

# BCR12CM-16LH

Triac  
Medium Power Use

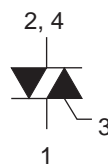
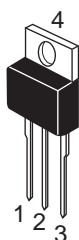
R07DS0261EJ0100  
Rev.1.00  
Mar 09, 2011

## Features

- $I_{T(RMS)}$  : 12 A
- $V_{DRM}$  : 800 V
- $I_{FGT}$ ,  $I_{RGT}$ ,  $I_{RGT III}$  : 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<sub>1</sub> Terminal
2. T<sub>2</sub> Terminal
3. Gate Terminal
4. T<sub>2</sub> Terminal

## Applications

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

## Maximum Ratings

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

Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	12	A	Commercial frequency, sine full wave 360°conduction, T <sub>c</sub> = 123°C <sup>Note3</sup>
Surge on-state current	$I_{TSM}$	120	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I <sup>2</sup> t for fusion	I <sup>2</sup> t	60	A <sup>2</sup> s	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 <sub>j</sub>	-40 to +150	°C	
Storage temperature	T <sub>stg</sub>	-40 to +150	°C	
Mass	—	2.0	g	Typical value

## Electrical Characteristics

Parameter	Symbol	BCR12CM-16LH-1 (I <sub>GT</sub> item: 1)			BCR12CM-16LH			Unit	Test conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Repetitive peak off-state current	I <sub>DRM</sub>	—	—	2.0	—	—	2.0	mA	T <sub>j</sub> = 150°C V <sub>DRM</sub> applied
On-state voltage	V <sub>TM</sub>	—	—	1.5	—	—	1.5	V	T <sub>c</sub> = 25°C, I <sub>TM</sub> = 20 A instantaneous measurement
Gate trigger voltage <sup>Note2</sup>	I	—	—	1.5	—	—	1.5	V	T <sub>j</sub> = 25°C, V <sub>D</sub> = 6 V R <sub>L</sub> = 6 Ω, R <sub>G</sub> = 330 Ω
	II	—	—	1.5	—	—	1.5	V	
	III	—	—	1.5	—	—	1.5	V	
Gate trigger current <sup>Note2</sup>	I	—	—	35	—	—	50	mA	T <sub>j</sub> = 25°C, V <sub>D</sub> = 6 V R <sub>L</sub> = 6 Ω, R <sub>G</sub> = 330 Ω
	II	—	—	35	—	—	50	mA	
	III	—	—	35	—	—	50	mA	
Gate non-trigger voltage	V <sub>GD</sub>	0.2	—	—	0.2	—	—	V	T <sub>j</sub> = 125°C V <sub>D</sub> = 1/2 V <sub>DRM</sub>
		0.1	—	—	0.1	—	—	V	T <sub>j</sub> = 150°C V <sub>D</sub> = 1/2 V <sub>DRM</sub>
Thermal resistance	R <sub>th(j-c)</sub>	—	—	1.8	—	—	1.8	°C/W	Junction to case <sup>Note3,4</sup>
Critical-rate of decay of on-state commutating current <sup>Note5</sup>	(di/dt) <sub>c</sub>	7	—	—	13	—	—	A/ms	T <sub>j</sub> = 125°C (dv/dt) <sub>c</sub> < 100 V/μs

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

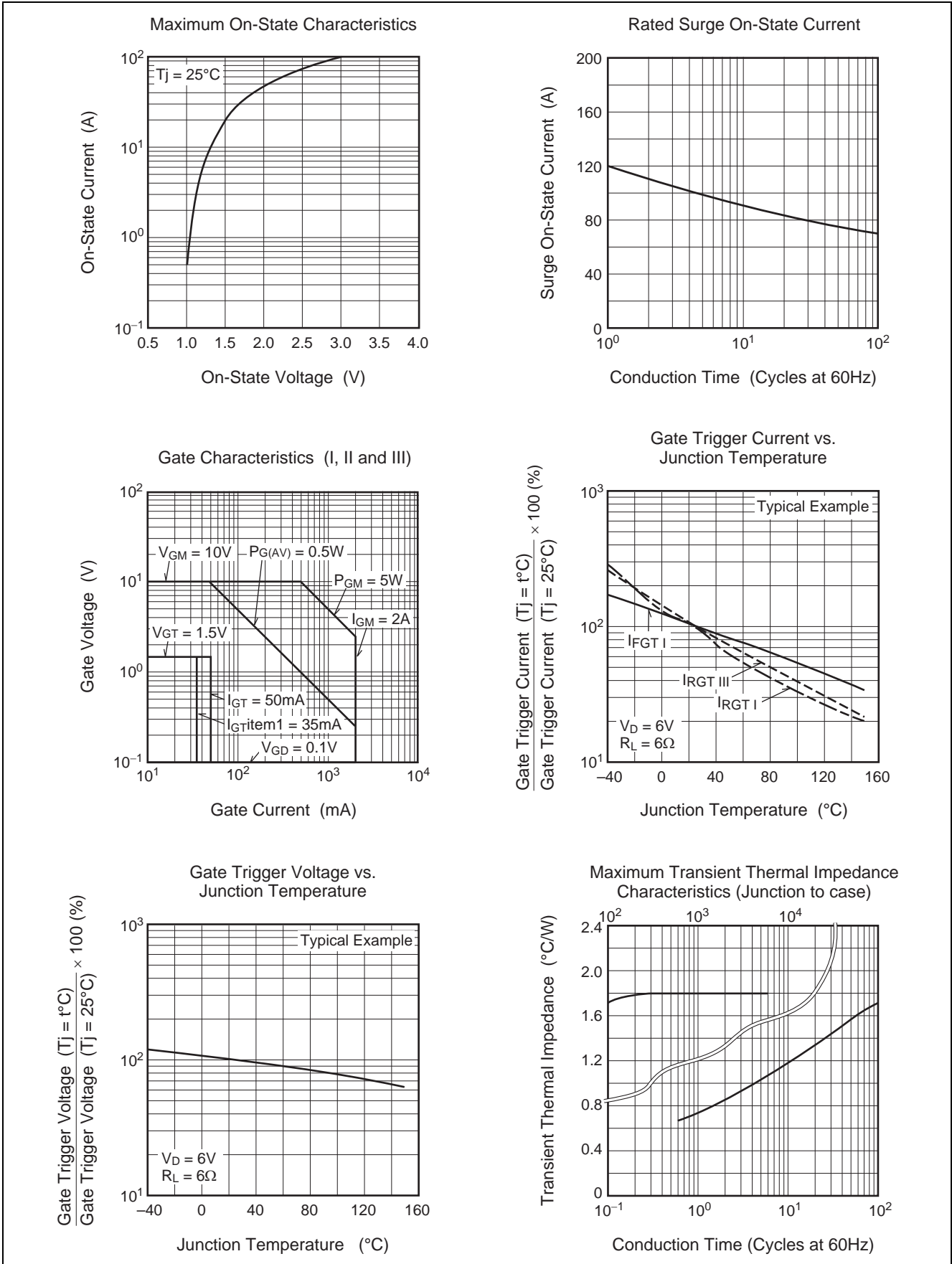
3. Case temperature is measured at the T<sub>2</sub> tab 1.5 mm apart from the molded case.

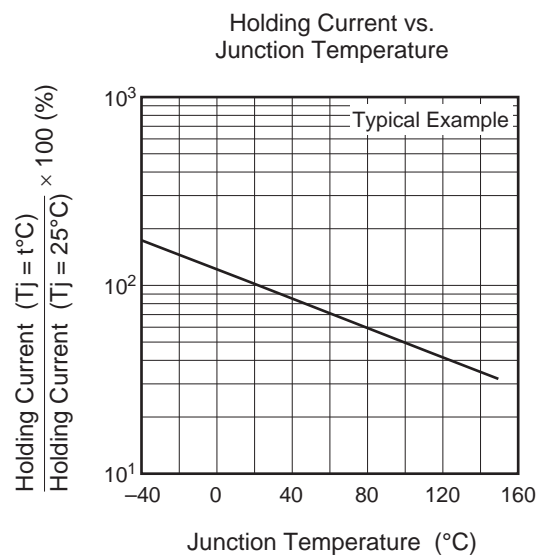
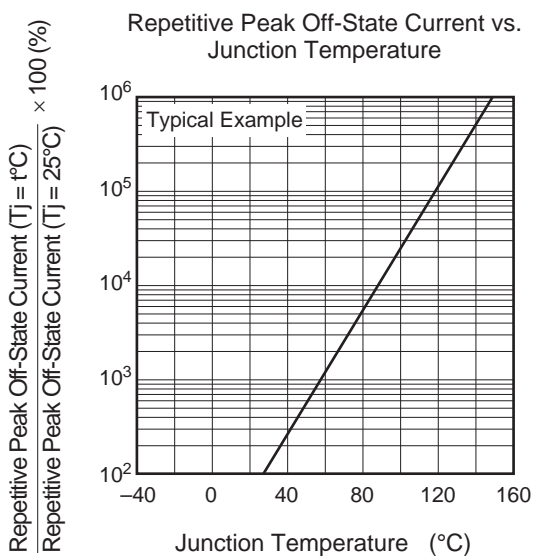
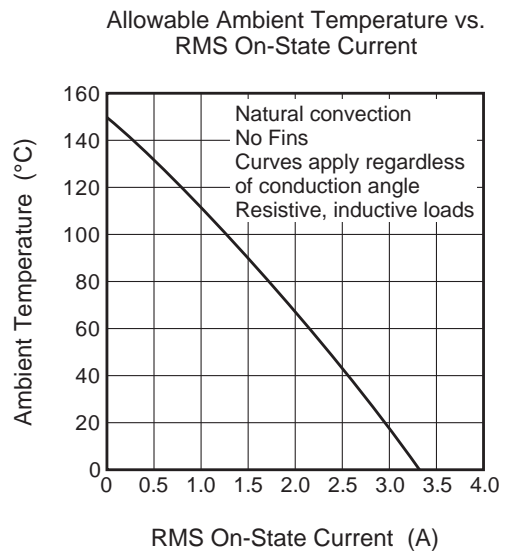
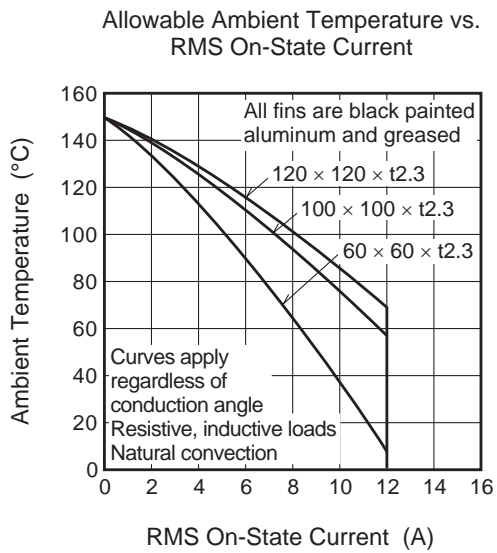
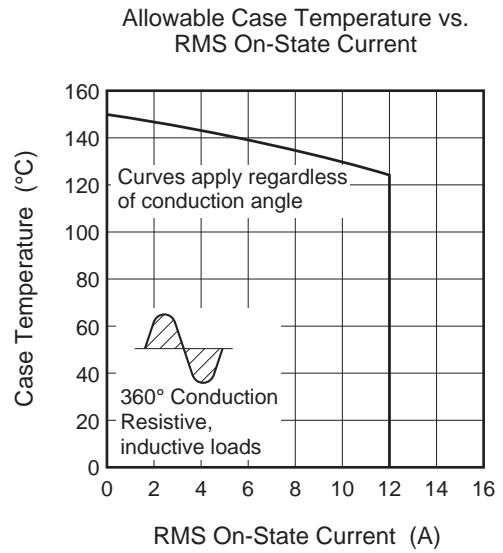
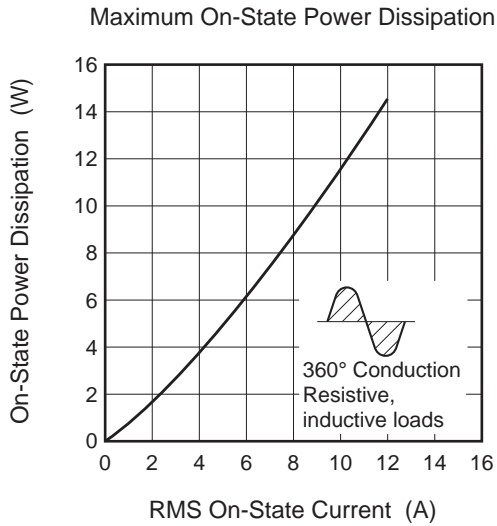
4. The contact thermal resistance R<sub>th(c-f)</sub> in case of greasing is 1.0°C/W.

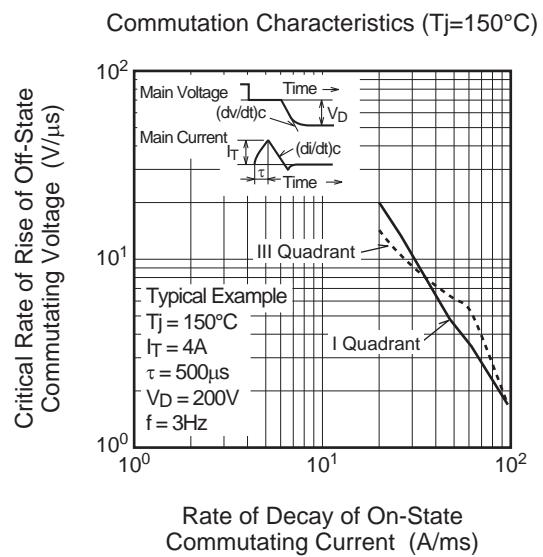
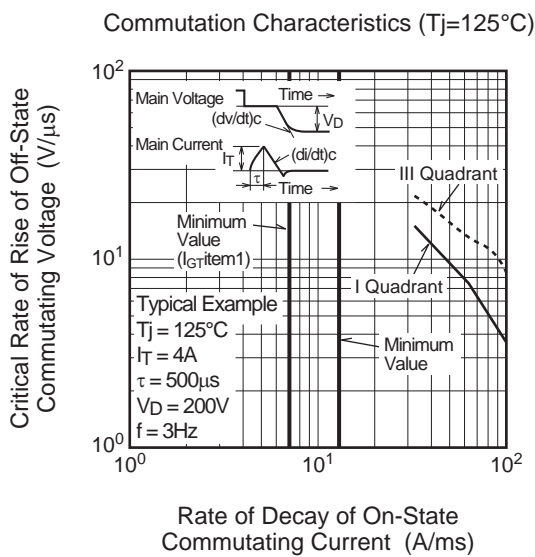
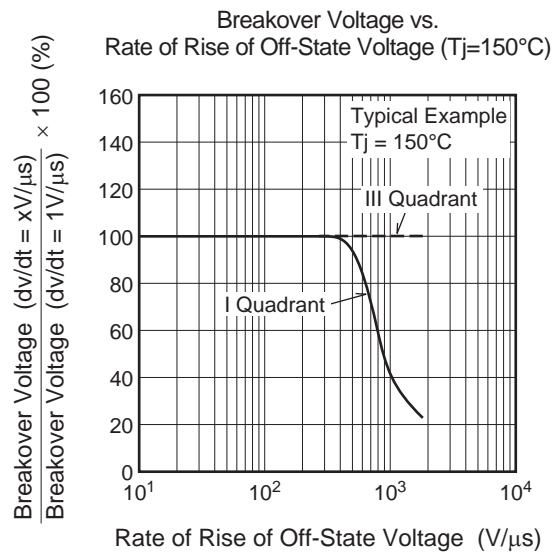
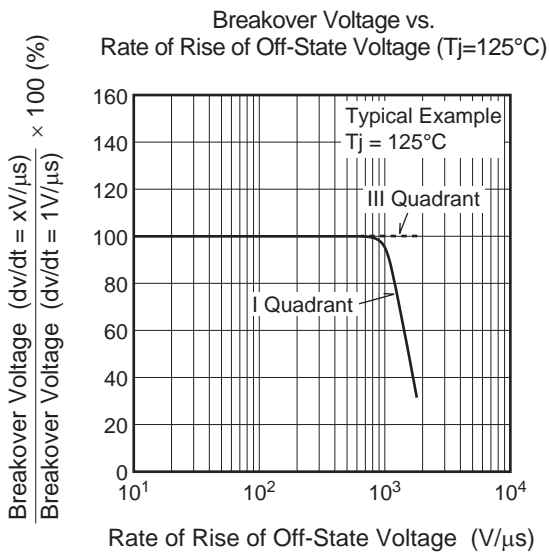
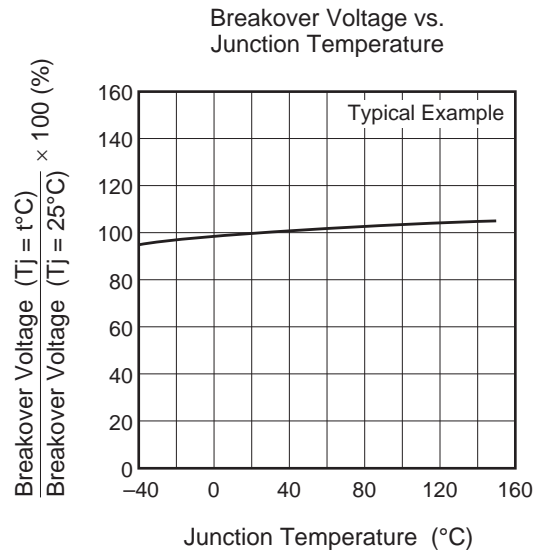
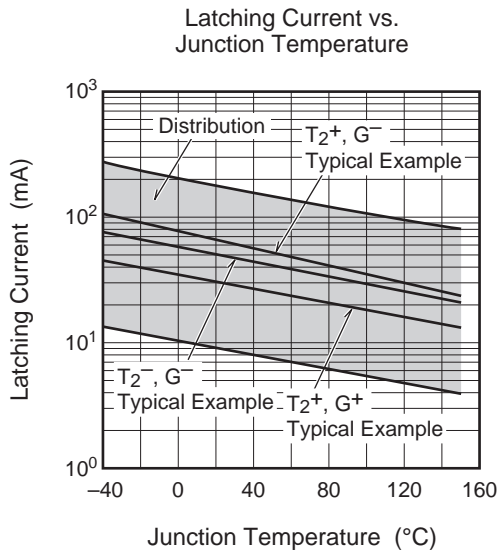
5. Test conditions of the critical-rate of decay of on-state commutation current are shown in the table below.

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

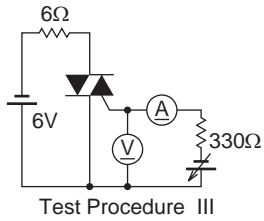
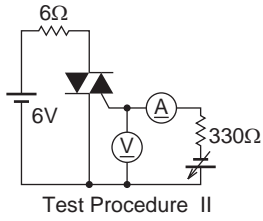
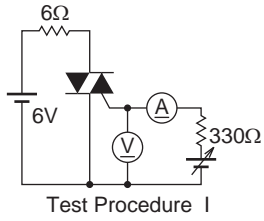
Performance Curve



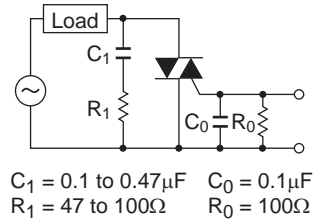




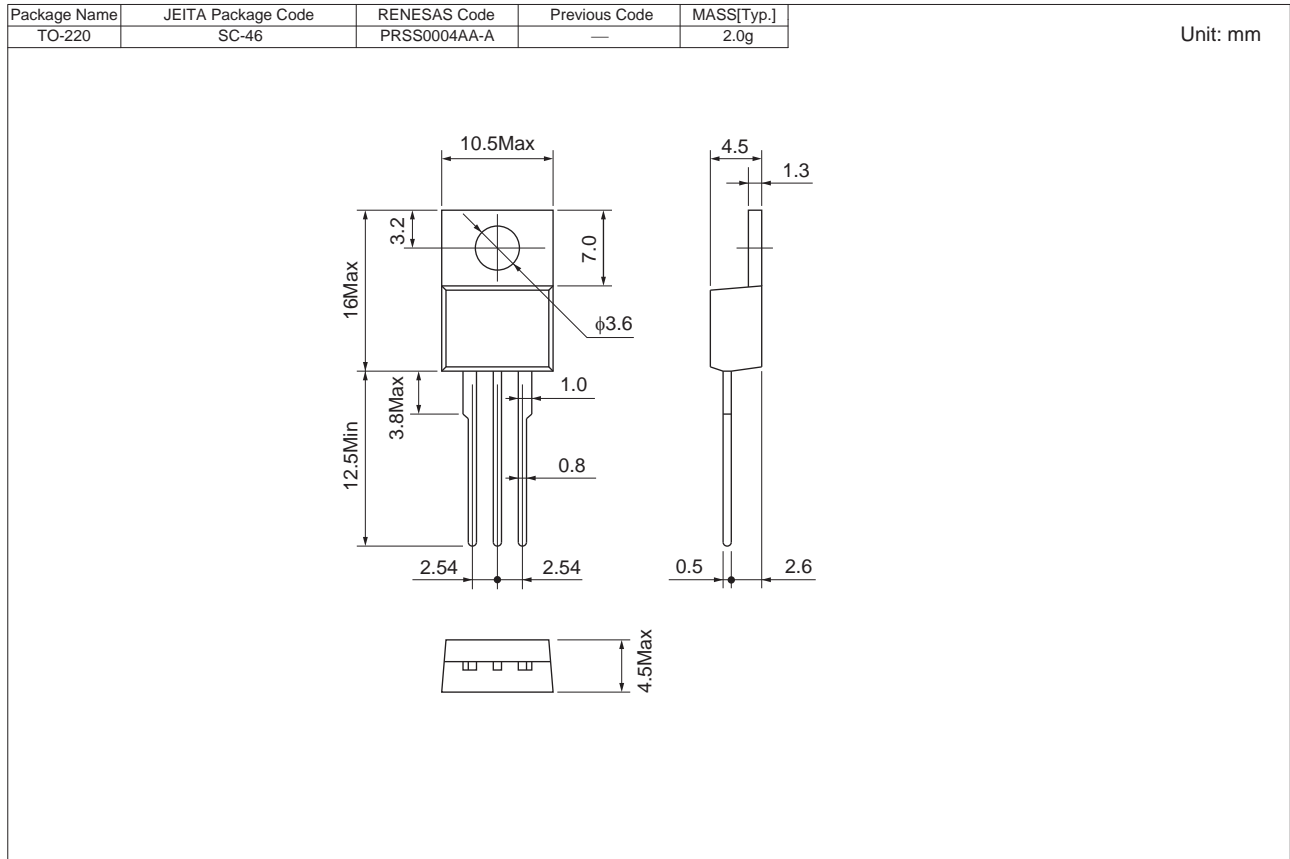
Gate Trigger Characteristics Test Circuits



Recommended Circuit Values Around The Triac



Package Dimensions



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR12CM-16LH#B00	Bag	100 pcs.	Straight type
BCR12CM-16LH-1#B00	Bag	100 pcs.	Straight type, I <sub>GT</sub> item:1

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

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Tel: +1-408-588-6000, Fax: +1-408-588-6130

**Renesas Electronics Canada Limited**  
1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada  
Tel: +1-905-898-5441, Fax: +1-905-898-3220

**Renesas Electronics Europe Limited**  
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.  
Tel: +44-1628-585-100, Fax: +44-1628-585-900

**Renesas Electronics Europe GmbH**  
Arcadiastrasse 10, 40472 Düsseldorf, Germany  
Tel: +49-211-65030, Fax: +49-211-6503-1327

**Renesas Electronics (China) Co., Ltd.**  
7th Floor, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100083, P.R.China  
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Unit 204, 205, AZIA Center, No.1233 Lujiazui Ring Rd., Pudong District, Shanghai 200120, China  
Tel: +86-21-5877-1818, Fax: +86-21-6887-7858 / -7898

**Renesas Electronics Hong Kong Limited**  
Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong  
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**Renesas Electronics Korea Co., Ltd.**  
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Tel: +82-2-558-3737, Fax: +82-2-558-5141