

BCR1AM-12

Triac

Low Power Use

R07DS0154EJ0200
(Previous: REJ03G0344-0100)
Rev.2.00
Sep 17, 2010

Features

- $I_{T(RMS)}$: 1 A
- V_{DRM} : 600 V
- $I_{FGT I}$, $I_{RGT I}$, $I_{RGT III}$: 5 mA (3 mA)^{Note5}
- $I_{FGT III}$: 10 mA
- Non-Insulated Type
- Glass Passivation Type

Outline

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



1. T₁ Terminal
2. T₂ Terminal
3. Gate Terminal

Applications

Contactless AC switch, fan motor, rice-cooker, electric pot, air cleaner, heater, refrigerator, washing machine, electric fan, vending machine, trigger circuit for low and medium triac, and other general purpose 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

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°C ^{Note3}
Surge on-state current	I_{TSM}	10	A	60Hz sinewave 1 full cycle, peak value, non-repetitive
I ² t for fusing	I ² t	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

Notes: 1. Gate open.

Electrical Characteristics

Parameter		Symbol	Rated value			Unit	Test conditions
			Min.	Typ.	Max.		
Repetitive peak off-state current		I_{DRM}	—	—	0.5	mA	$T_j = 125^\circ\text{C}$, V_{DRM} applied
On-state voltage		V_{TM}	—	—	1.6	V	$T_c = 25^\circ\text{C}$, $I_{\text{TM}} = 1.5\text{ A}$, Instantaneous measurement
Gate trigger voltage ^{Note2}	I	V_{FGTI}	—	—	2.0	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	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	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II	I_{RGTI}	—	—	5 ^{Note5}	mA	
	III	I_{RGTIII}	—	—	5 ^{Note5}	mA	
	IV	I_{FGTIII}	—	—	10	mA	
Gate non-trigger voltage		V_{GD}	0.1	—	—	V	$T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{\text{DRM}}$
Thermal resistance		$R_{\text{th (j-c)}}$	—	—	50	$^\circ\text{C/W}$	Junction to case ^{Note3}
Critical-rate of rise of off-state commutating voltage ^{Note4}		$(dv/dt)_c$	2	—	—	V/ μs	$T_j = 125^\circ\text{C}$

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

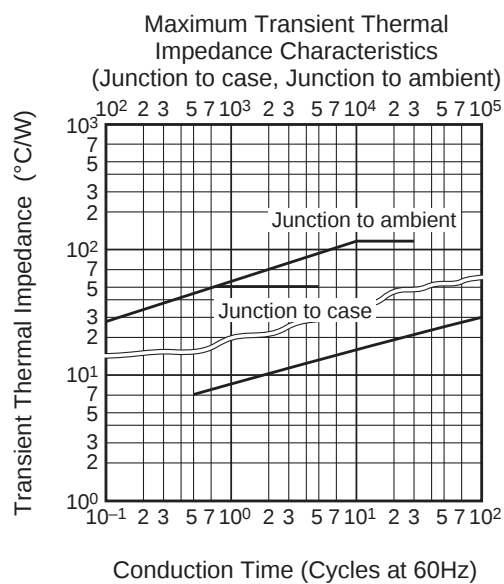
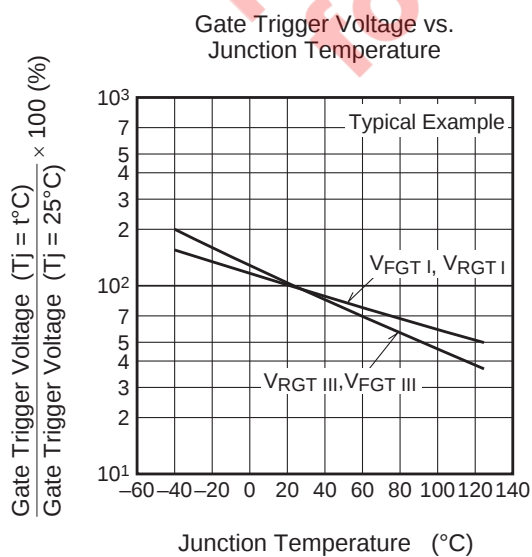
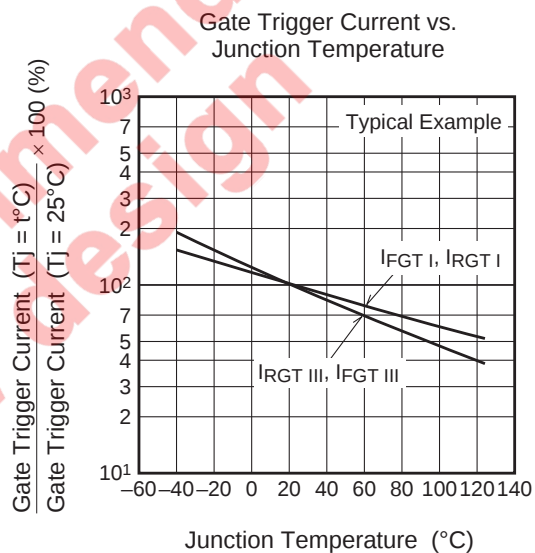
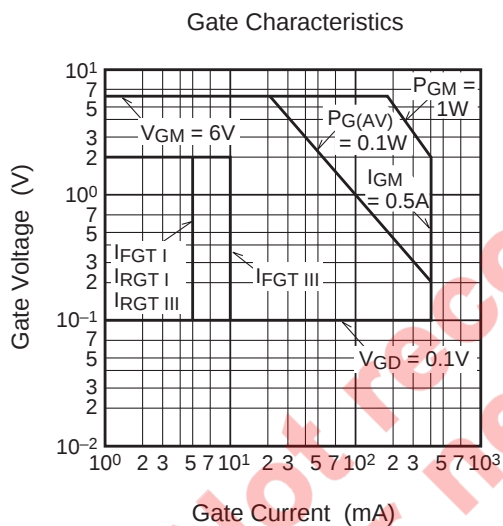
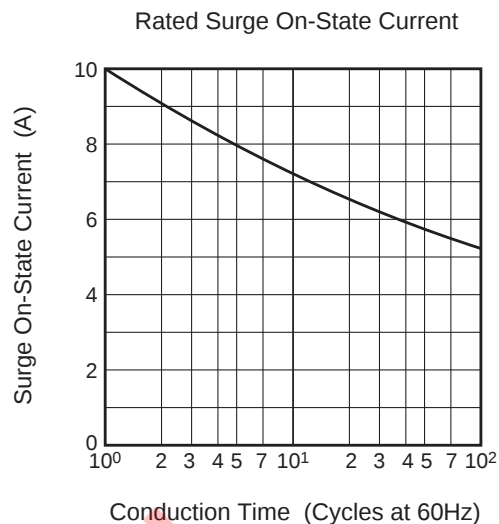
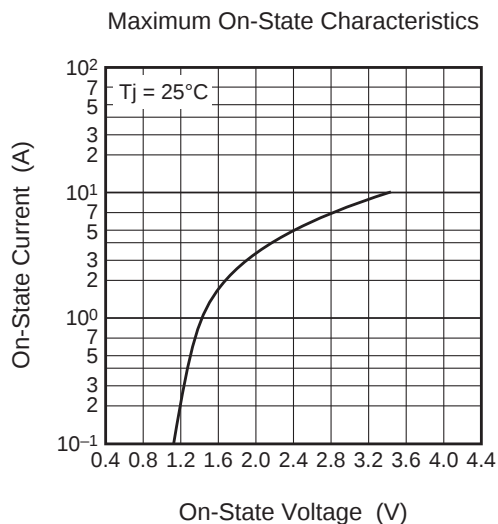
3. Case temperature is measured at the T_2 terminal 1.5 mm away from the molded case.

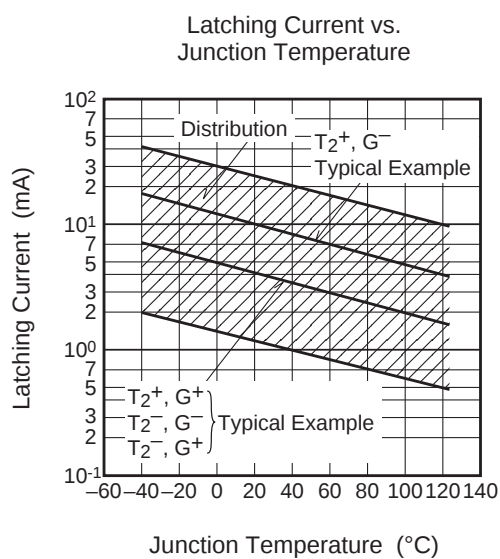
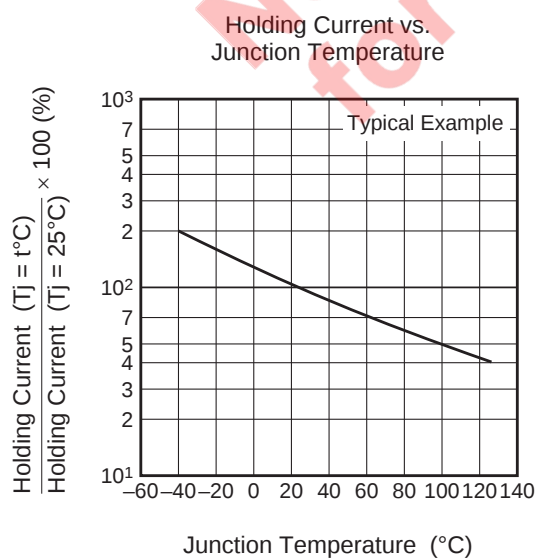
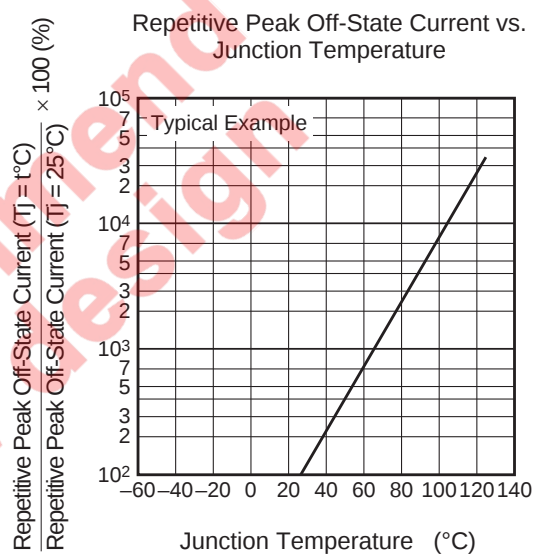
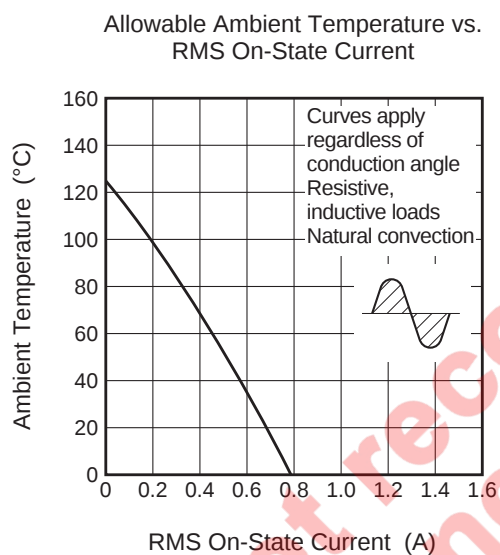
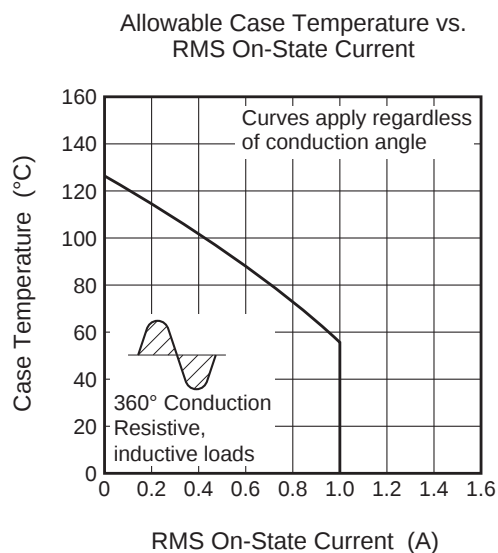
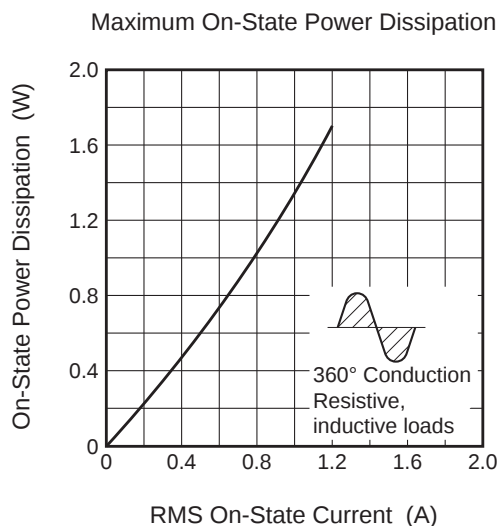
4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

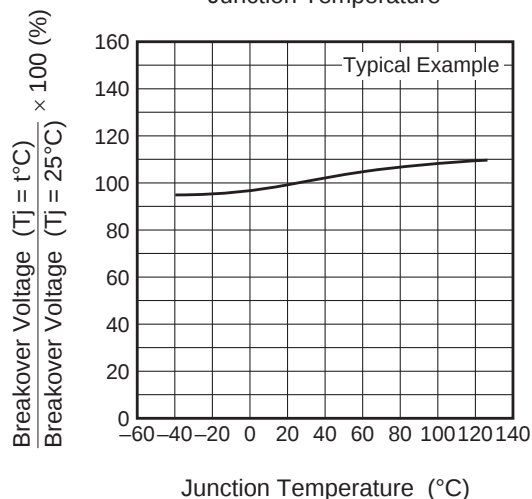
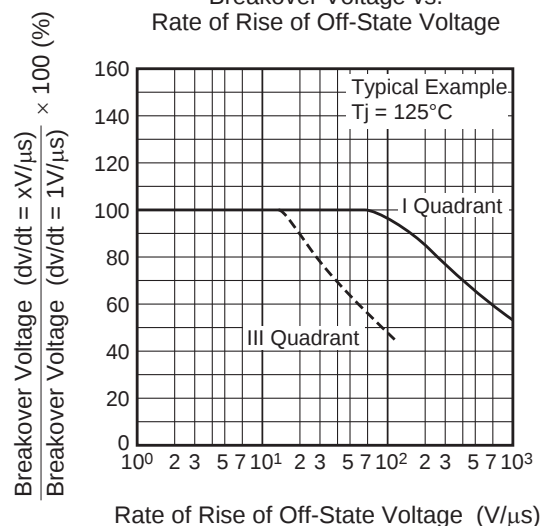
5. High sensitivity ($I_{\text{GT}} \leq 3\text{ mA}$) is also available. (I_{GT} item: 1)

Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c = -0.5\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

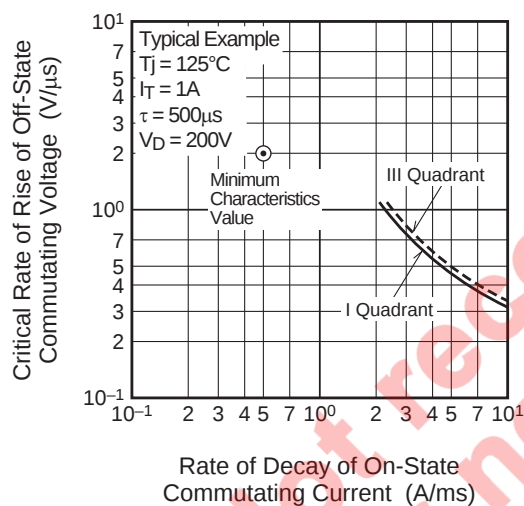
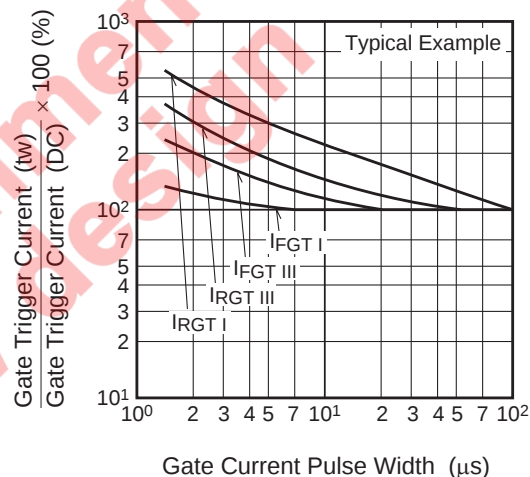
Performance Curves



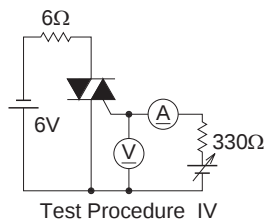
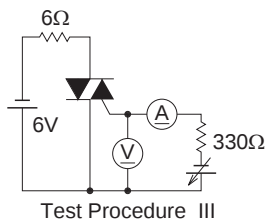
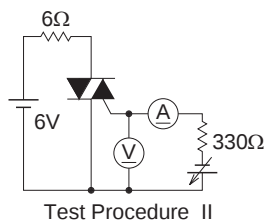
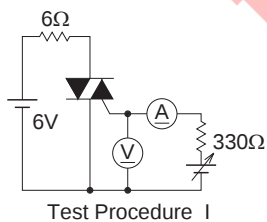


Breakover Voltage vs.
Junction TemperatureBreakover Voltage vs.
Rate of Rise of Off-State Voltage

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.]	Unit: mm
TO-92*	SC-43A	PRSS0003EA-A	T920	0.23g	

Top view dimensions: $\phi 5.0\text{Max}$, 4.4, 5.0Max, 11.5Min, 1.25, 1.25.

Side view dimensions: 3.6, 1.1, Circumscribed circle $\phi 0.7$.

Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Vinyl sack	500	Type name	BCR1AM-12
Lead form	Vinyl sack	500	Type name – Lead forming code	BCR1AM-12-A6
Form A8	Taping	2000	Type name – TB	BCR1AM-12-TB

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

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