BCR4AS-16LH

Triac
Medium Power Use

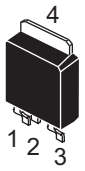
R07DS0331EJ0100
Rev.1.00
Apr 28, 2011

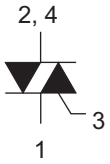
Features

- $I_{T\ (RMS)}$: 4 A
- V_{DRM} : 800 V
- I_{FGTI}, I_{RGTI}, $I_{RGT\ III}$: 35 mA or 10mA(I_{GT} item:1)
- High Commutation
- The Product guaranteed maximum junction temperature 150°C
- Non-Insulated Type
- Planar 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

Switching mode power supply, small motor control, heater control, and other general purpose AC power control applications

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		16	
Repetitive peak off-state voltage Note1	V_{DRM}	800	V
Non-repetitive peak off-state voltage Note1	V_{DSM}	960	V

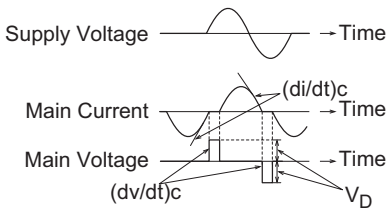
Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T\ (RMS)}$	4	A	Commercial frequency, sine full wave 360°conduction, Tc = 129°C Note3
Surge on-state current	I_{TSM}	30	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	3.7	A^2s	Value corresponding to 1 cycle of half wave 60 Hz, 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 +150	°C	
Storage temperature	Tstg	–40 to +150	°C	
Mass	—	0.32	g	Typical value

Electrical Characteristics

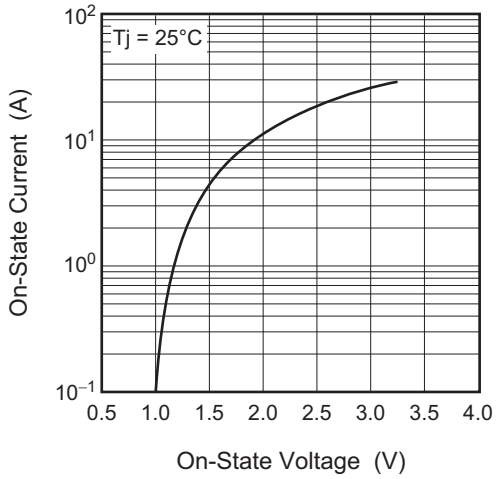
Parameter		Symbol	BCR4AS-16LH-1 (I_{GT} item : 1)			BCR4AS-16LH			Unit	Test conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Repetitive peak off-state current		I_{DRM}	—	—	2.0	—	—	2.0	mA	Tj = 150°C V_{DRM} applied
On-state voltage		V_{TM}	—	—	1.6	—	—	1.6	V	Tc = 25°C, I_{TM} = 6 A instantaneous measurement
Gate trigger voltage[Note2]	I	V_{FGTI}	—	—	1.5	—	—	1.5	V	Tj = 25°C, V_D = 6 V R_L = 6 Ω, R_G = 330 Ω
	II	V_{RGTI}	—	—	1.5	—	—	1.5	V	
	III	V_{RGTIII}	—	—	1.5	—	—	1.5	V	
Gate trigger curent[Note2]	I	I_{FGTI}	—	—	10	—	—	35	mA	Tj = 25°C, V_D = 6 V R_L = 6 Ω, R_G = 330 Ω
	II	I_{RGTI}	—	—	10	—	—	35	mA	
	III	I_{RGTIII}	—	—	10	—	—	35	mA	
Gate non-trigger voltage		V_{GD}	0.2	—	—	0.2	—	—	V	Tj = 125°C V_D = 1/2 V_{DRM}
			0.1	—	—	0.1	—	—	V	Tj = 150°C V_D = 1/2 V_{DRM}
Thermal resistance		$R_{th\ (j-c)}$	—	—	3.8	—	—	3.8	°C/W	Junction to case[Note3]
Critical-rate of decay of on-state commutating current [Note4]		(di/dt)c	2.5	—	—	—	—	—	A/ms	Tj = 125°C (dv/dt)c < 10 V/μs
			—	—	—	3.0	—	—	A/ms	Tj = 125°C (dv/dt)c < 100 V/μs

Notes: 2. Measurement using the gate trigger characteristics measurement circuit.
3. Case temperature is measured on the T_2 tab.
4. Test conditions of the critical-rate of decay of on-state commutating current is shown in the table below.

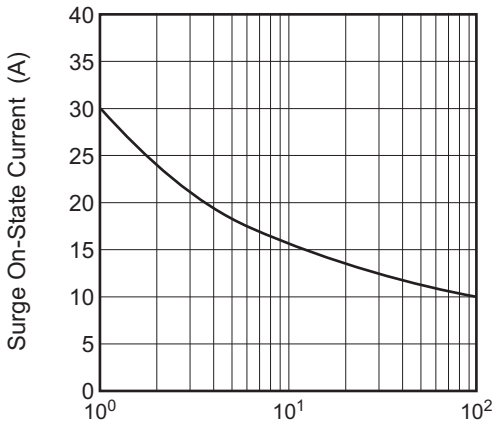
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature Tj = 125°C 2. Peak off-state voltage V_D = 400 V 2. Rate of rise of off-state commutating voltage (dv/dt)c < 10 V/μs (I_{GT} item : 1) (dv/dt)c < 100 V/μs	

Performance Curves

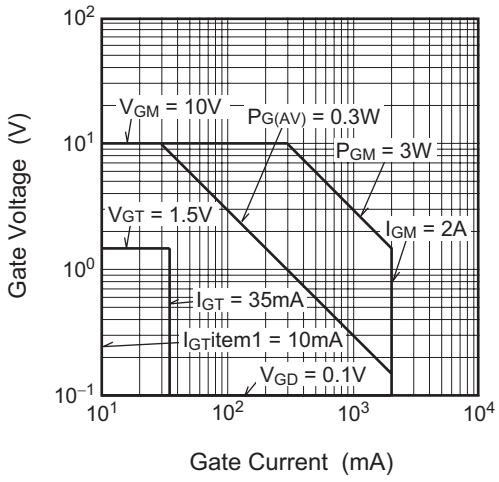
Maximum On-State Characteristics



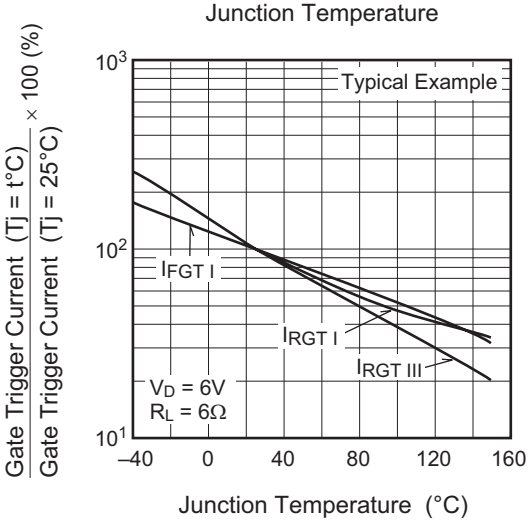
Rated Surge On-State Current



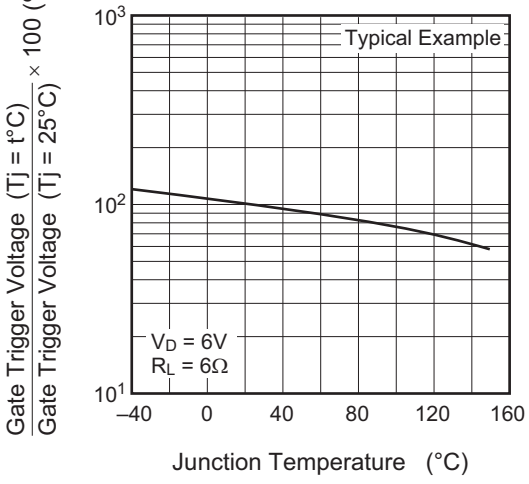
Gate Characteristics (I, II and III)



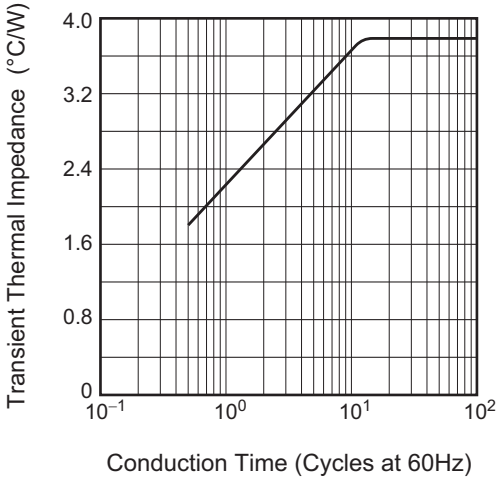
Gate Trigger Current vs. Junction Temperature



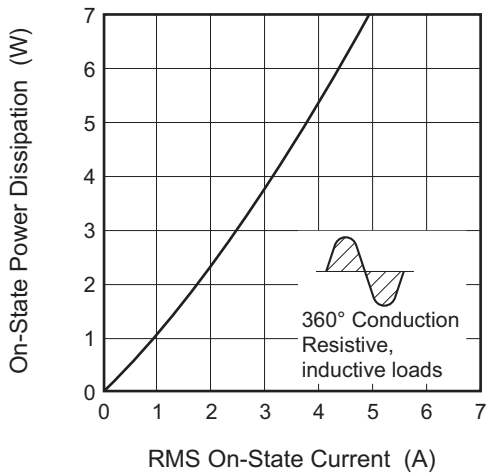
Gate Trigger Voltage vs. Junction Temperature



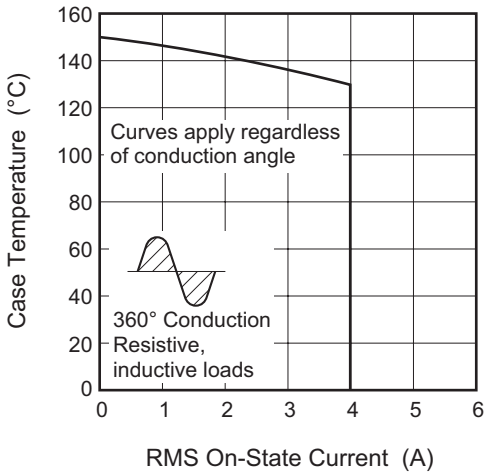
Maximum Transient Thermal Impedance Characteristics (Junction to case)



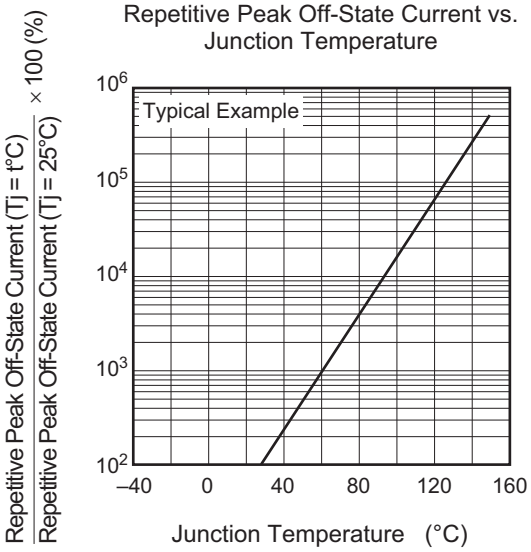
Maximum On-State Power Dissipation



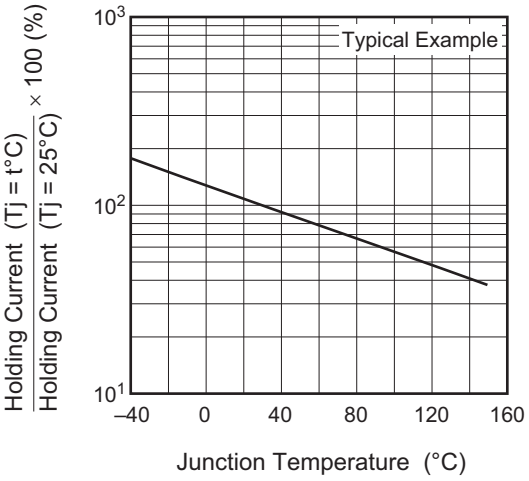
Allowable Case Temperature vs. RMS On-State Current



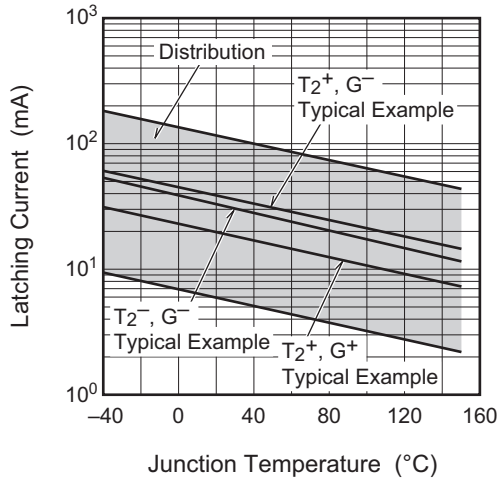
Repetitive Peak Off-State Current vs. Junction Temperature



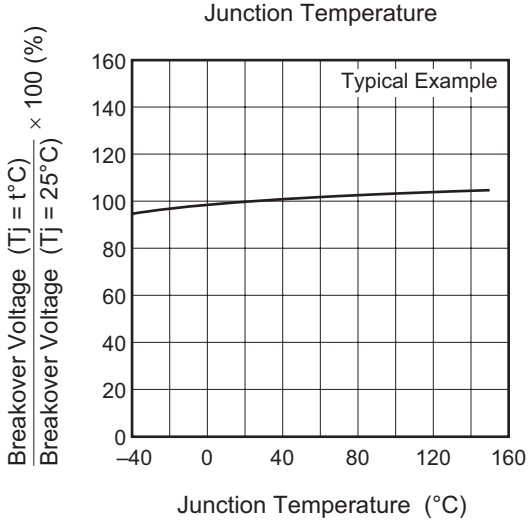
Holding Current vs. Junction Temperature



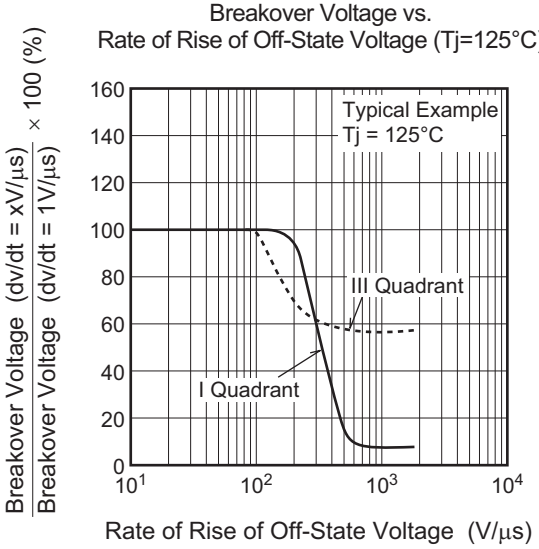
Latching Current vs. Junction Temperature



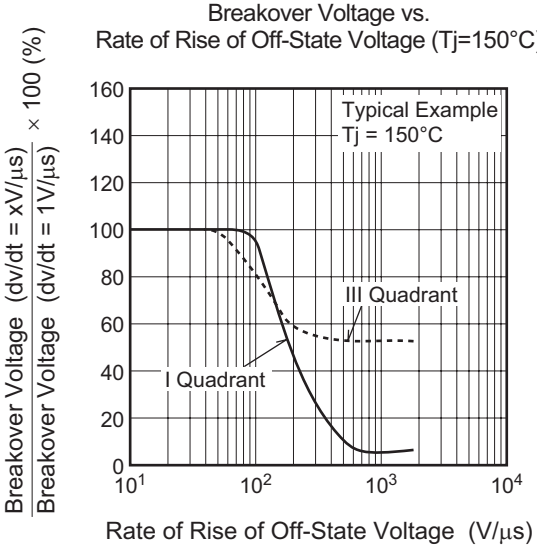
Breakover Voltage vs. Junction Temperature



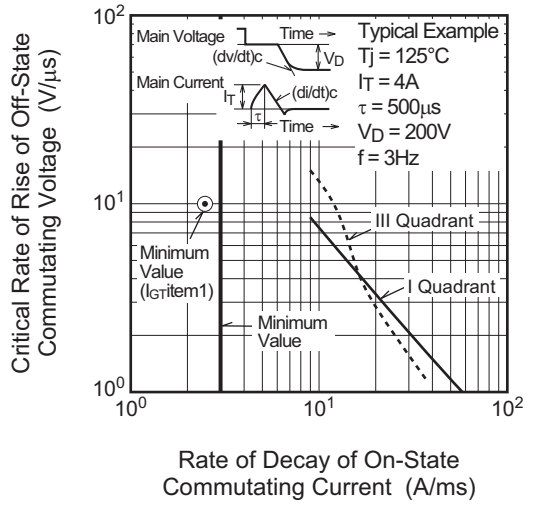
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=125°C)



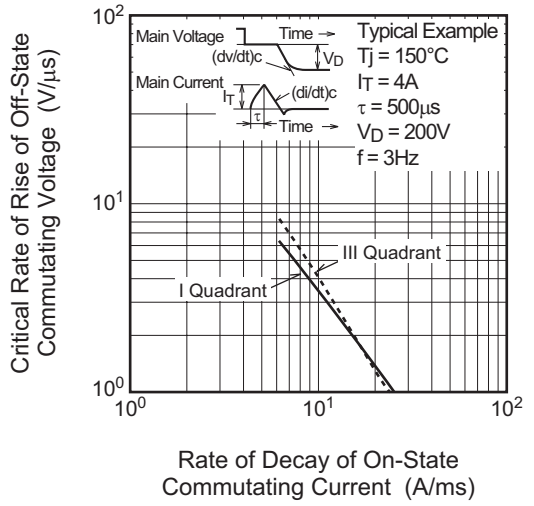
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=150°C)



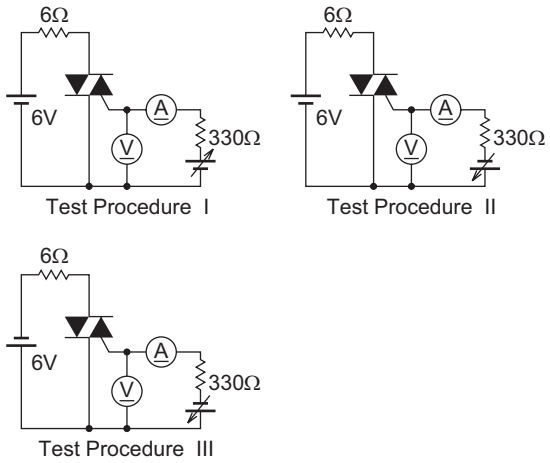
Commutation Characteristics (Tj=125°C)



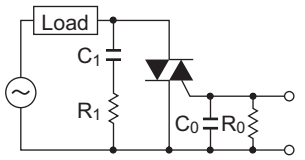
Commutation Characteristics (Tj=150°C)



Gate Trigger Characteristics Test Circuits



Recommended Circuit Values Around The Triac

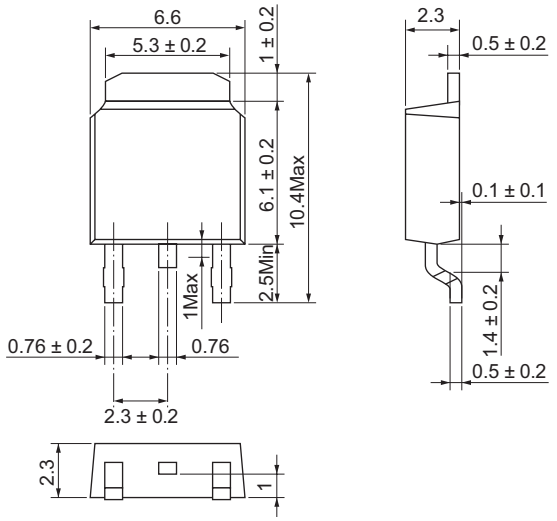


C_1 = 0.1 to 0.47μF C_0 = 0.1μF
R_1 = 47 to 100Ω R_0 = 100Ω

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
MP-3A	SC-63	PRSS0004ZG-A	TMP3	0.32g

Unit: mm



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR4AS-16LH#B00	Tube	75 pcs.	
BCR4AS-16LH-1#B00	Tube	75 pcs.	IGT item1
BCR4AS-16LH-T13#B00	Embossed Tape	3000 pcs.	Taping direction “T1”
BCR4AS-16LH-1T13#B00	Embossed Tape	3000 pcs.	Taping direction “T1”, IGT item1

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

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