

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. T₁ Terminal
2. T₂ 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 ^{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	$I_{T(RMS)}$	1.0	A	Commercial frequency, sine full wave 360° conduction, , $T_c = 56^{\circ}\text{C}$ ^{Note3}
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 ² 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 _{GT} item : 1)			BCR1AM-14A			Unit	Test conditions	
		Min.	Typ.	Max.	Min.	Typ.	Max.			
Repetitive peak off-state current	I _{DRM}	—	—	0.5	—	—	0.5	mA	T _j = 125°C V _{DRM} applied	
On-state voltage	V _{TM}	—	—	1.6	—	—	1.6	V	T _C = 25°C, I _{TM} = 1.5 A instantaneous measurement	
Gate trigger voltage ^{Note2}	I	V _{FGTI}	—	—	2.0	—	—	2.0	V	T _j = 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	—	—	2.0	V	
Gate trigger current ^{Note2}	I	I _{FGTI}	—	—	5	—	—	5	mA	T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω
	II	I _{RGTI}	—	—	3	—	—	5	mA	
	III	I _{RGTIII}	—	—	3	—	—	5	mA	
	IV	I _{FGTIII}	—	—	10	—	—	10	mA	
Gate non-trigger voltage	V _{GD}	0.1	—	—	0.1	—	—	V	T _j = 125°C V _D = 1/2 V _{DRM}	
Thermal resistance	R _{th(j-c)}	—	—	50	—	—	50	°C/W	Junction to case ^{Note3}	
Critical-rate of rise of off-state commutating voltage ^{Note4}	(dv/dt) _c	1.0	—	—	2.0	—	—	V/μs	T _j = 125°C	

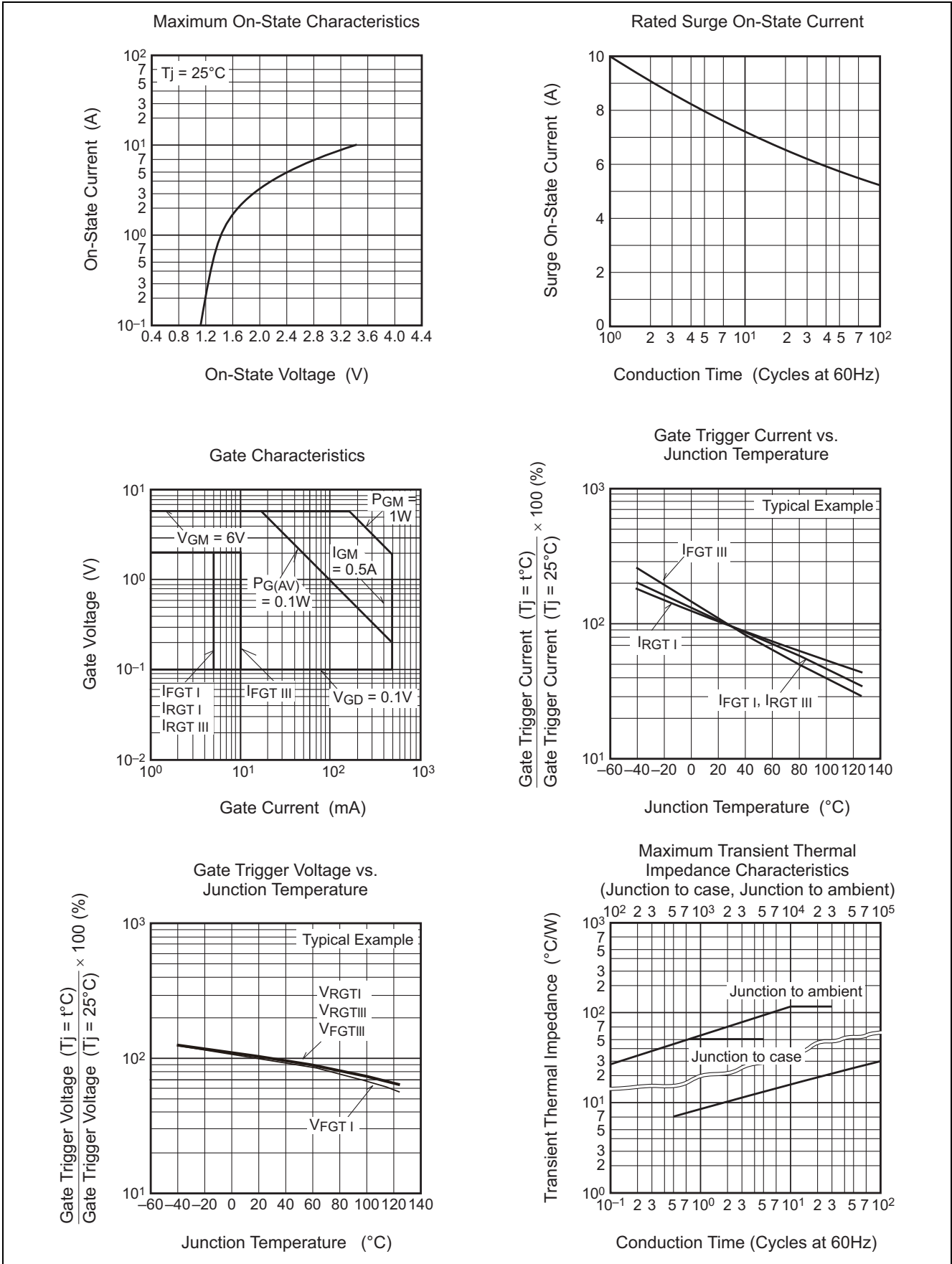
Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

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

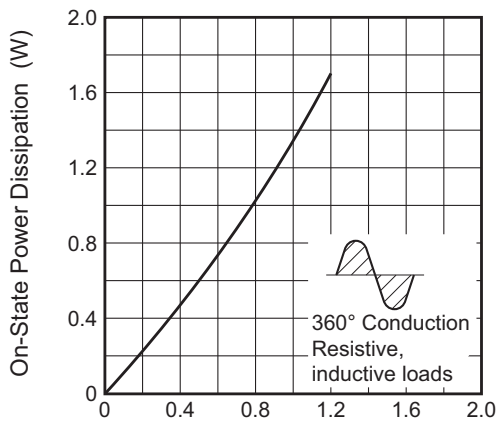
4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature T _j = 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

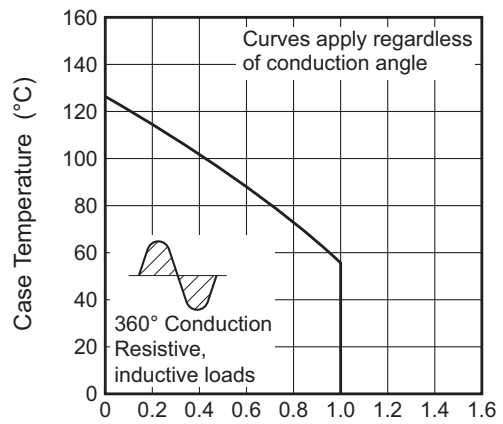


Maximum On-State Power Dissipation



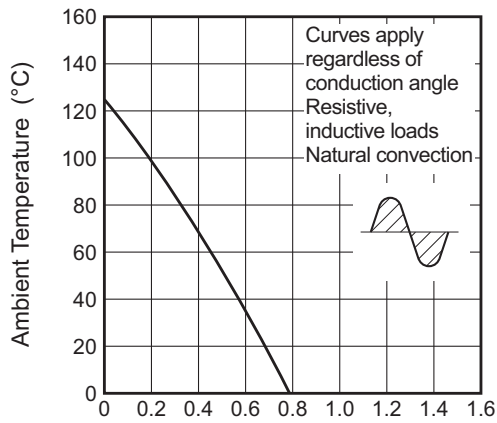
RMS On-State Current (A)

Allowable Case Temperature vs. RMS On-State Current



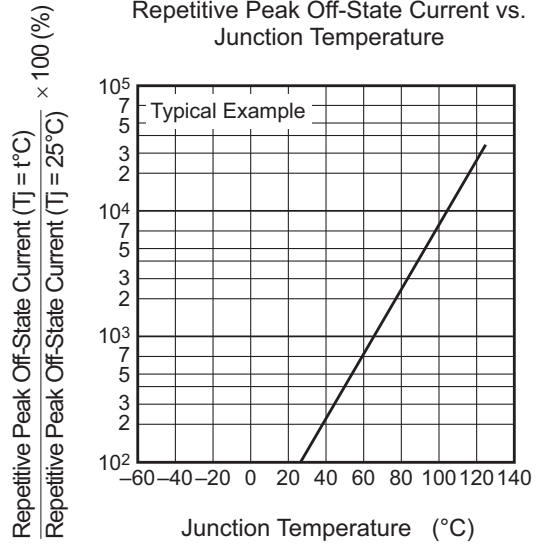
RMS On-State Current (A)

Allowable Ambient Temperature vs. RMS On-State Current

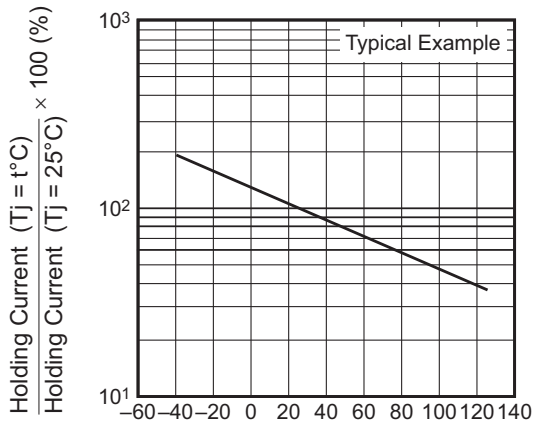


RMS On-State Current (A)

Repetitive Peak Off-State Current vs. Junction Temperature

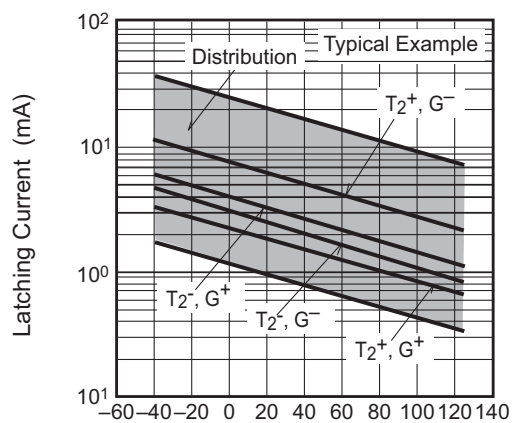


Holding Current vs. Junction Temperature



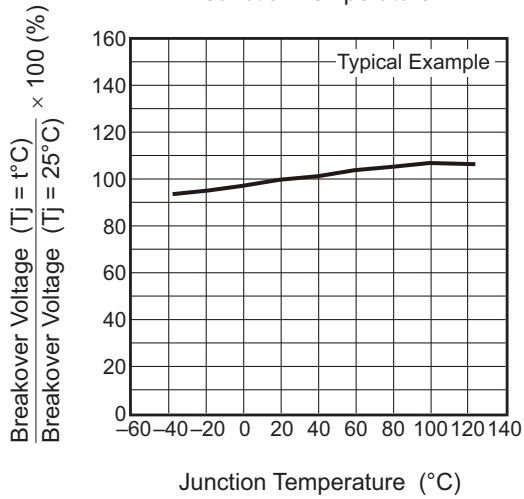
Junction Temperature (°C)

Latching Current vs. Junction Temperature

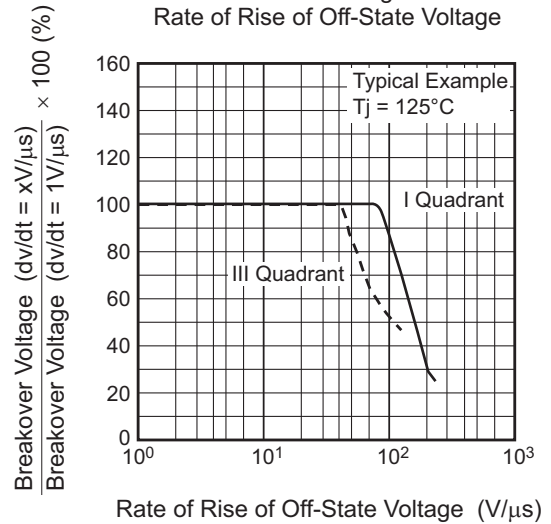


Junction Temperature (°C)

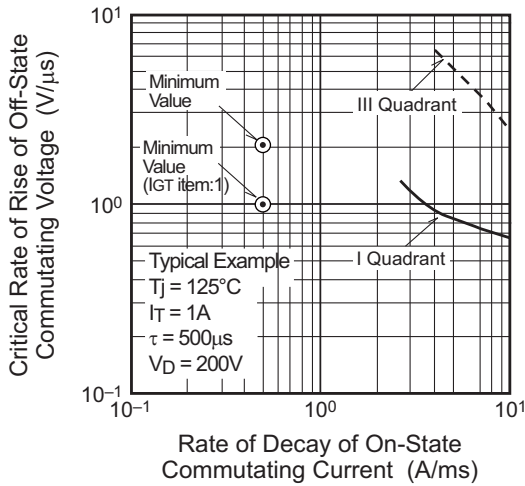
Breakover Voltage vs. Junction Temperature



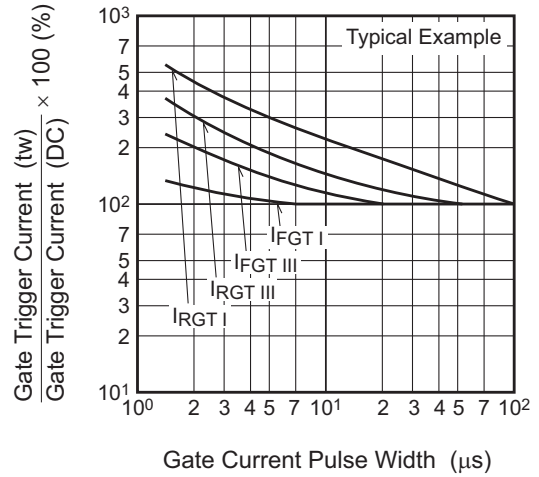
Breakover Voltage vs. Rate of Rise of Off-State Voltage



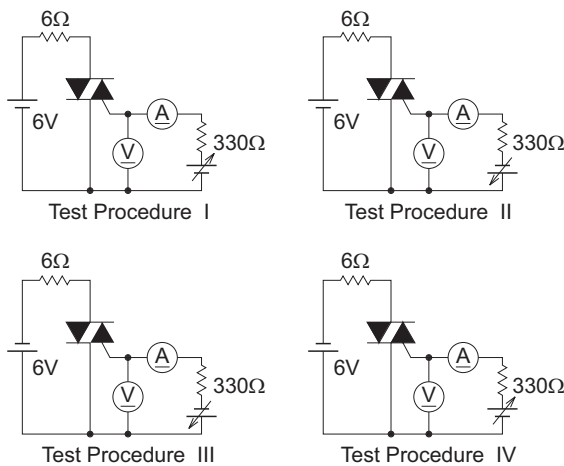
Commutation Characteristics



Gate Trigger Current vs. Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



Package Dimensions

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

Unit: 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 _{GT} 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 _{GT} 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 _{GT} item:1

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

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