BCR5AS-14A

Triac

Medium Power Use

R07DS0671EJ0100
Rev.1.00
Jul 23, 2012

Features

- $I_{T\ (RMS)}$: 5 A
- I_{FGTI}, I_{RGTI}, $I_{RGT\ III}$: 30 mA
- Non-Insulated Type
- Planar Passivation Type

Outline

RENESAS Package code: PRSS0004ZG-A
(Package name: MP-3A)

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

Applications

Hybrid IC, Solid state relay, Switching mode power supply, light dimmer, electronic switch, electric fans, electronic blanket, and Washing machine, small motor controller and other general purpose 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

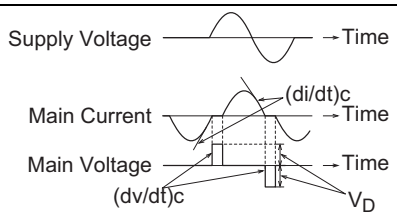
Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T\ (RMS)}$	5	A	Commercial frequency, sine full wave 360°conduction, Tc = 103°C
Surge on-state current	I_{TSM}	50	A	60Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	10.4	A^2s	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	P_{GM}	3	W	
Average gate power dissipation	$P_{G\ (AV)}$	0.3	W	
Peak gate voltage	V_{GM}	10	V	
Peak gate current	I_{GM}	2	A	
Junction Temperature	Tj	–40 to +125	°C	
Storage temperature	Tstg	–40 to +125	°C	
Mass	—	0.26	g	Typical value

Electrical Characteristics

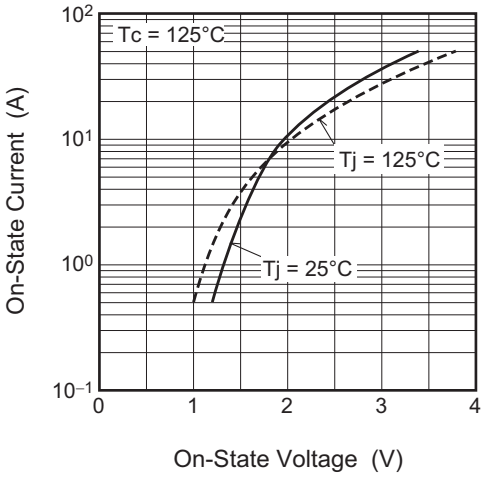
Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current		I_{DRM}	—	—	2.0	mA	Tj = 125°C, V_{DRM} applied
On-state voltage		V_{TM}	—	—	1.8	V	Tc = 25°C, I_{TM} = 7 A, instantaneous measurement
Gate trigger voltage[Note2]	I	V_{FGT_I}	—	—	1.5	V	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	V_{RGT_I}	—	—	1.5	V	
	III	$V_{RGT_{III}}$	—	—	1.5	V	
Gate trigger curent[Note2]	I	I_{FGT_I}	—	—	30	mA	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	I_{RGT_I}	—	—	30	mA	
	III	$I_{RGT_{III}}$	—	—	30	mA	
Gate non-trigger voltage		V_{GD}	0.2	—	—	V	Tj = 125°C, V_D = 1/2 V_{DRM}
Thermal resistance		$R_{th\ (j-c)}$	—	—	3.0	°C/W	Junction to case[Note3]
Critical-rate of rise of off-state commutation voltage[Note4]		(dv/dt)c	5	—	—	V/μs	Tj = 125°C

Notes: 2. Measurement using the gate trigger characteristics measurement circuit.
3. Case temperature is measured on the T2 tab.
4. Test conditions of the critical-rate of rise of off-state commutation voltage is shown in the table below.

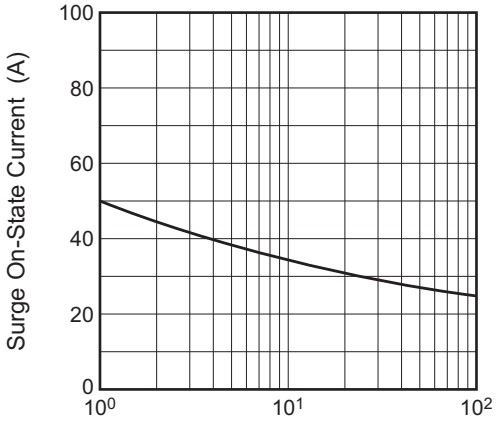
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature Tj = 125°C 2. Rate of decay of on-state commutating current (di/dt)c = –2.5 A/ms 3. Peak off-state voltage V_D = 400 V	

Performance Curves

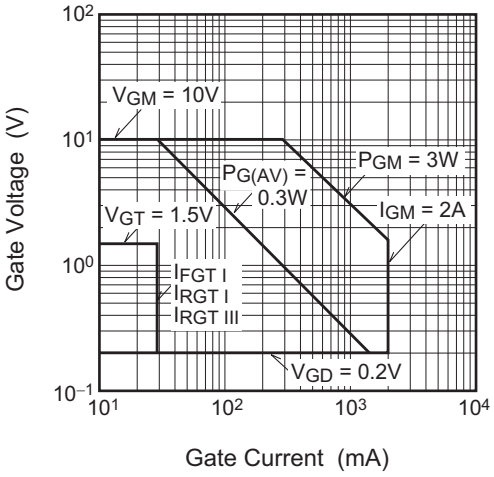
Maximum On-State Characteristics



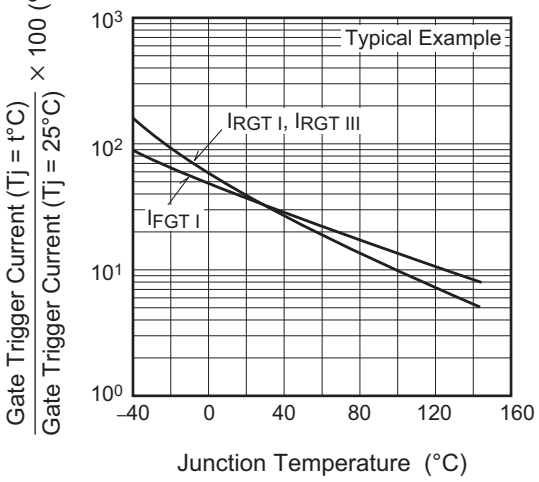
Rated Surge On-State Current



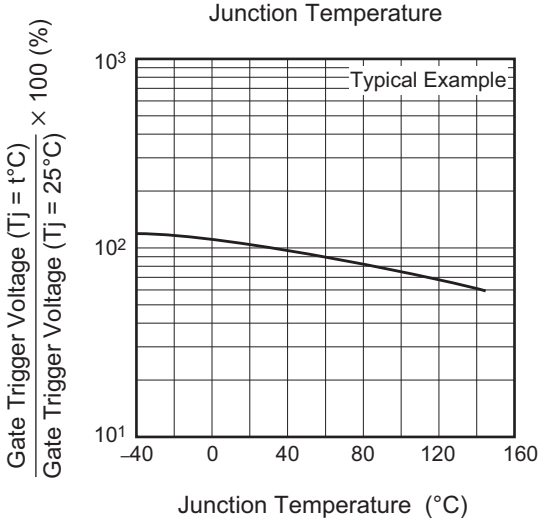
Gate Characteristics



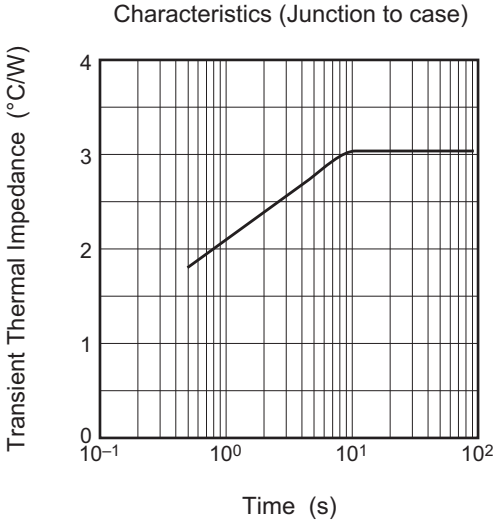
Gate Trigger Current vs. Junction Temperature



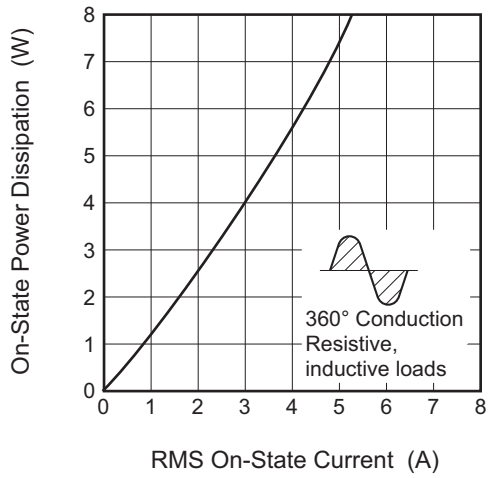
Gate Trigger Voltage vs. Junction Temperature



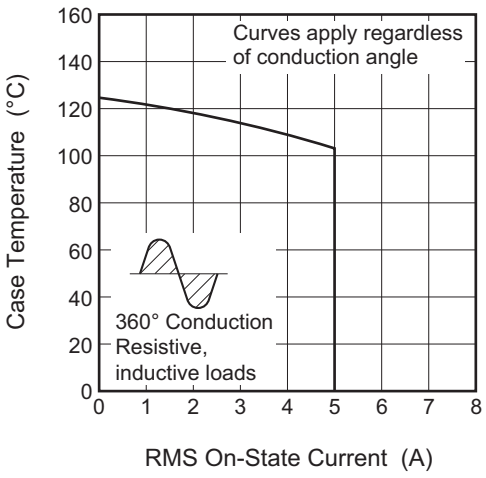
Maximum Transient Thermal Impedance Characteristics (Junction to case)



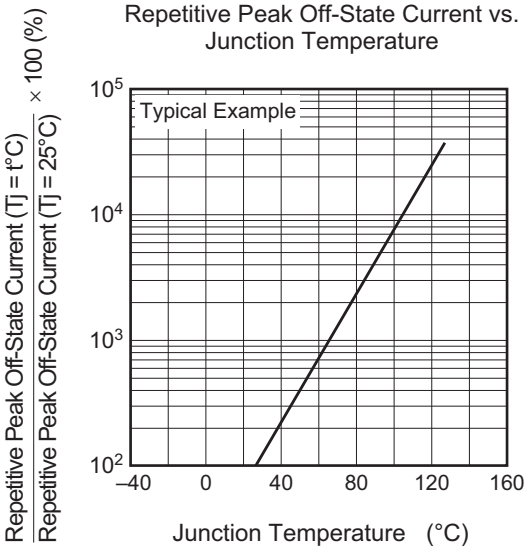
Maximum On-State Power Dissipation



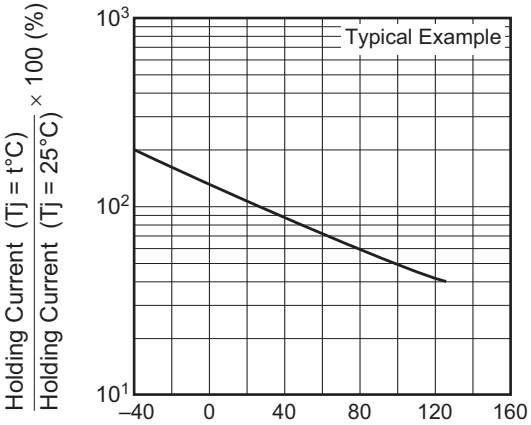
Allowable Case Temperature vs. RMS On-State Current



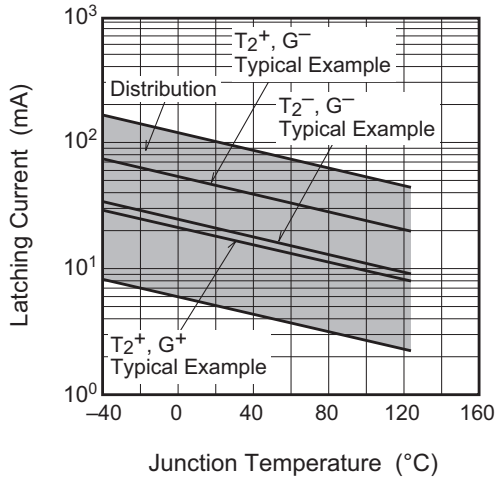
Repetitive Peak Off-State Current vs. Junction Temperature



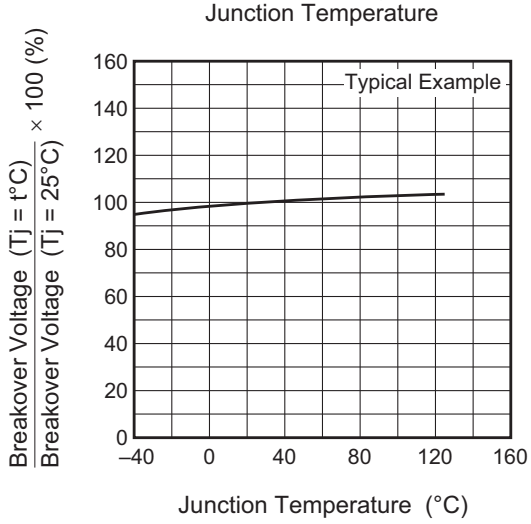
Holding Current vs. Junction Temperature



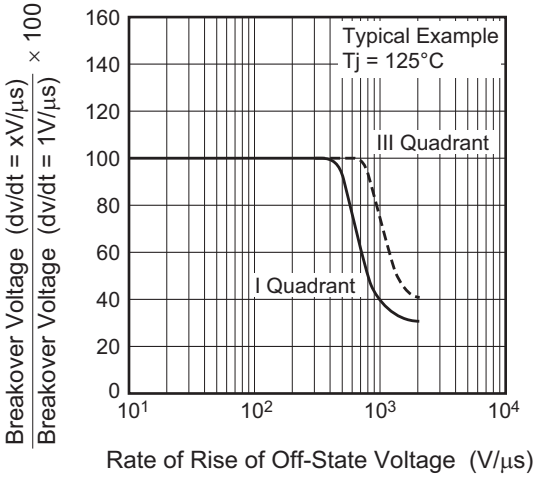
Latching Current vs. Junction Temperature



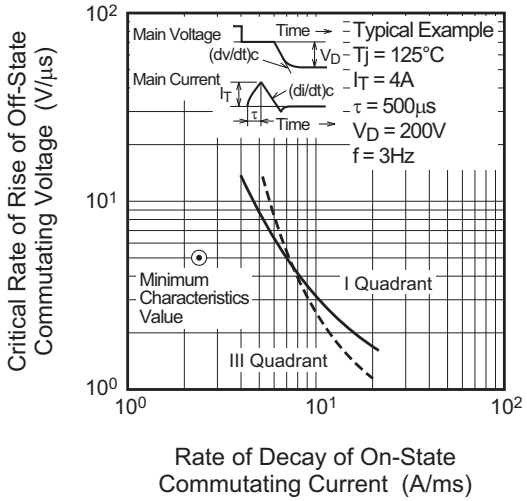
Breakover Voltage vs. Junction Temperature



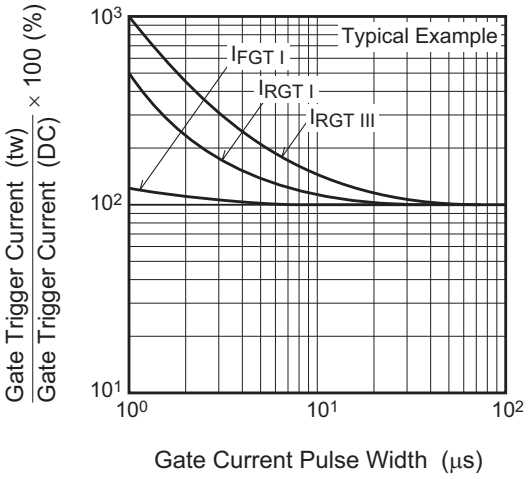
Breakover Voltage vs.
Rate of Rise of Off-State Voltage



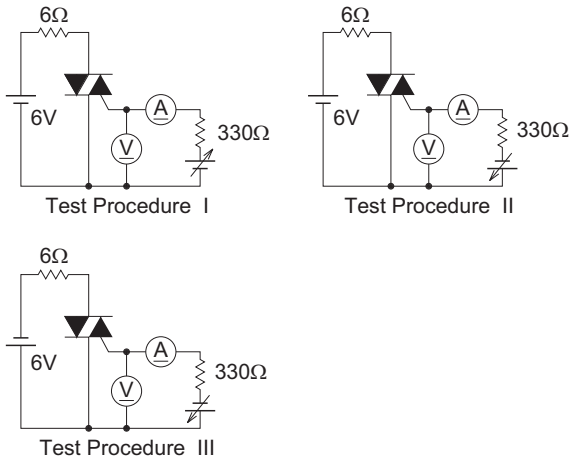
Commutation Characteristics



Gate Trigger Current vs.
Gate Current Pulse Width



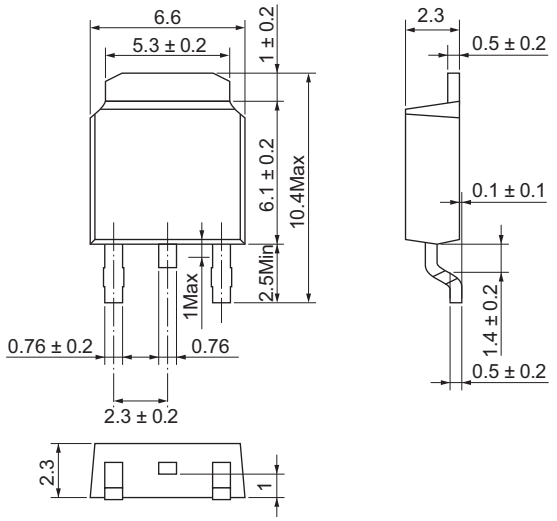
Gate Trigger Characteristics Test Circuits



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
MP-3A	SC-63	PRSS0004ZG-A	—	0.32g

Unit: mm



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR5AS-14A#B00	Tube	75 pcs.	MP-3A package
BCR5AS-14A -T13#B00	Embossed Tape	3000 pcs.	MP-3A package, Taping direction “T1”

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

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