BCR10CM-16LH

Triac
Medium Power Use

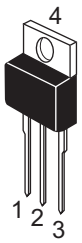
R07DS0320EJ0100
Rev.1.00
May 18, 2011

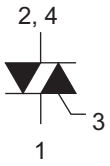
Features

- $I_{T\ (RMS)}$: 10 A
- V_{DRM} : 800 V
- I_{FGTI}, I_{RGTI}, $I_{RGT\ III}$: 50 mA or 35mA(I_{GT} item:1)
- High Commutation
- The Product guaranteed maximum junction temperature 150°C
- Planar Type

Outline

RENESAS Package code: PRSS0004AA-A
(Package name: TO-220)





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

Applications

Switching mode power supply, 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

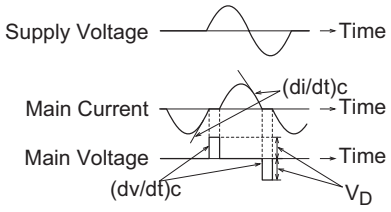
Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T\ (RMS)}$	10	A	Commercial frequency, sine full wave 360°conduction, Tc = 128°C [Note3]
Surge on-state current	I_{TSM}	100	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	41.6	A^2s	Value corresponding to 1 cycle of half wave 60 Hz, surge on-state current
Peak gate power dissipation	P_{GM}	5	W	
Average gate power dissipation	$P_{G\ (AV)}$	0.5	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	—	2.0	g	Typical value

Electrical Characteristics

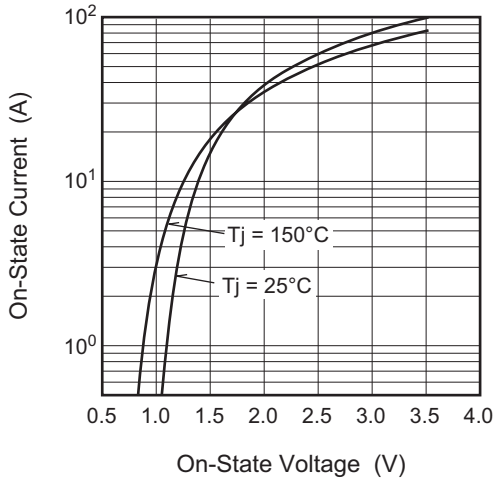
Parameter		Symbol	BCR10CM-16LH-1 (I_{GT} item : 1)			BCR10CM-16LH			Unit	Test conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Repetitive peak off-state current		I_{DRM}	—	—	2.0	—	—	2.0	mA	Tj = 150°C V_{DRM} applied
On-state voltage		V_{TM}	—	—	1.5	—	—	1.5	V	Tc = 25°C, I_{TM} = 15 A instantaneous measurement
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}	—	—	35	—	—	50	mA	Tj = 25°C, V_D = 6 V R_L = 6 Ω, R_G = 330 Ω
	II	I_{RGTI}	—	—	35	—	—	50	mA	
	III	I_{RGTIII}	—	—	35	—	—	50	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		$R_{th\ (j-c)}$	—	—	1.8	—	—	1.8	°C/W	Junction to case[Note3,4]
Critical-rate of decay of on-state commutating current [Note5]		(di/dt)c	6	—	—	10	—	—	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 at the T_2 tab 1.5 mm apart from the molded case.
4. The contact thermal resistance $R_{th\ (c-f)}$ in case of greasing is 1.0°C/W.
5. Test conditions of the critical-rate of decay of on-state commutation current are shown in the table below.

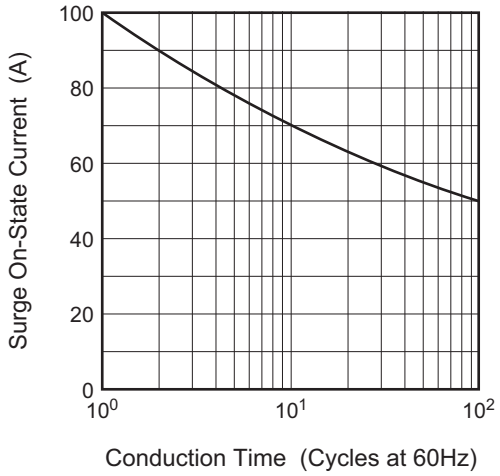
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature Tj = 125°C 2. Peak off-state voltage V_D = 400 V 2. Rate of rise of off-state commutating voltage (dv/dt)c < 100 V/μs	

Performance Curves

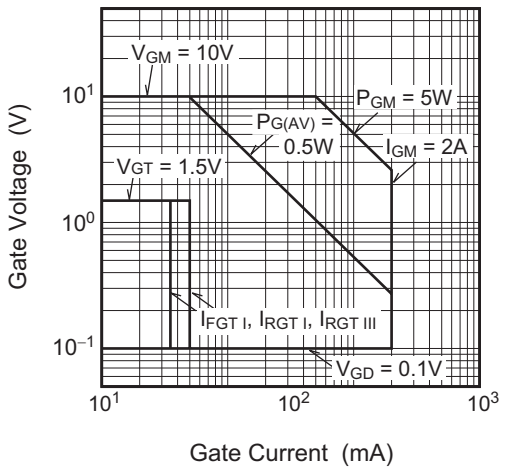
Maximum On-State Characteristics



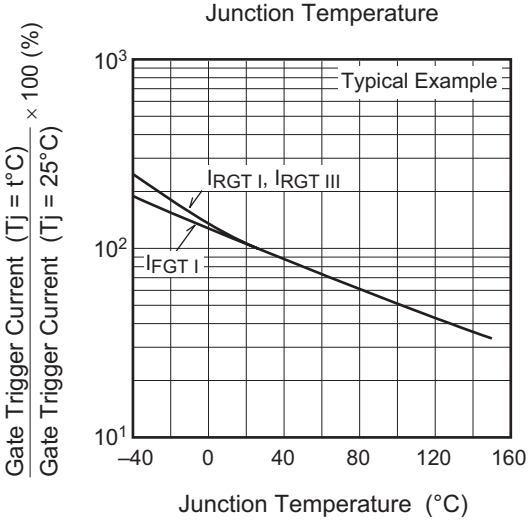
Rated Surge On-State Current



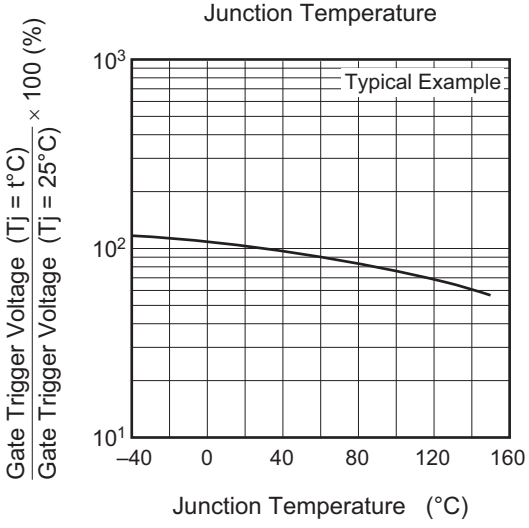
Gate Characteristics



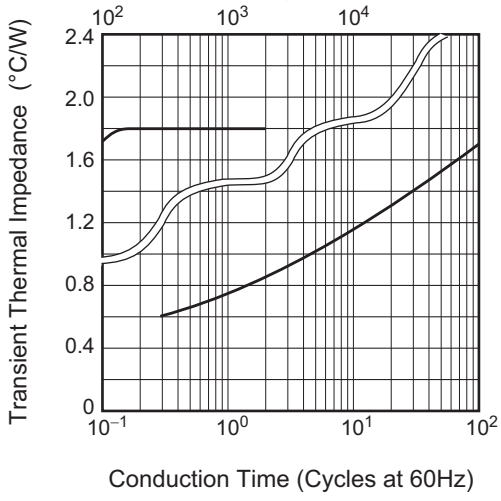
Gate Trigger Current vs. Junction Temperature



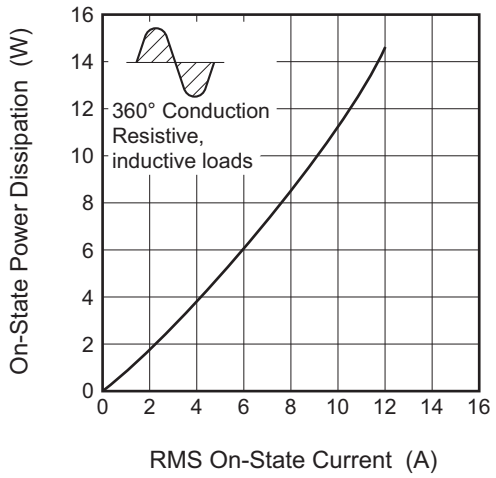
Gate Trigger Voltage vs. Junction Temperature



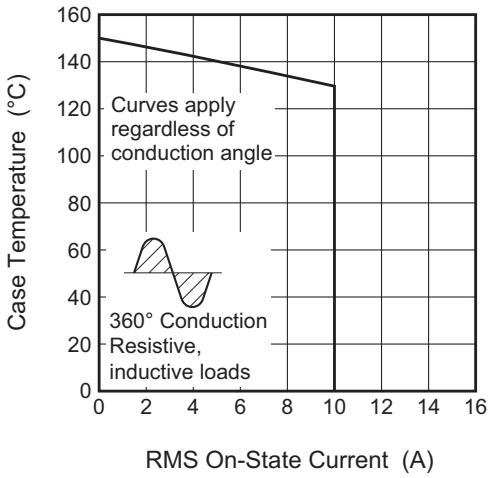
Maximum Transient Thermal Impedance Characteristics (Junction to case)



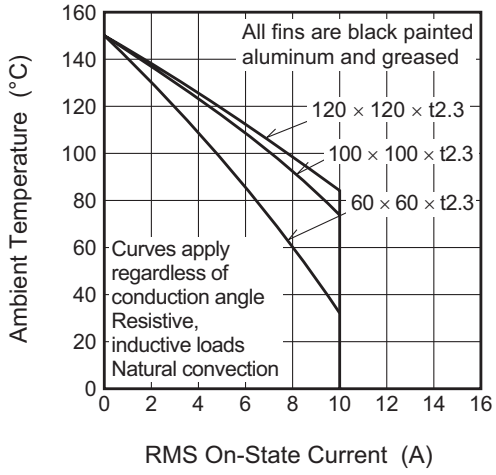
Maximum On-State Power Dissipation



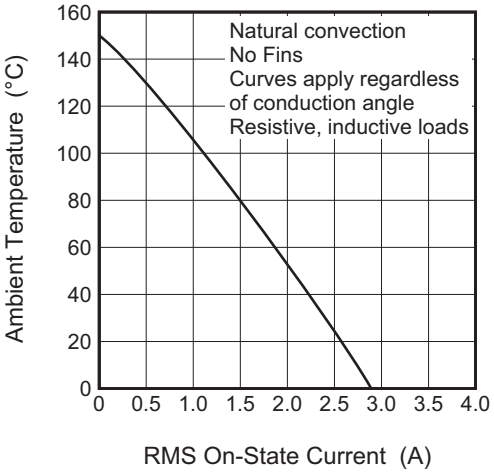
Allowable Case Temperature vs.
RMS On-State Current



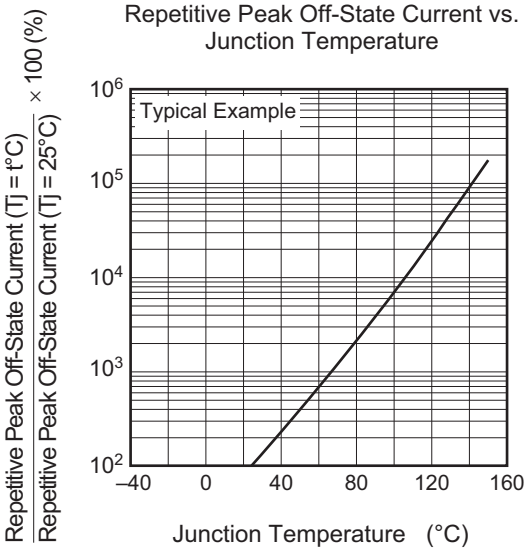
Allowable Ambient Temperature vs.
RMS On-State Current



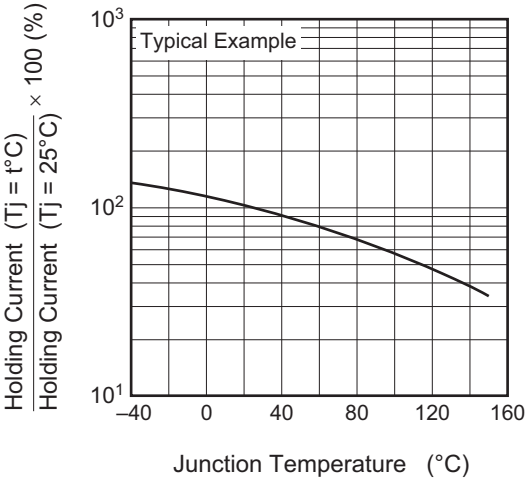
Allowable Ambient Temperature vs.
RMS On-State Current



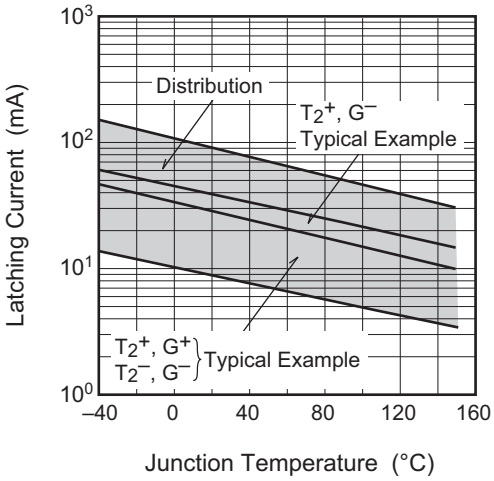
Repetitive Peak Off-State Current vs.
Junction Temperature



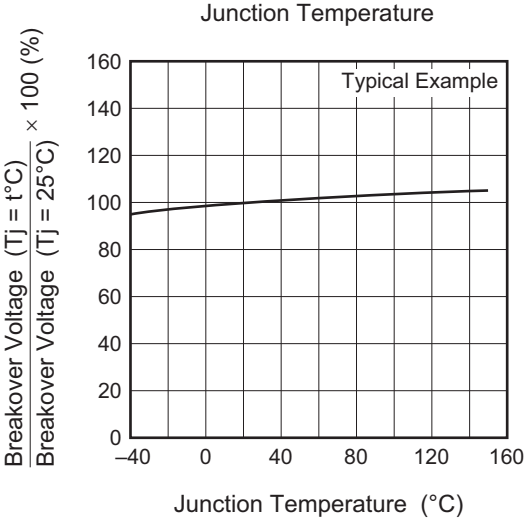
Holding Current vs.
Junction Temperature



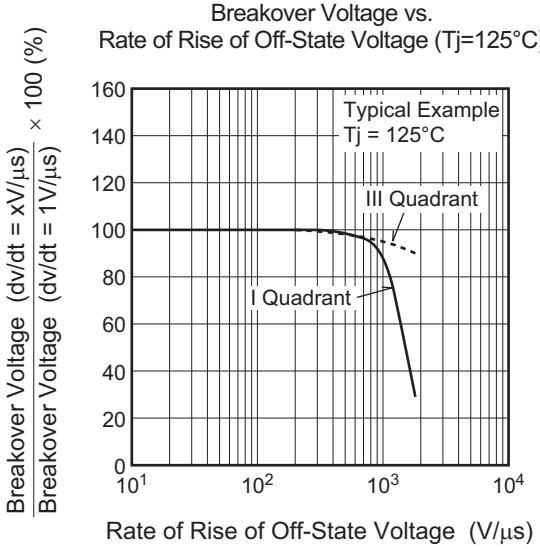
Latching Current vs.
Junction Temperature



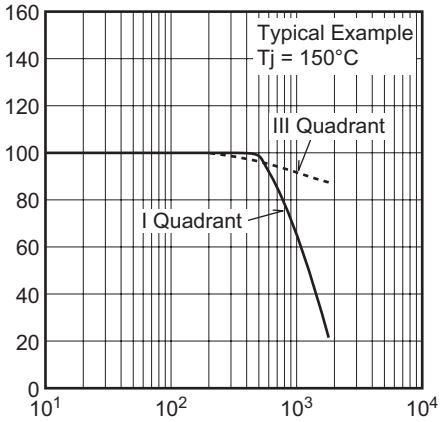
Breakover Voltage vs.
Junction Temperature



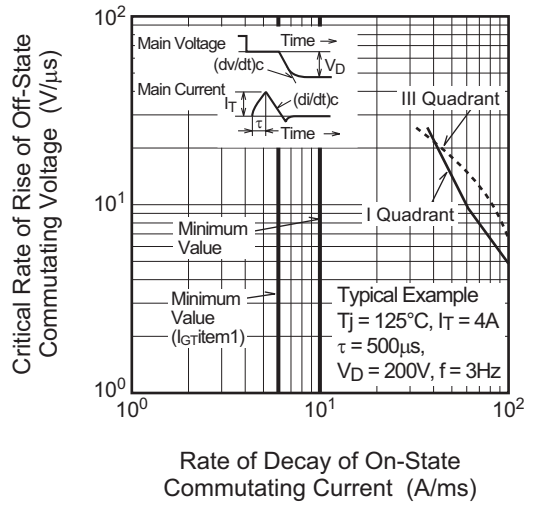
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=125°C)



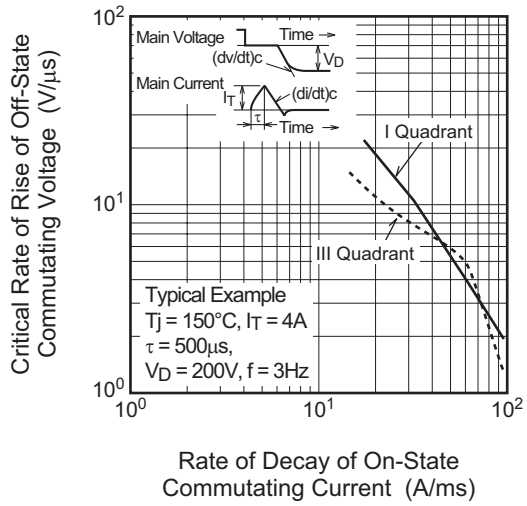
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=150°C)



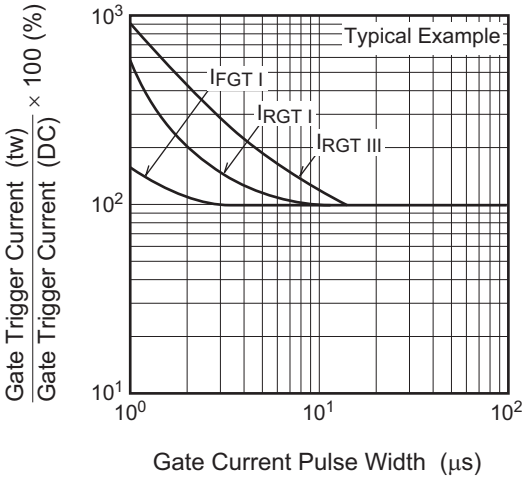
Commutation Characteristics (Tj=125°C)



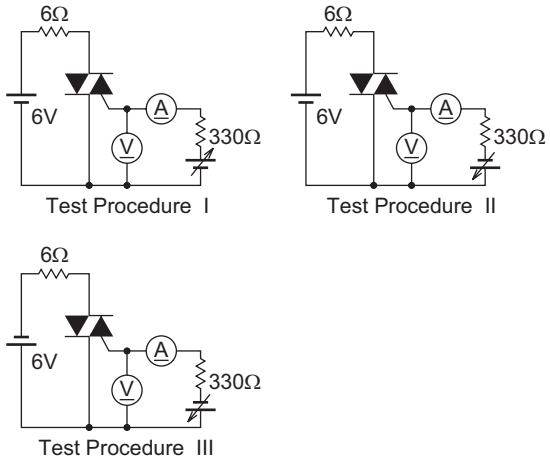
Commutation Characteristics (Tj=150°C)



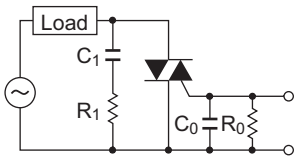
Gate Trigger Current vs.
Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



Recommended Circuit Values Around The Triac

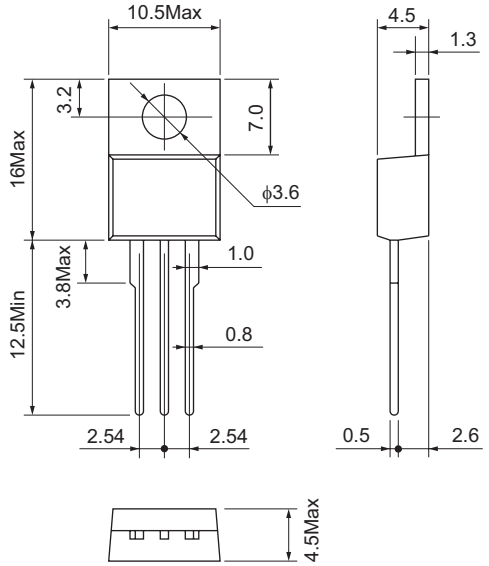


C_1 = 0.1 to 0.47μF C_0 = 0.1μF
R_1 = 47 to 100Ω R_0 = 100Ω

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-220	SC-46	PRSS0004AA-A	—	2.0g

Unit: mm



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR10CM-16LH#B00	Bag	100 pcs.	Straight type
BCR10CM-16LH-1#B00	Bag	100 pcs.	Straight type, I_{GT} item:1
BCR10CM-16LH-A8#B00	Tube	50 pcs.	A8 Lead form
BCR10CM-16LH-1A8#B00	Tube	50 pcs.	A8 Lead form, I_{GT} item:1

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

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