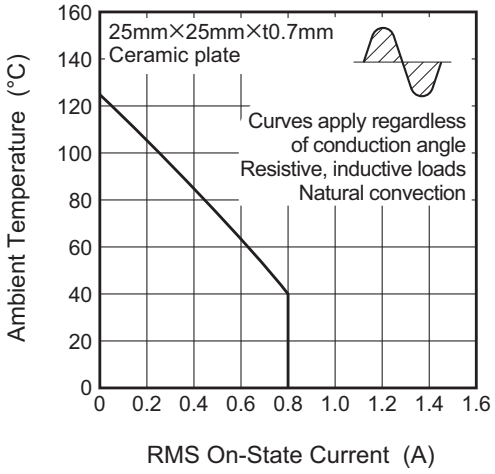
Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



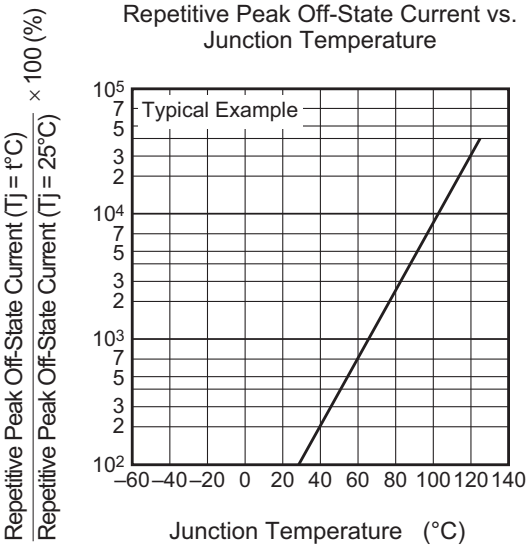
Maximum On-State Power Dissipation



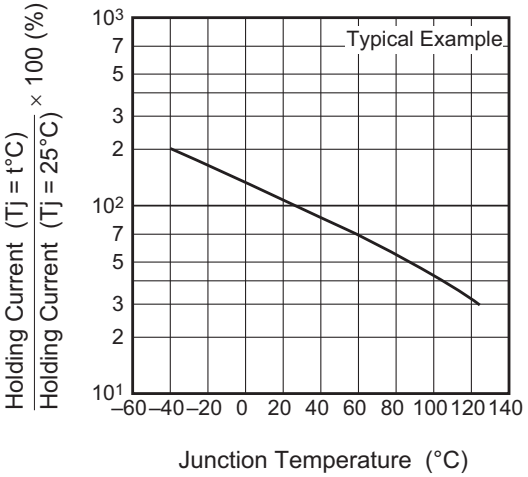
Allowable Ambient Temperature vs. RMS On-State Current



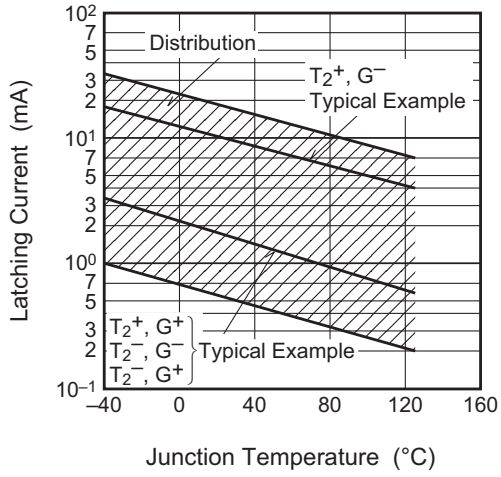
Repetitive Peak Off-State Current vs. Junction Temperature



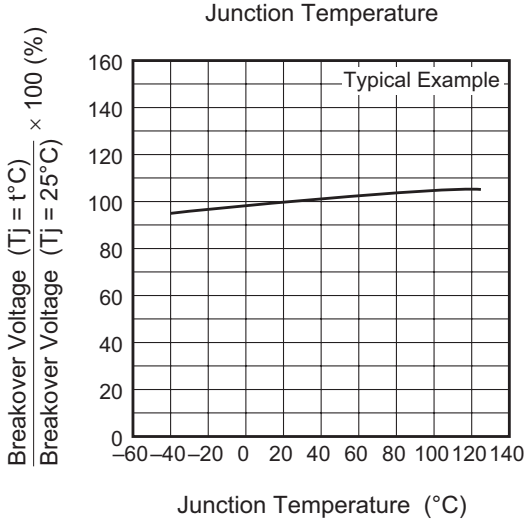
Holding Current vs. Junction Temperature



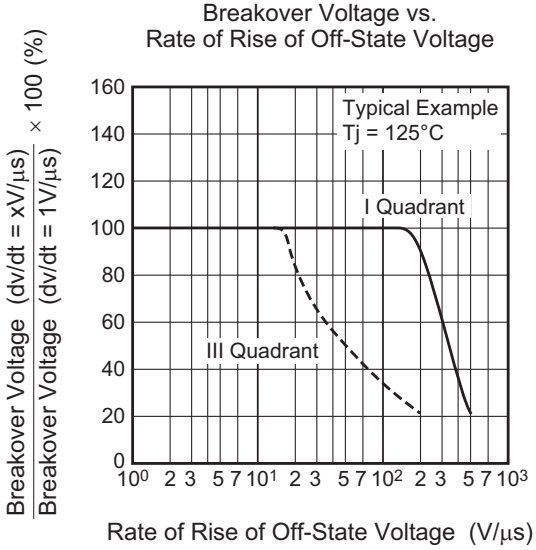
Latching Current vs. Junction Temperature



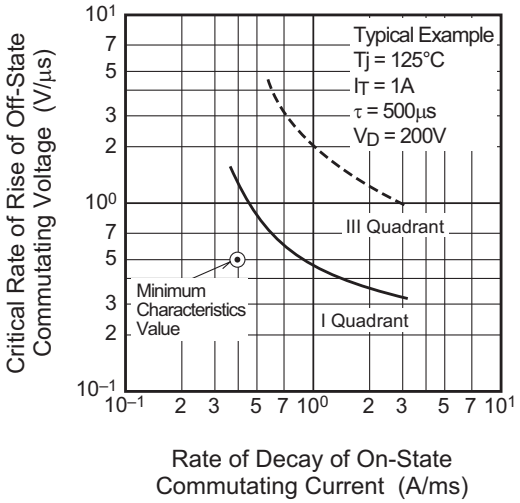
Breakover Voltage vs. Junction Temperature



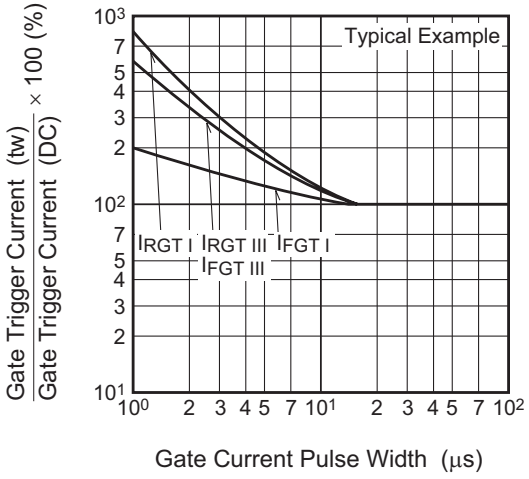
Breakover Voltage vs.
Rate of Rise of Off-State Voltage



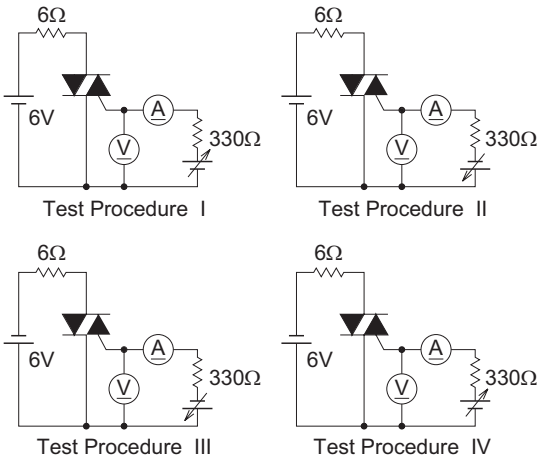
Commutation Characteristics



Gate Trigger Current vs.
Gate Current Pulse Width



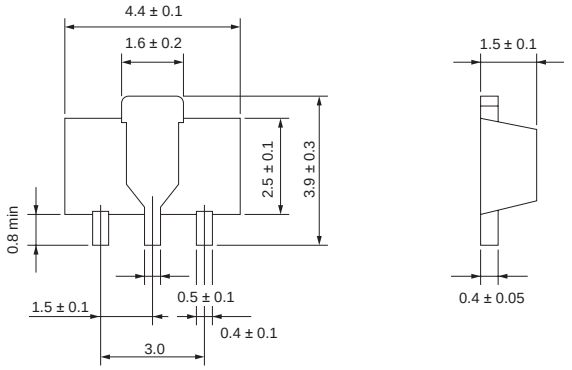
Gate Trigger Characteristics Test Circuits

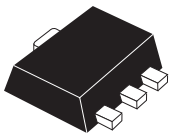


Package Dimensions

SOT-89

EIAJ Package Code	JEDEC Code	Mass (g) (reference value)	Lead Material
Conforms	—	0.048	Cu alloy





Symbol	Dimension in Millimeters		
	Min	Typ	Max
A			
A_1			
A_2			
b			
D			
E			
e			
x			
y			
y_1			
ZD			
ZE			

Note 1) The dimensional figures indicate representative values unless otherwise the tolerance is specified.

Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Surface-mounted type	Stick	25	Type name +A	BCR08AS-12A
Surface-mounted type	Taping	3000	Type name +A –T +Direction (1 or 2)+3	BCR08AS-12A-T13

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

Renesas Technology Corp. Sales Strategic Planning Div. Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

RENESAS SALES OFFICES

http://www.renesas.com

Renesas Technology America, Inc.
450 Holger Way, San Jose, CA 95134-1368, U.S.A
Tel: <1> (408) 382-7500 Fax: <1> (408) 382-7501

Renesas Technology Europe Limited.
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, United Kingdom
Tel: <44> (1628) 585 100, Fax: <44> (1628) 585 900

Renesas Technology Europe GmbH
Dornacher Str. 3, D-85622 Feldkirchen, Germany
Tel: <49> (89) 380 70 0, Fax: <49> (89) 929 30 11

Renesas Technology Hong Kong Ltd.
7/F., North Tower, World Finance Centre, Harbour City, Canton Road, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2375-6836

Renesas Technology Taiwan Co., Ltd.
FL 10, #99, Fu-Hsing N. Rd., Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology (Shanghai) Co., Ltd.
26/F., Ruijin Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

Renesas Technology Singapore Pte. Ltd.
1, Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

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