BCR1AM-12A

600V - 1A - Triac

Low Power Use

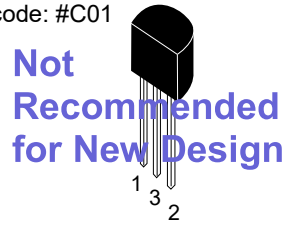
R07DS0177EJ0600
Rev.6.00
Sept. 10, 2019

Features

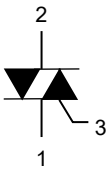
- $I_{T\,(RMS)}$: 1 A
- V_{DRM} : 600 V
- $I_{RGT}I$, $I_{RGT}I$, $I_{RGT}III$: 7 mA
- Tj: 125 °C
- Planar Passivation Type
- RoHS Compliant
- Halogen-free (PRSS0003DJ-A)
- Completely Pb-free (PRSS0003DJ-A)

Outline

RENESAS Package code: PRSS0003EA-A (Package name: TO-92*)
Ordering code: #C01



PRSS0003DJ-A (Package name: TO-92)
#BD0



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

Application

Washing machine, electric fan, air cleaner, Solid State Relay and other general purpose AC control applications.

Maximum Ratings

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

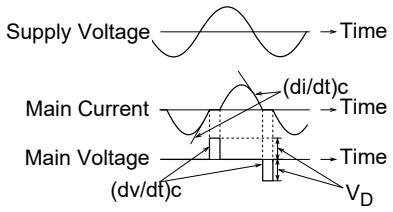
Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T\,(RMS)}$	1.0	A	Commercial frequency, sine full wave 360° conduction, Tc = 56°C Note3
Surge on-state current	I_{TSM}	10	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	0.41	A^2s	Value corresponding to 1 cycle of half wave 60 Hz, 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	

Electrical Characteristics

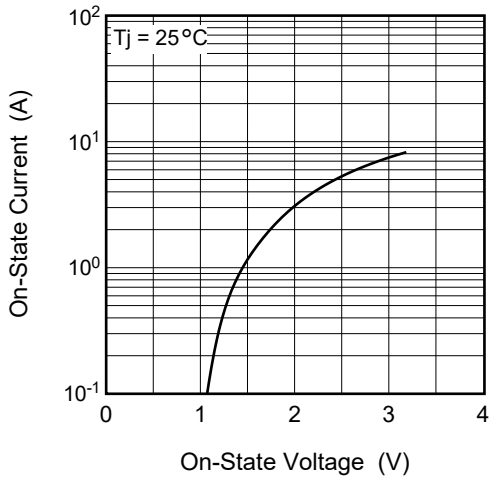
Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current		I_{DRM}	—	—	0.5	mA	Tj = 125°C, V_{DRM} applied
On-state voltage		V_{TM}	—	—	1.6	V	Tc = 25°C, I_{TM} = 1.5 A, instantaneous measurement
Gate trigger voltage Note2	I	V_{FGTI}	—	—	2.0	V	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	V_{RGTI}	—	—	2.0	V	
	III	V_{RGTIII}	—	—	2.0	V	
Gate trigger current Note2	I	I_{FGTI}	—	—	7	mA	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	I_{RGTI}	—	—	7	mA	
	III	I_{RGTIII}	—	—	7	mA	
Gate non-trigger voltage		V_{GD}	0.1	—	—	V	Tj = 125°C, V_D = 1/2 V_{DRM}
Thermal resistance		$R_{th\ (j-c)}$	—	—	50	°C/W	Junction to case Note3
Critical-rate of rise of off-state commutating voltage Note4		(dv/dt)c	2	—	—	V/μs	Tj = 125°C

Notes: 2. Measurement using the gate trigger characteristics measurement circuit.
3. Case temperature is measured at the T_2 terminal 1.5 mm away from the molded case.
4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

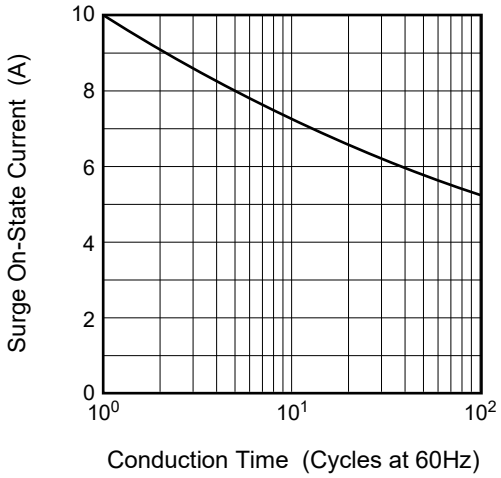
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature Tj = 125°C 2. Rate of decay of on-state commutating current (di/dt)c = – 0.5 A/ms 3. Peak off-state voltage V_D = 400 V	

Performance Curves

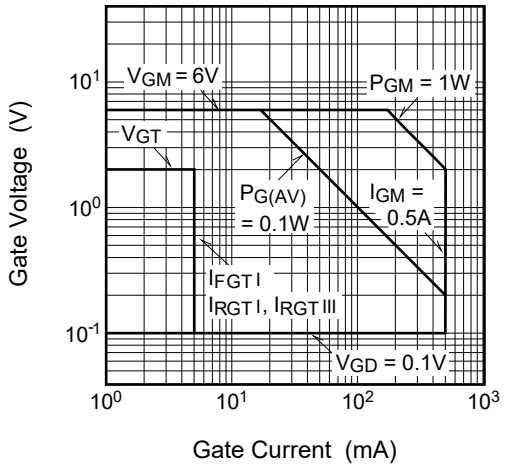
Maximum On-State Characteristics



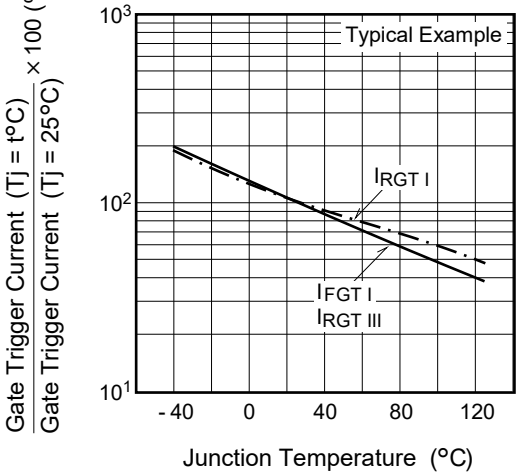
Rated Surge On-State Current



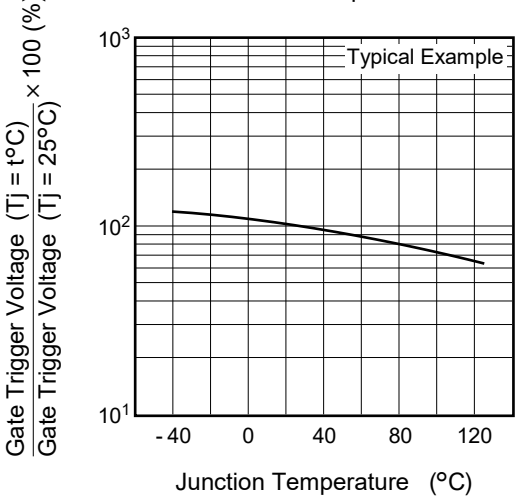
Gate Characteristics (I, II and III)



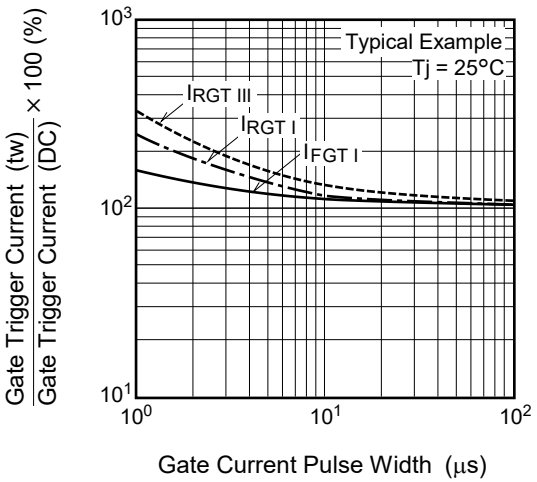
Gate Trigger Current vs. Junction Temperature



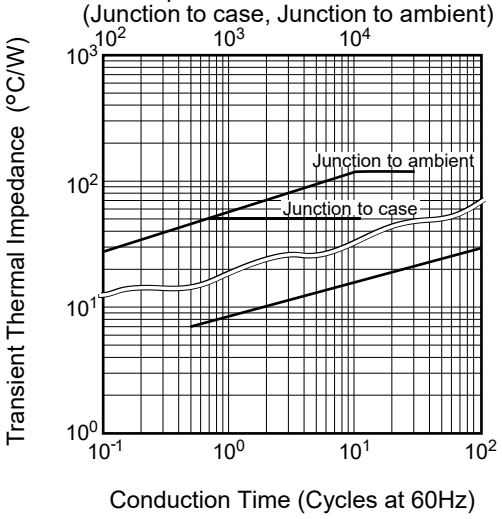
Gate Trigger Voltage vs. Junction Temperature



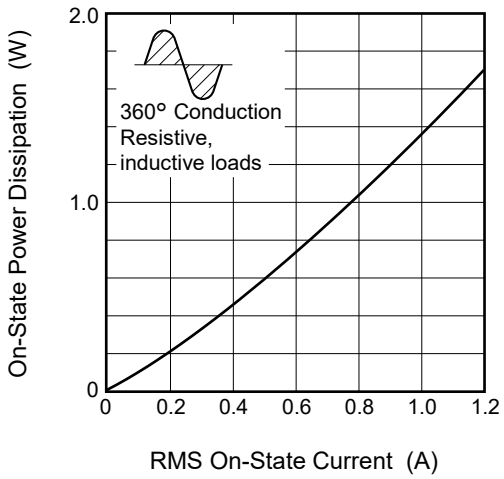
Gate Trigger Current vs. Gate Current Pulse Width



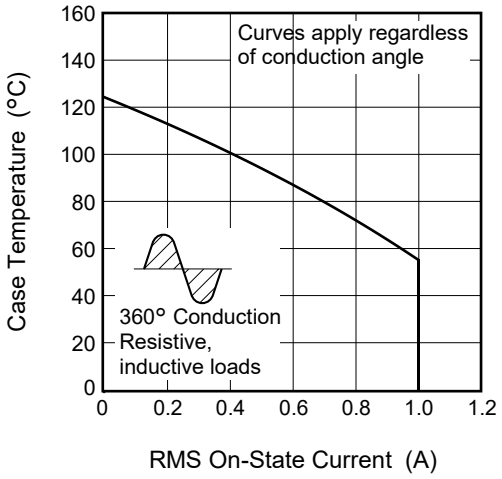
Maximum Transient Thermal Impedance Characteristics (Junction to case, Junction to ambient)



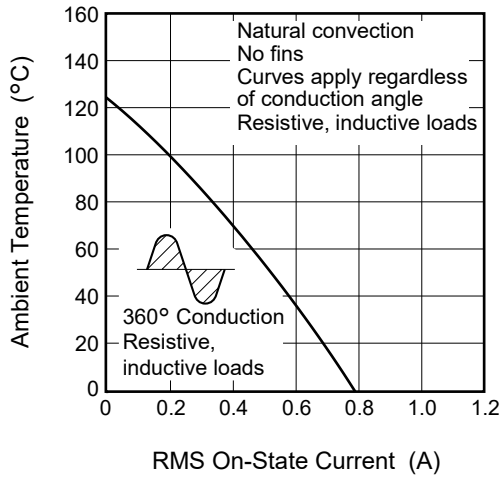
Maximum On-State Power Dissipation



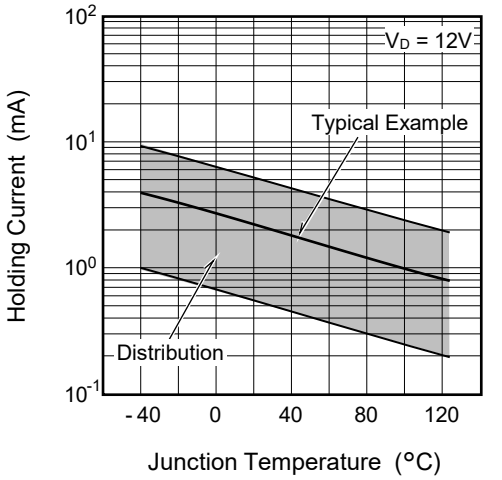
Allowable Case Temperature vs. RMS On-State Current



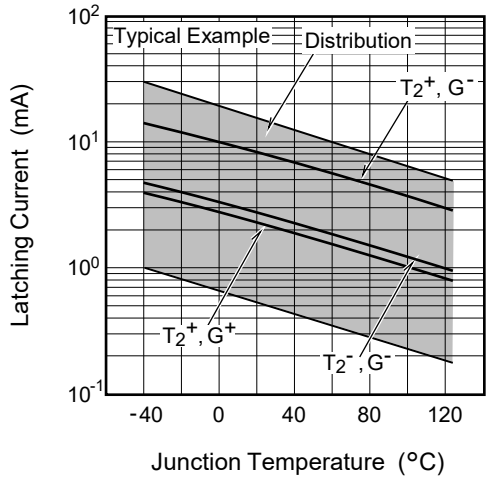
Allowable Ambient Temperature vs. RMS On-State Current



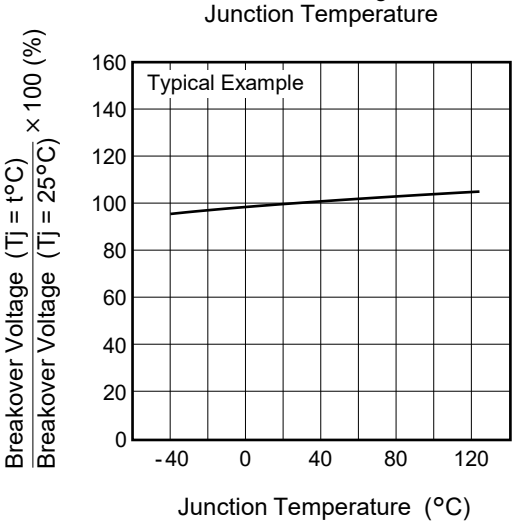
Holding Current vs. Junction Temperature



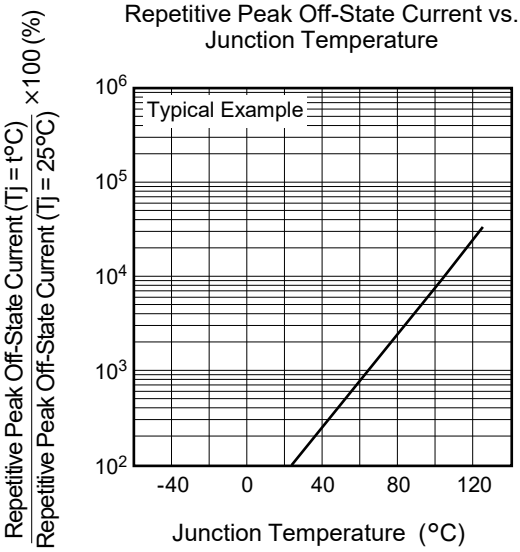
Latching Current vs. Junction Temperature



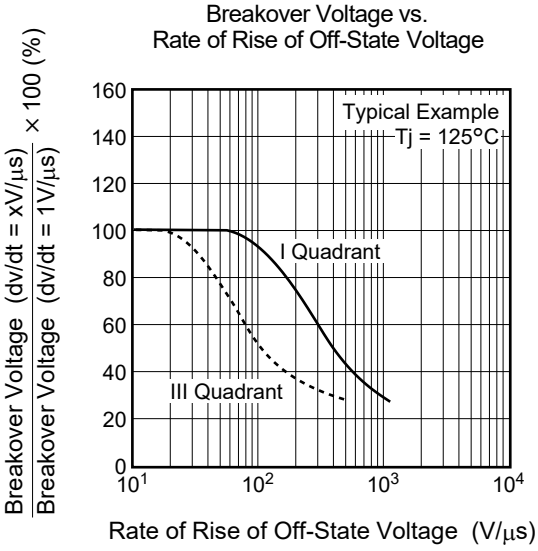
Breakover Voltage vs. Junction Temperature



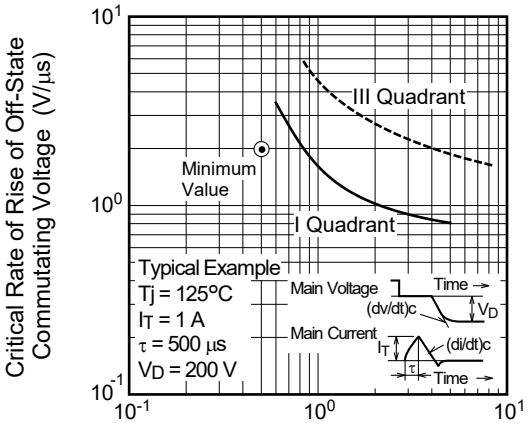
Repetitive Peak Off-State Current vs. Junction Temperature



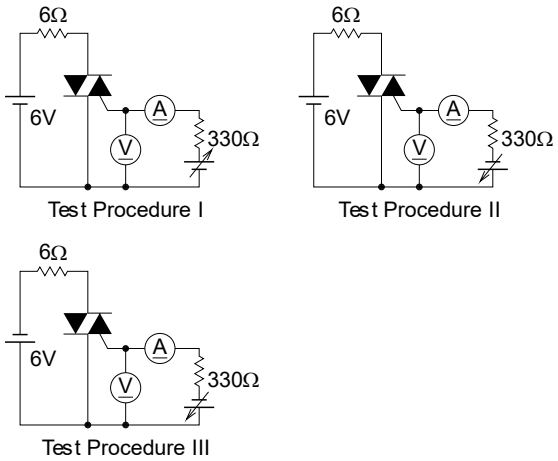
Breakover Voltage vs. Rate of Rise of Off-State Voltage



Commutation Characteristics



Gate Trigger Characteristics Test Circuits

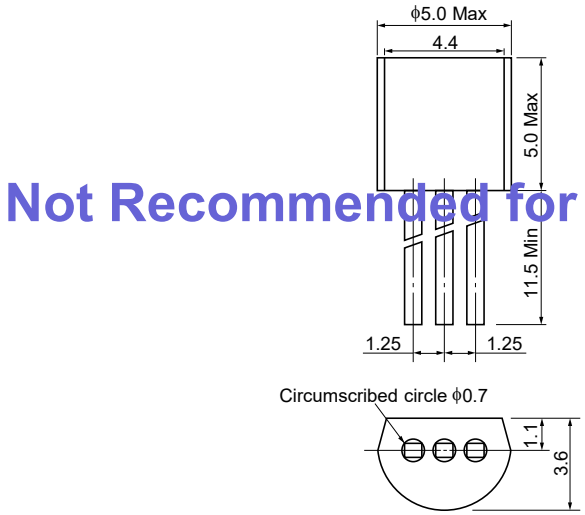


Package Dimensions

Ordering code: #C01 <Not Recommended for New Design>

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-92*	SC-43A	PRSS0003EA-A	T920	0.23 g

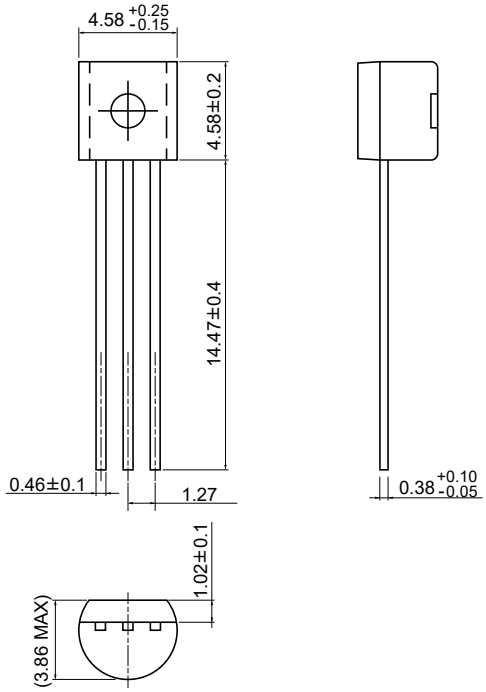
Unit: mm



Ordering code: #BD0

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-92	SC-43A	PRSS0003DJ-A	TO-92	0.23 g

Unit: mm



Ordering Information

Orderable Part Number	Package	Packing Note5	Quantity	Remark
BCR1AM-12A#C01	TO-92*	Plastic Bag	500 pcs.	Straight type, NRND
BCR1AM-12A-A6#C01	TO-92*	Plastic Bag	500 pcs.	A6 Lead form, NRND
BCR1AM-12A-TB#C01	TO-92*	Adhesive Tape	2000 pcs.	A8 Lead form, NRND
BCR1AM-12A#BD0	TO-92	Plastic Bag	1000 pcs.	Straight type, Halogen-free, Completely Pb-free
BCR1AM-12A-A6#BD0	TO-92	Plastic Bag	1000 pcs.	A6 Lead form, Halogen-free, Completely Pb-free
BCR1AM-12A-TB#BD0	TO-92	Adhesive Tape	2000 pcs.	A8 Lead form, Halogen-free, Completely Pb-free

Note: 5. Please confirm the specification about the shipping in detail.

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(Rev.4.0-1 November 2017)

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Renesas Electronics Corporation
TOYOSU FORESIA, 3-2-24 Toyosu, Koto-ku, Tokyo 135-0061, Japan

Renesas Electronics America Inc.
1001 Murphy Ranch Road, Milpitas, CA 95035, U.S.A.
Tel: +1-408-432-8888, Fax: +1-408-434-5351

Renesas Electronics Canada Limited
9251 Yonge Street, Suite 8309 Richmond Hill, Ontario Canada L4C 9T3
Tel: +1-905-237-2004

Renesas Electronics Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K
Tel: +44-1628-651-700

Renesas Electronics Europe GmbH
Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-6503-0, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
Room 1709 Quantum Plaza, No.27 ZhichunLu, Haidian District, Beijing, 100191 P. R. China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 301, Tower A, Central Towers, 555 Langao Road, Putuo District, Shanghai, 200333 P. R. China
Tel: +86-21-2226-0888, Fax: +86-21-2226-0999

Renesas Electronics Hong Kong Limited
Unit 1601-1611, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2265-6688, Fax: +852 2886-9022

Renesas Electronics Taiwan Co., Ltd.
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Tel: +886-2-8175-9600, Fax: +886 2-8175-9670

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