

BCR8LM-14LJ

Triac
Medium Power Use

R07DS0502EJ0200
Rev.2.00
Oct 14, 2011

Features

- $I_{T(RMS)}$: 8 A
- V_{DRM} : 800 V ($T_j=125^\circ\text{C}$)
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 30 mA
- Viso: 1800V
- The Product guaranteed maximum junction temperature 150°C
- Insulated Type
- Planar Type
- UL Recognized: File No. E223904

Outline

RENESAS Package code: PRSS0003AF-A)
(Package name: TO-220FL)



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

Applications

washing machine, inversion operation of capacitor motor, and other general purpose control applications

Maximum Ratings

Parameter	Symbol	Voltage class	Unit	Conditions
		14		
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	800	V	$T_j=125^\circ\text{C}$
		700	V	$T_j=150^\circ\text{C}$
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	840	V	

Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	8	A	Commercial frequency, sine full wave 360° conduction, $T_c = 107^\circ\text{C}$
Surge on-state current	I_{TSM}	80	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	26	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	T_j	-40 to +150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-40 to +150	$^\circ\text{C}$	
Mass	—	1.5	g	Typical value
Isolation voltage	V_{iso}	1800	V	$T_a = 25^\circ\text{C}$, AC 1 minute, $T_1 \bullet T_2 \bullet G$ terminal to case

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions	
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_j = 150^\circ\text{C}$, V_{DRM} applied	
On-state voltage	V_{TM}	—	—	1.6	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 12\text{A}$, instantaneous measurement	
Gate trigger voltage ^{Note2}	I	V_{FGTI}	—	—	1.5	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II	V_{RGTI}	—	—	1.5	V	
	III	V_{RGTIII}	—	—	1.5	V	
Gate trigger current ^{Note2}	I	I_{FGTI}	—	—	30	mA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II	I_{RGTI}	—	—	30	mA	
	III	I_{RGTIII}	—	—	30	mA	
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$	
		0.1	—	—	V	$T_j = 150^\circ\text{C}$, $V_D = 1/2 V_{DRM}$	
Thermal resistance	$R_{th(j-c)}$	—	—	4.3	$^\circ\text{C/W}$	Junction to case ^{Note3}	
Critical-rate of rise of off-state commutation voltage ^{Note4}	$(dv/dt)_c$	10	—	—	$\text{V}/\mu\text{s}$	$T_j = 125^\circ\text{C}$	
		1	—	—	$\text{V}/\mu\text{s}$	$T_j = 150^\circ\text{C}$	

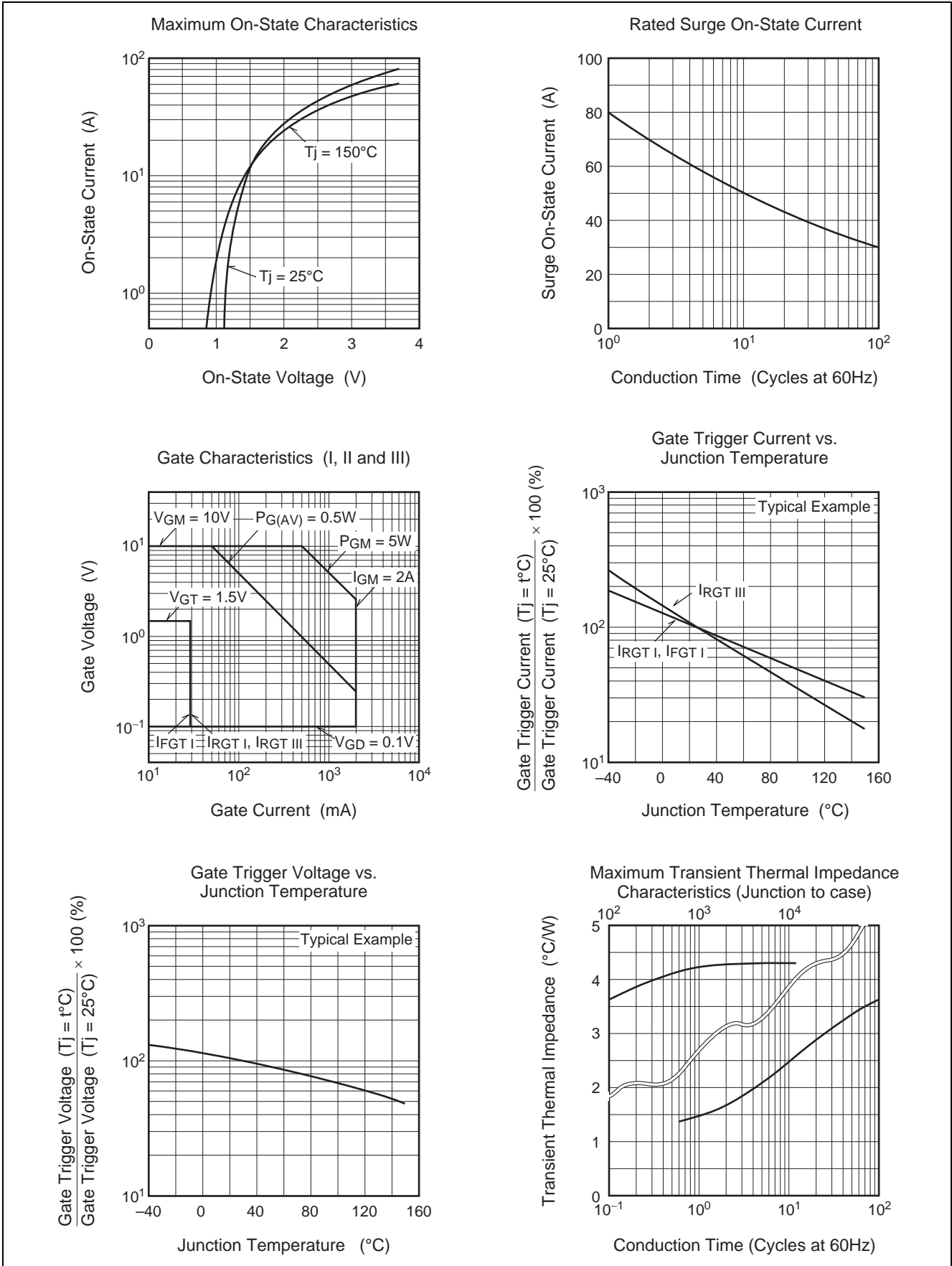
Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

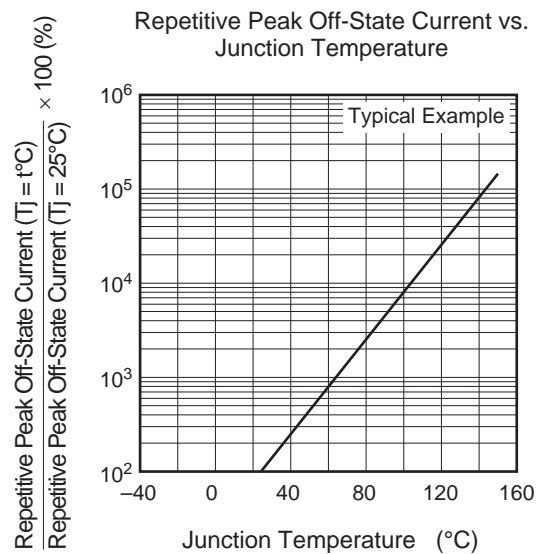
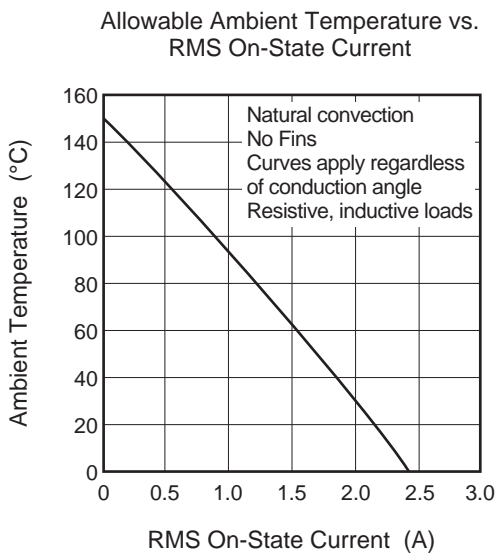
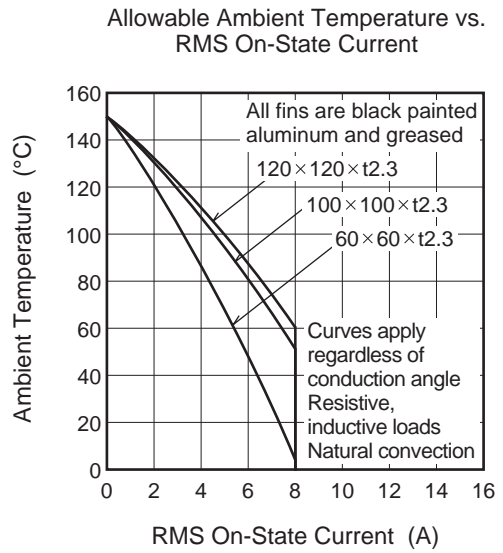
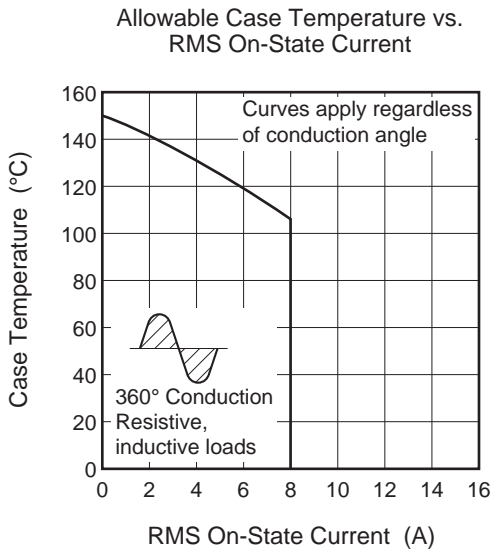
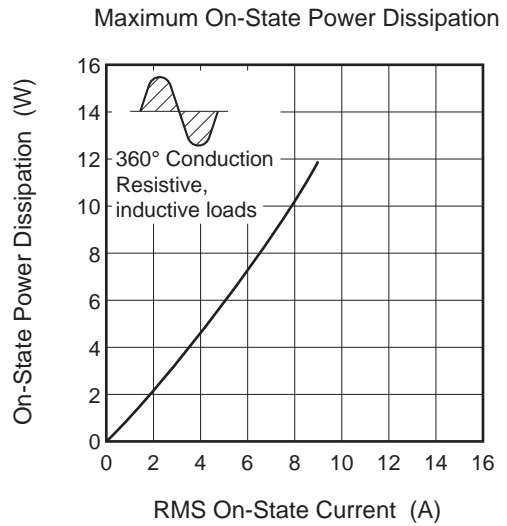
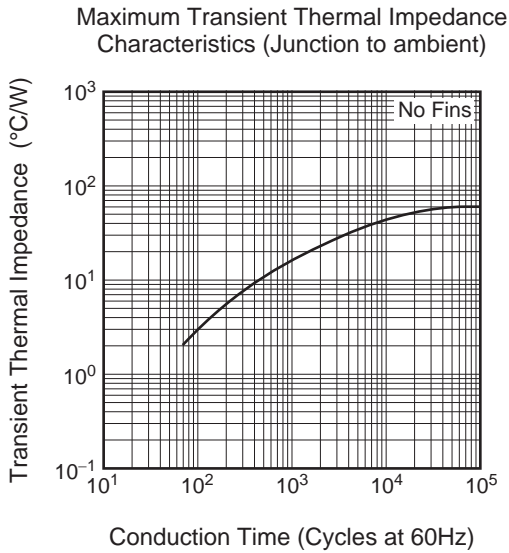
3. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is 0.5°C/W .

4. Test conditions of the critical-rate of decay of on-state commutation current are shown in the table below.

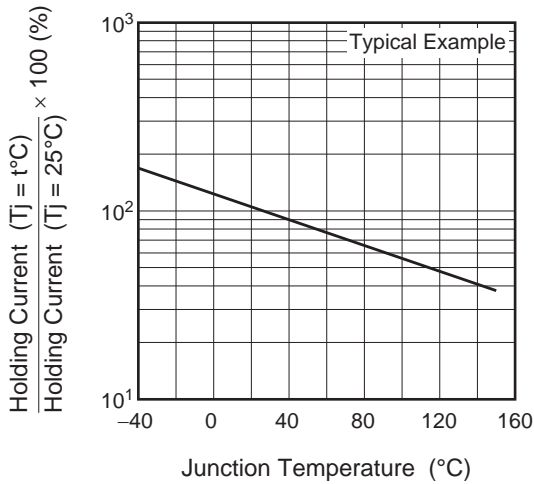
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C}/150^\circ\text{C}$ 2. Rate of rise of off-state commutating voltage $(dv/dt)_c = -4.0\ \text{A/ms}$ 3. Peak off-state voltage $V_D = 400\ \text{V}$	

Performance Curves

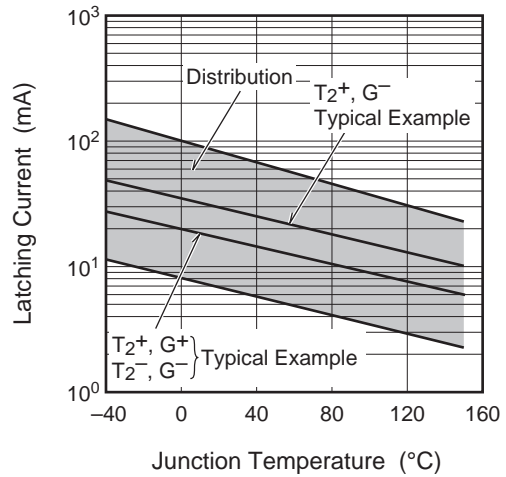




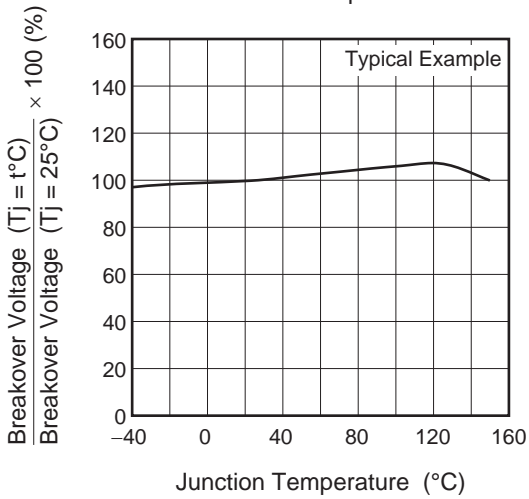
Holding Current vs. Junction Temperature



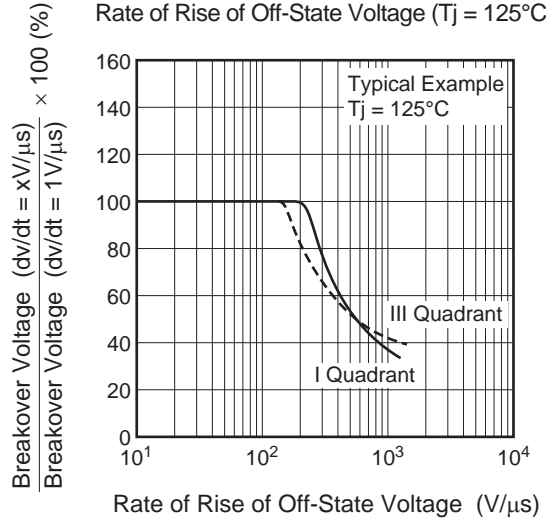
Latching Current vs. Junction Temperature



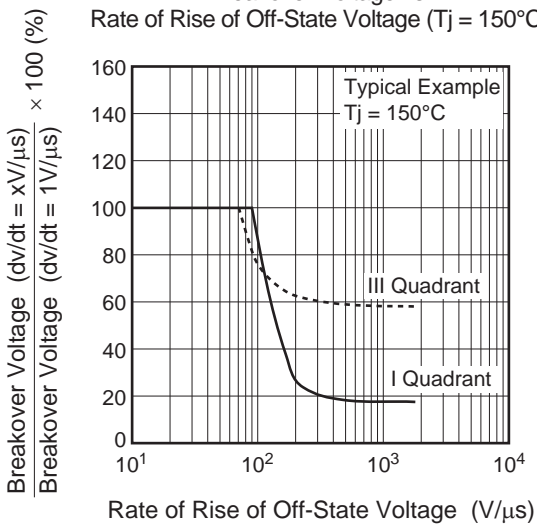
Breakover Voltage vs. Junction Temperature



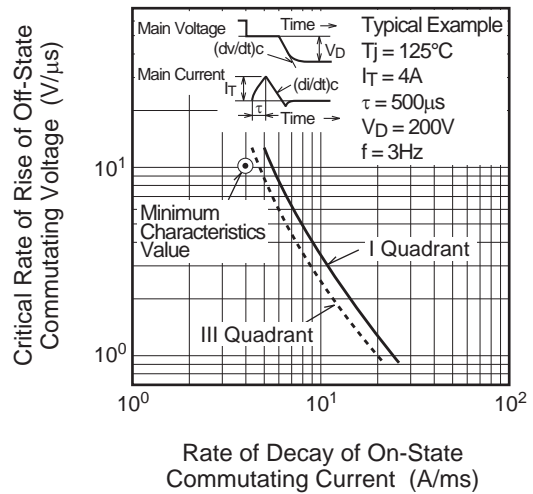
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj = 125°C)



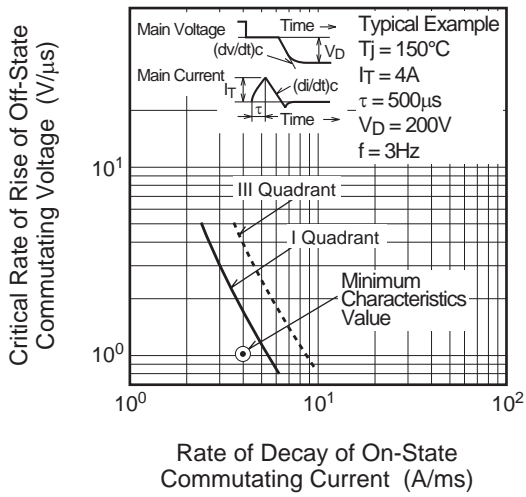
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj = 150°C)



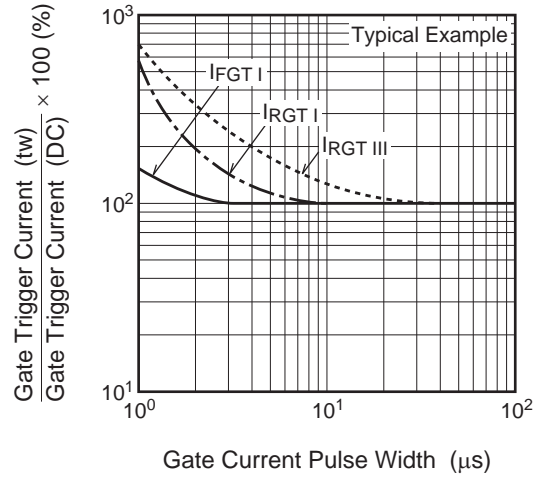
Commutation Characteristics (Tj = 125°C)



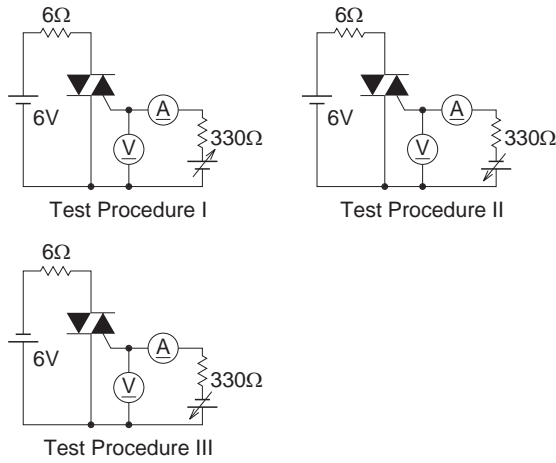
Commutation Characteristics ($T_j = 150^\circ\text{C}$)



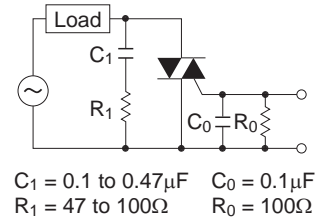
Gate Trigger Current vs. Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



Recommended Circuit Values Around The Triac



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]	Unit: mm
TO-220FL	—	PRSS0003AF-A	TO-220FL	1.5g	

The technical drawing illustrates the dimensions of the BCR8LM-14LJ package. The top view shows a rectangular body with a width of 10.0 ± 0.3 mm and a height of 15.0 ± 0.3 mm. The distance between the center of the mounting holes is 3.0 ± 0.3 mm. The diameter of the mounting holes is $\phi 3.2 \pm 0.2$ mm. The distance from the top edge to the center of the mounting holes is 6.5 ± 0.3 mm. The side view shows a total height of 12.5 ± 0.5 mm, with a mounting hole diameter of 3.6 ± 0.3 mm. The distance from the bottom edge to the center of the mounting holes is 1.15 ± 0.2 mm. The distance from the bottom edge to the center of the mounting holes is 1.15 ± 0.2 mm. The distance from the bottom edge to the center of the mounting holes is 0.75 ± 0.15 mm. The distance from the bottom edge to the center of the mounting holes is 2.54 ± 0.25 mm. The distance from the bottom edge to the center of the mounting holes is 2.54 ± 0.25 mm. The distance from the bottom edge to the center of the mounting holes is 0.40 ± 0.15 mm. The distance from the bottom edge to the center of the mounting holes is 2.8 ± 0.2 mm. The distance from the bottom edge to the center of the mounting holes is 4.5 ± 0.2 mm. The distance from the bottom edge to the center of the mounting holes is 2.6 ± 0.2 mm.

Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR8LM-14LJ#B00	Tube	50 pcs.	Straight type
BCR8LM-14LJ-A8#B00	Tube	50 pcs.	A8 Lead form

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