

# BCR1AM-14A

700V-1A-Triac

Low Power Use

R07DS1076EJ0200

Rev.1.00

Apr 03, 2014

## Features

- $I_{T(RMS)}$  : 1 A
- $V_{DRM}$  : 700 V
- $I_{FGTI}$  : 5 mA
- $I_{RGTI}, I_{RGTIII}$  : 5 mA or 3mA( $I_{GT}$  item:1)
- $I_{FGTIII}$  : 10 mA
- Planar Type

## Outline

RENESAS Package code: PRSS0003EA-A  
(Package name: TO-92\*)



1. T<sub>1</sub> Terminal
2. T<sub>2</sub> Terminal
3. Gate Terminal

## Applications

Washing machine, electric fan, air purifier, electric pot, rice-cooker, electric blanket, refrigerator, Solid State Relay, and other general purpose AC control applications

## Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		14	
Repetitive peak off-state voltage <sup>Note1</sup>	$V_{DRM}$	700	V
Non-repetitive peak off-state voltage <sup>Note1</sup>	$V_{DSM}$	840	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, , $T_c = 56^\circ\text{C}$ <sup>Note3</sup>
Surge on-state current	$I_{TSM}$	10	A	60Hz sinewave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusing	$I^2t$	0.41	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	$V_{GM}$	6	V	
Peak gate current	$I_{GM}$	0.5	A	
Junction temperature	$T_j$	- 40 to +125	°C	
Storage temperature	$T_{stg}$	- 40 to +125	°C	
Mass	—	0.23	g	Typical value

## Electrical Characteristics

Parameter	Symbol	BCR1AM-14A-1 (I <sub>GT</sub> item : 1)			BCR1AM-14A			Unit	Test conditions	
		Min.	Typ.	Max.	Min.	Typ.	Max.			
Repetitive peak off-state current	I <sub>DRM</sub>	—	—	0.5	—	—	0.5	mA	T <sub>j</sub> = 125°C V <sub>DRM</sub> applied	
On-state voltage	V <sub>TM</sub>	—	—	1.6	—	—	1.6	V	T <sub>C</sub> = 25°C, I <sub>TM</sub> = 1.5 A instantaneous measurement	
Gate trigger voltage <sup>Note2</sup>	I	V <sub>FGTI</sub>	—	—	2.0	—	—	2.0	V	T <sub>j</sub> = 25°C, V <sub>D</sub> = 6 V R <sub>L</sub> = 6 Ω, R <sub>G</sub> = 330 Ω
	II	V <sub>RGTI</sub>	—	—	2.0	—	—	2.0	V	
	III	V <sub>RGTIII</sub>	—	—	2.0	—	—	2.0	V	
	IV	V <sub>FGTIII</sub>	—	—	2.0	—	—	2.0	V	
Gate trigger current <sup>Note2</sup>	I	I <sub>FGTI</sub>	—	—	5	—	—	5	mA	T <sub>j</sub> = 25°C, V <sub>D</sub> = 6 V R <sub>L</sub> = 6 Ω, R <sub>G</sub> = 330 Ω
	II	I <sub>RGTI</sub>	—	—	3	—	—	5	mA	
	III	I <sub>RGTIII</sub>	—	—	3	—	—	5	mA	
	IV	I <sub>FGTIII</sub>	—	—	10	—	—	10	mA	
Gate non-trigger voltage	V <sub>GD</sub>	0.1	—	—	0.1	—	—	V	T <sub>j</sub> = 125°C V <sub>D</sub> = 1/2 V <sub>DRM</sub>	
Thermal resistance	R <sub>th(j-c)</sub>	—	—	50	—	—	50	°C/W	Junction to case <sup>Note3</sup>	
Critical-rate of rise of off-state commutating voltage <sup>Note4</sup>	(dv/dt) <sub>c</sub>	1.0	—	—	2.0	—	—	V/μs	T <sub>j</sub> = 125°C	

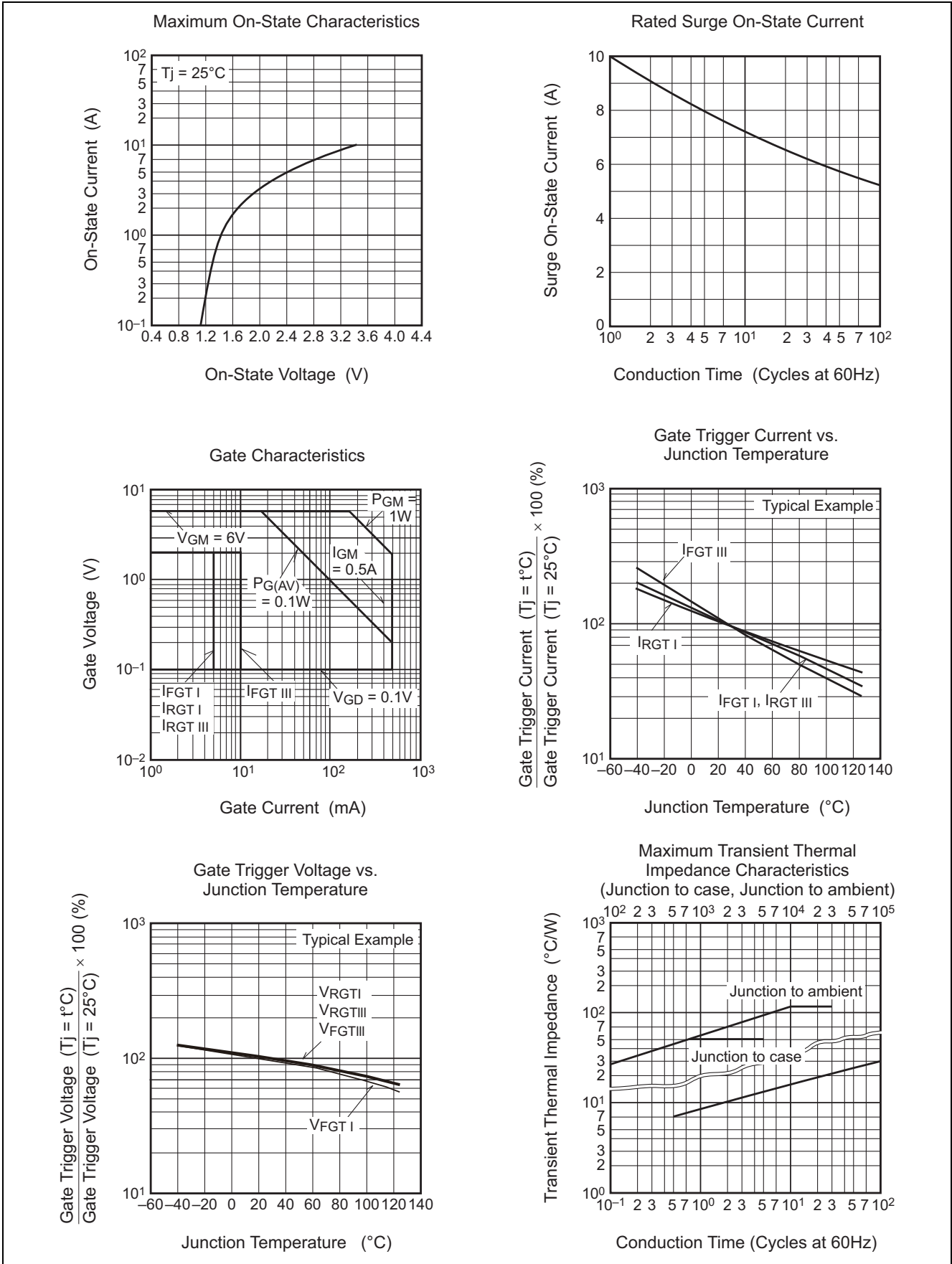
Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

3. Case temperature is measured at the T2 terminal 1.5 mm away from the molded case.

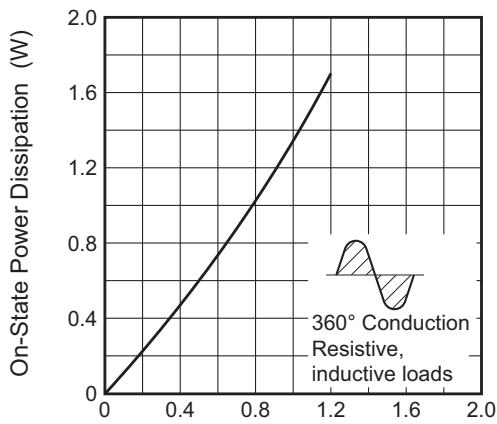
4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

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

Performance Curves

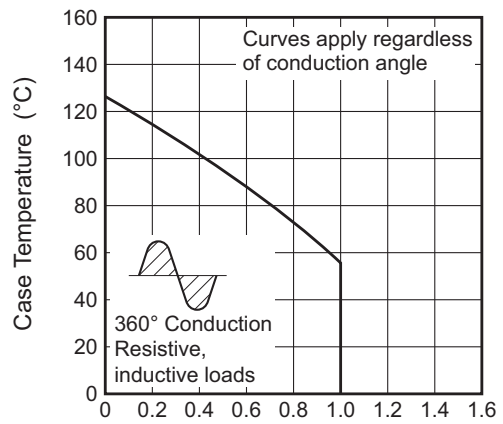


Maximum On-State Power Dissipation



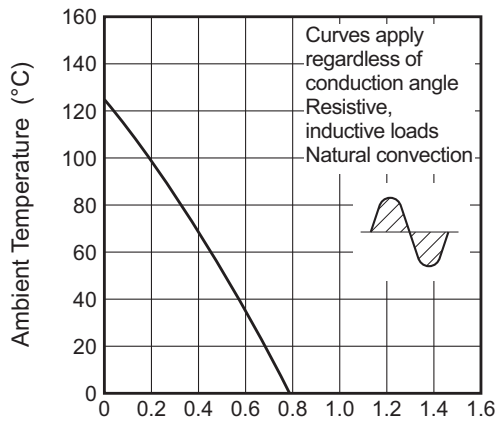
RMS On-State Current (A)

Allowable Case Temperature vs. RMS On-State Current



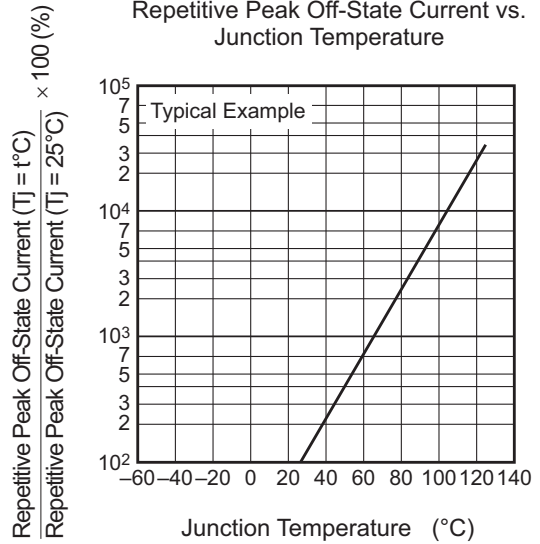
RMS On-State Current (A)

Allowable Ambient Temperature vs. RMS On-State Current

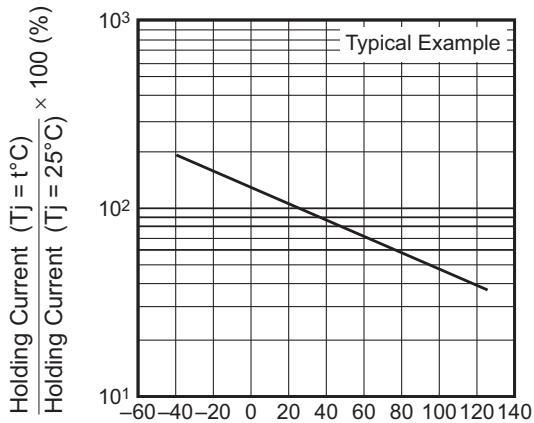


RMS On-State Current (A)

Repetitive Peak Off-State Current vs. Junction Temperature

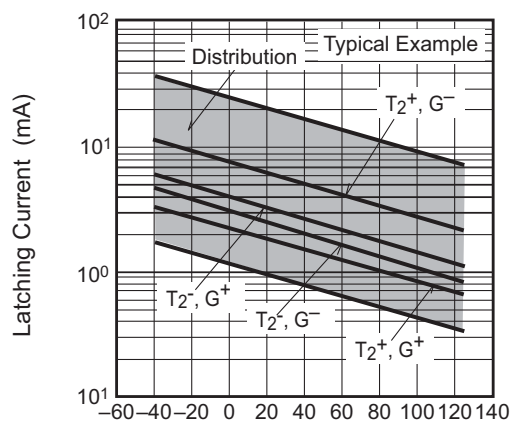


Holding Current vs. Junction Temperature



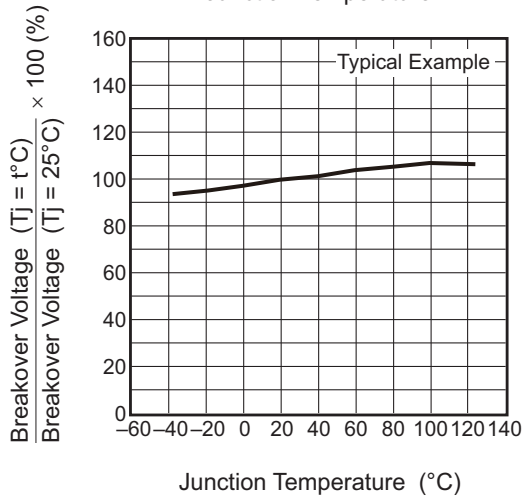
Junction Temperature (°C)

Latching Current vs. Junction Temperature

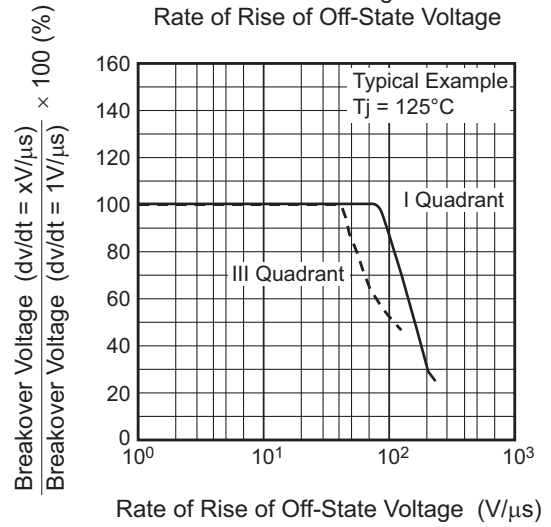


Junction Temperature (°C)

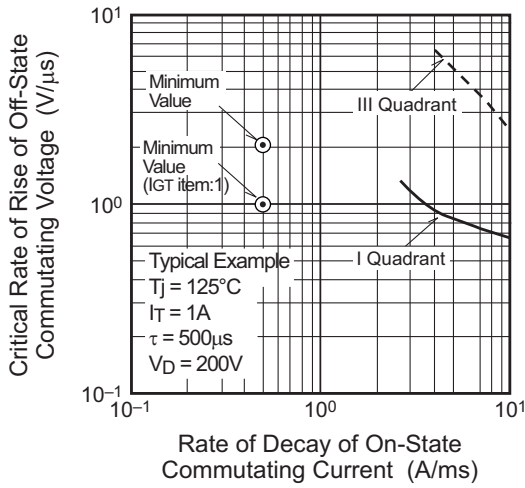
Breakover Voltage vs. Junction Temperature



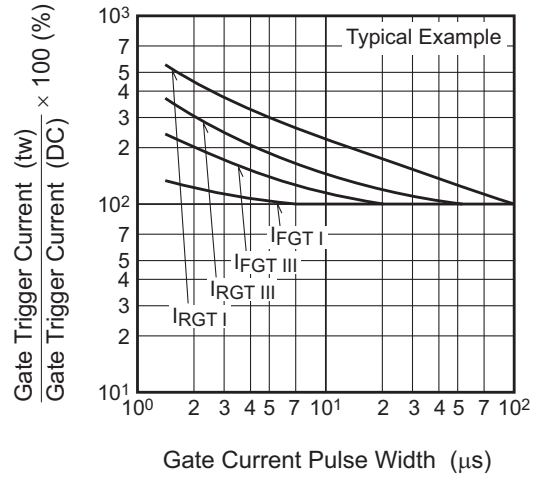
Breakover Voltage vs. Rate of Rise of Off-State Voltage



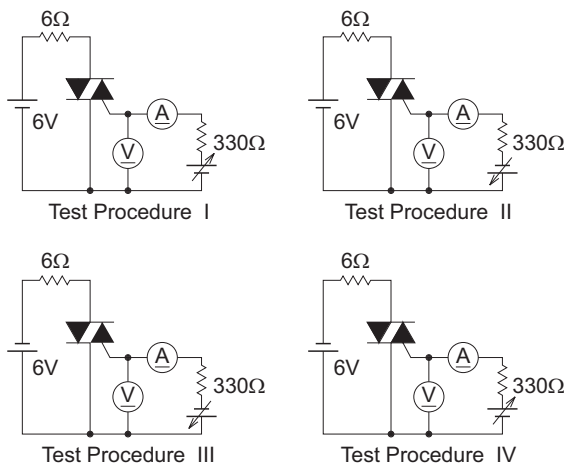
Commutation Characteristics



Gate Trigger Current vs. Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



## Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASSTyp.□	nit: mm
TO-2 *	SC-43A	PRSS003EA-A	T20	0.23g	

The drawing shows the package dimensions in millimeters. The top view is a square with a maximum width of 5.0 mm and a maximum height of 5.0 mm. The width of the central body is 4.4 mm. The leads are spaced 1.25 mm apart. The side view shows a total height of 11.5 mm minimum. The bottom view shows a semi-circular lead form with a circumscribed circle of 0.7 mm diameter, a lead width of 1.1 mm, and a total width of 3.6 mm.

## Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR1AM-14A#B00	Plastic Bag	500 pcs.	Straight type
BCR1AM-14A-1#B00	Plastic Bag	500 pcs.	Straight type, I <sub>GT</sub> item:1
BCR1AM-14A-A6#B00	Plastic Bag	500 pcs.	A6 Lead form
BCR1AM-14A-1A6#B00	Plastic Bag	500 pcs.	A6 Lead form, I <sub>GT</sub> item:1
BCR1AM-14A-TB#B00	Adhesive Tape	2000 pcs.	A8 Lead form
BCR1AM-14A-1TB#B00	Adhesive Tape	2000 pcs.	A8 Lead form, I <sub>GT</sub> item:1

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

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