

# BCR12CM-16LH

800V - 12A - Triac

Medium Power Use

R07DS0261EJ0300

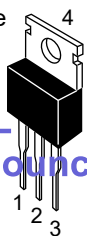
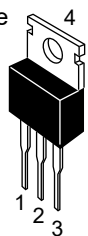
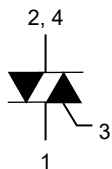
Rev.3.00

Feb. 1, 2019

## Features

- $I_T (RMS)$  : 12 A
- $V_{DRM}$  : 800 V
- $I_{FGT}$ ,  $I_{RGT}$ ,  $I_{RGT III}$ : 50 mA or 35 mA ( $I_{GT}$  item:1)
- $T_j$ : 150°C
- Planar Passivation Type
- High Commutation

## Outline

RENESAS Package code: PRSS0004AG-A (Package name: TO-220AB) Ordering code #BB0 	RENESAS Package code: PRSS0004AT-A (Package name: TO-220ABA) Ordering code #BH0 		1. T <sub>1</sub> Terminal 2. T <sub>2</sub> Terminal 3. Gate Terminal 4. T <sub>2</sub> Terminal
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**EOL announced**

## Application

Power supply, motor control, heater control, solenoid control, and other general purpose AC 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

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T (RMS)$	12	A	Commercial frequency, sine full wave 360°conduction, $T_c = 123^\circ C$ <sup>Note3</sup>
Surge on-state current	$I_{TSM}$	120	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusion	$I^2t$	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	$T_j$	-40 to +150	°C	
Storage temperature	$T_{stg}$	-40 to +150	°C	

## 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	V <sub>FGTI</sub>	—	—	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	V <sub>RGTI</sub>	—	—	1.5	—	—	1.5	V	
	III	V <sub>RGTIII</sub>	—	—	1.5	—	—	1.5	V	
Gate trigger current <sup>Note2</sup>	I	I <sub>FGTI</sub>	—	—	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	I <sub>RGTI</sub>	—	—	35	—	—	50	mA	
	III	I <sub>RGTIII</sub>	—	—	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 fall 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: 1. Gate open.

2. Measurement using the gate trigger characteristics measurement circuit.

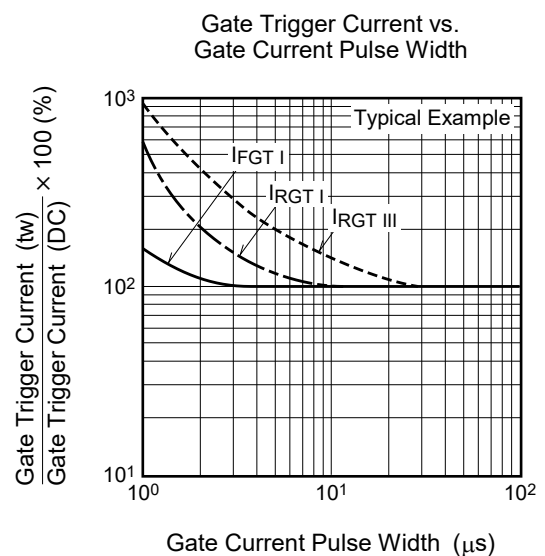
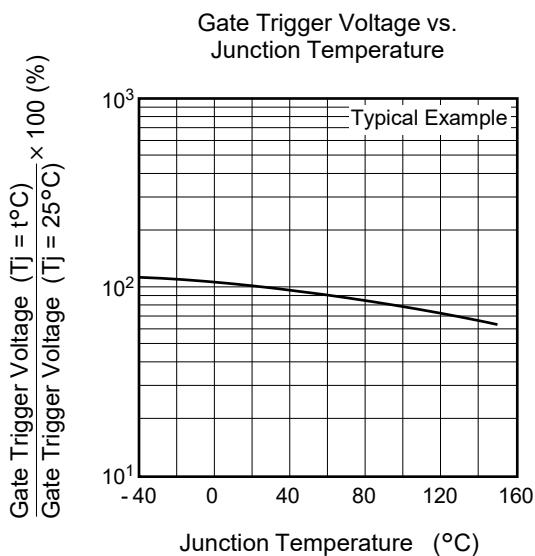
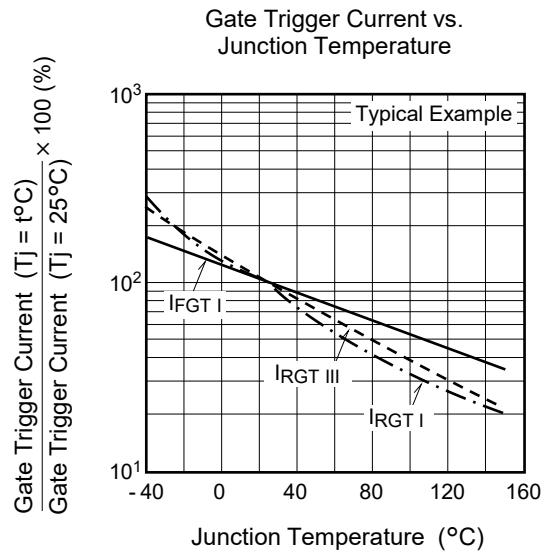
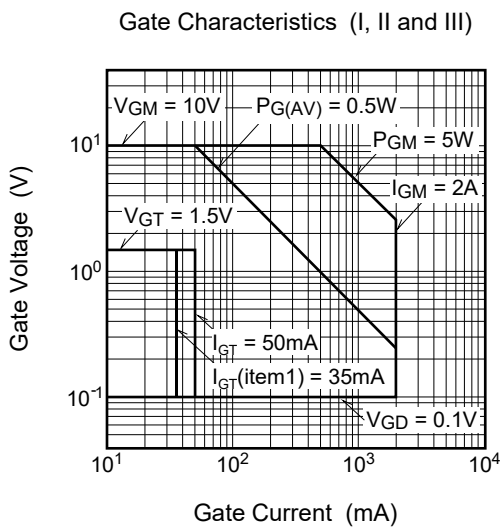
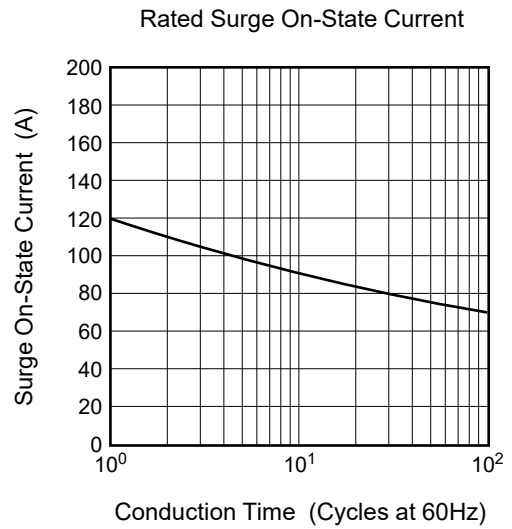
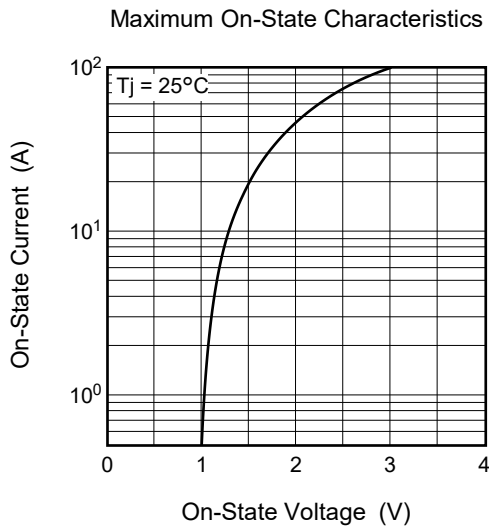
3. Case temperature is measured at the T<sub>2</sub> tab 1.5 mm away from the molded case.

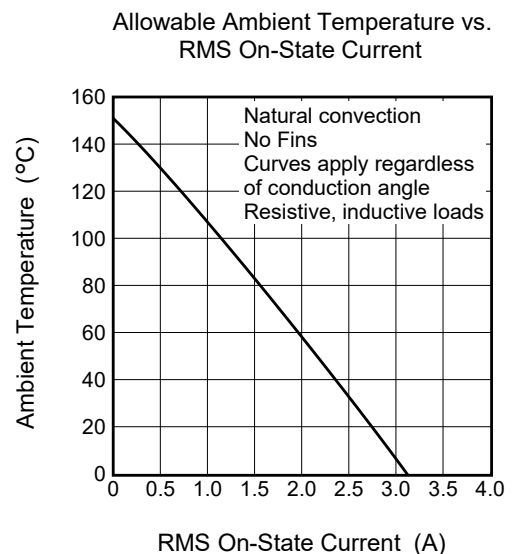
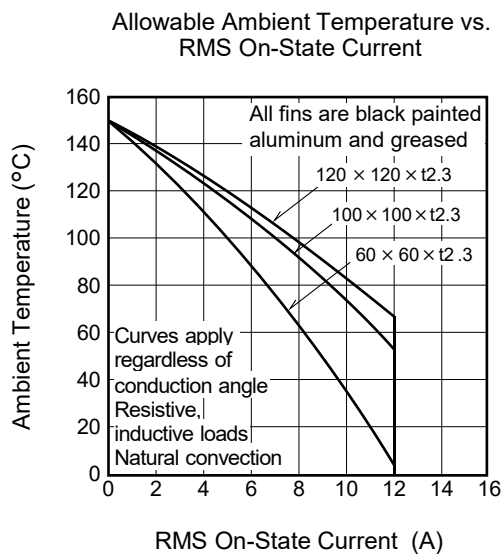
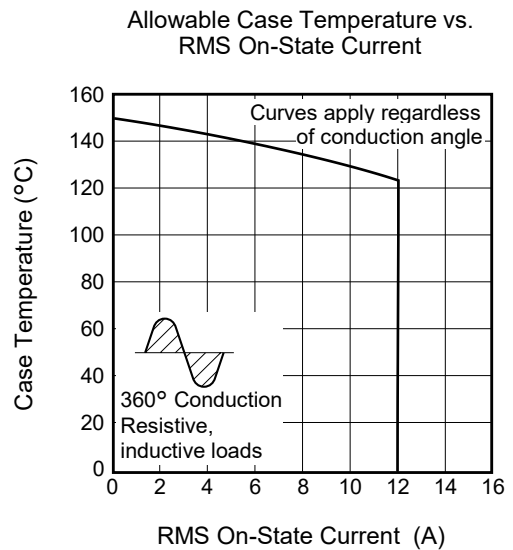
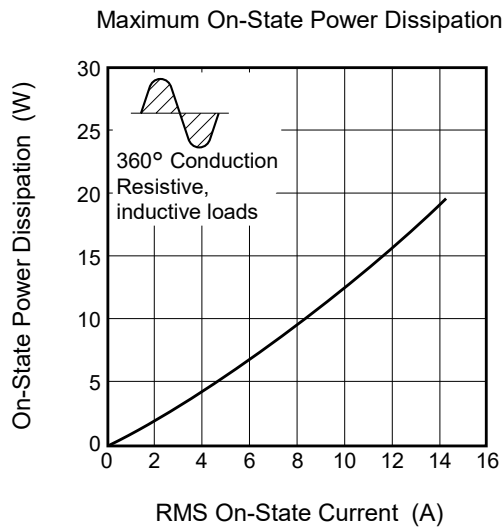
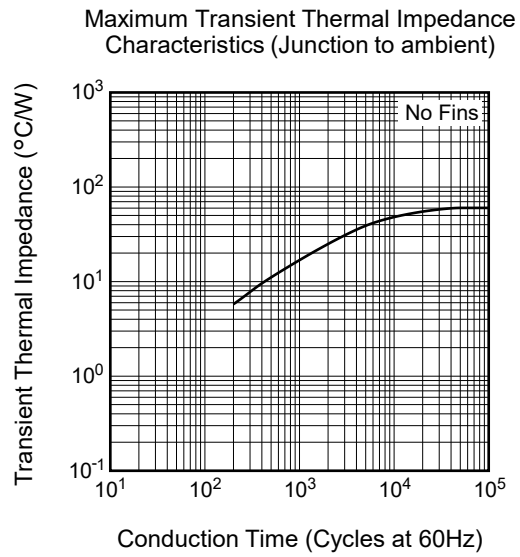
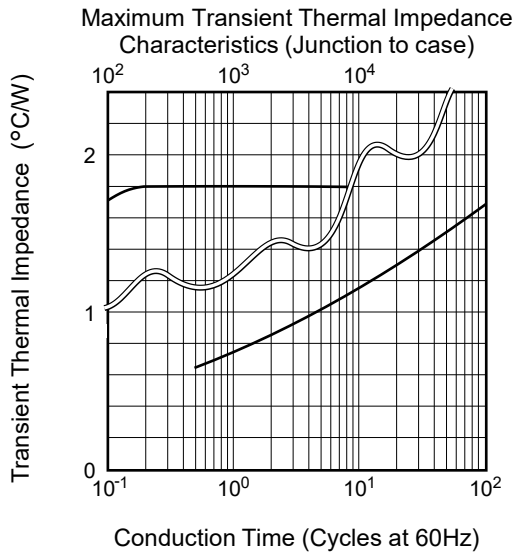
4. The contact thermal resistance R<sub>th(c-f)</sub> in case of greasing is 1.0°C/W.

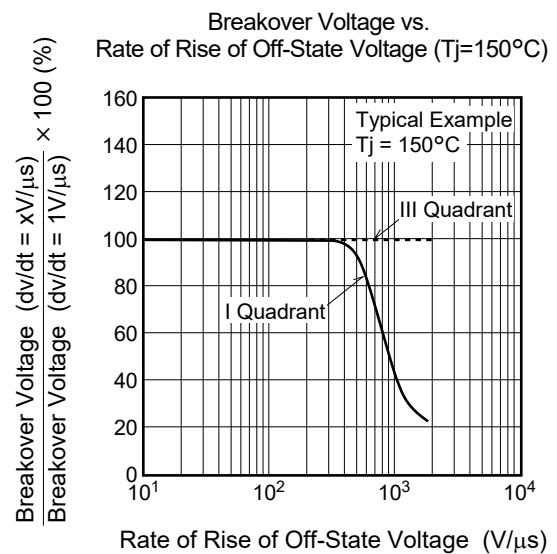
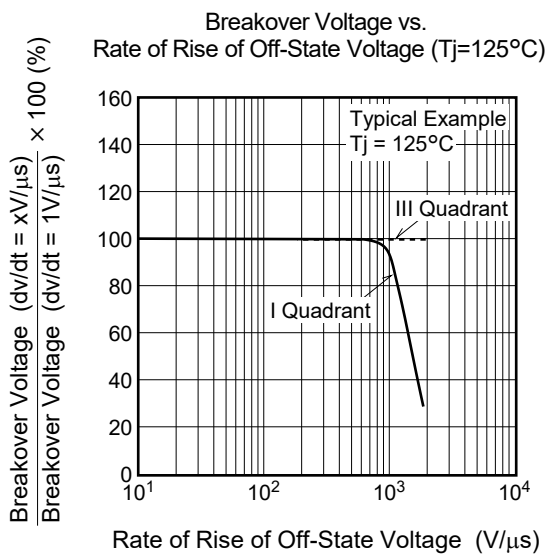
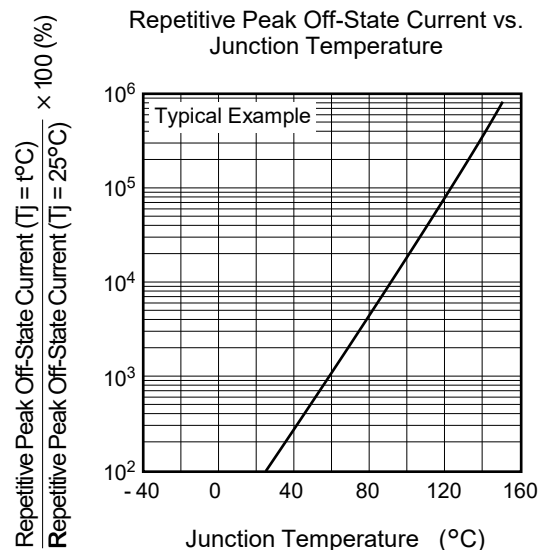
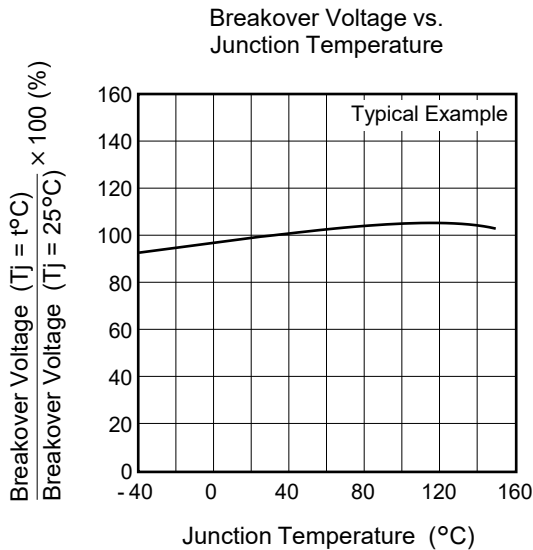
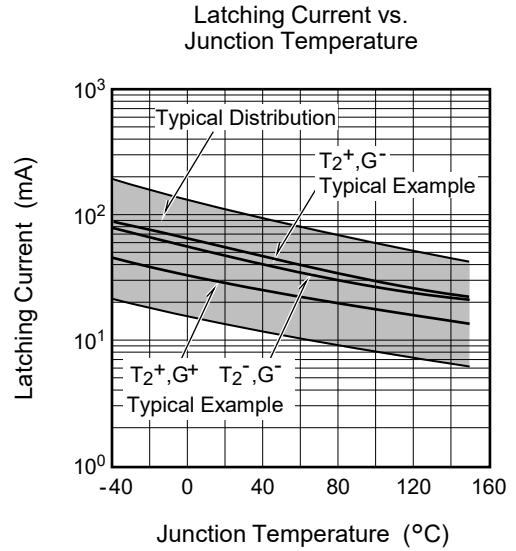
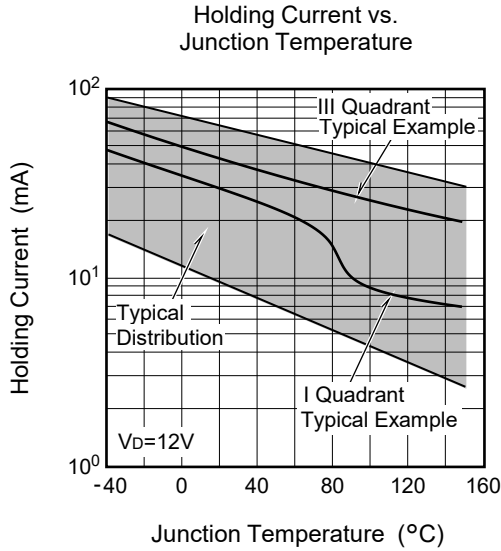
5. Test conditions of the critical-rate of fall of on-state commutation current are shown in the table below.

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 3. Rate of rise of off-state commutating voltage (dv/dt) <sub>c</sub> < 100 V/μs	

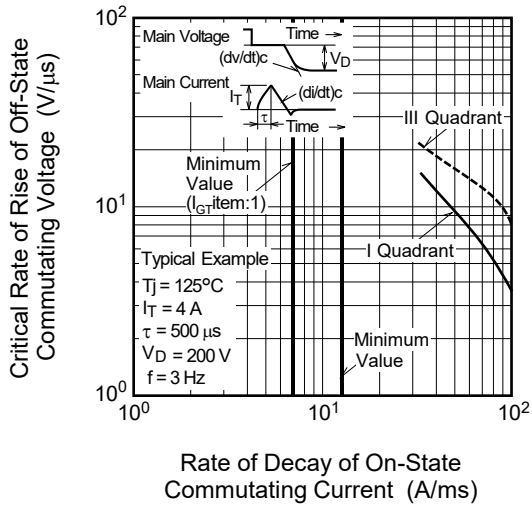
Performance Curves



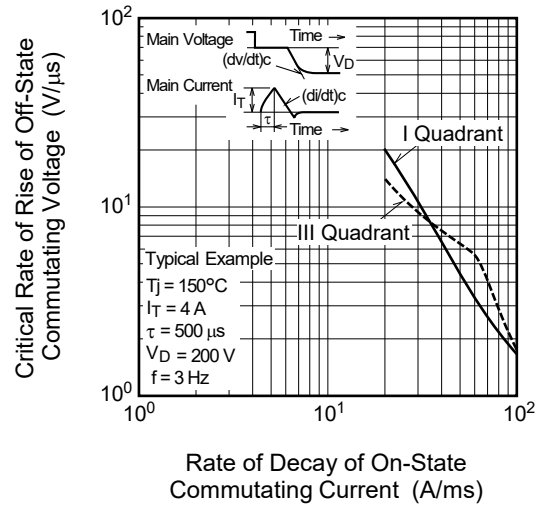




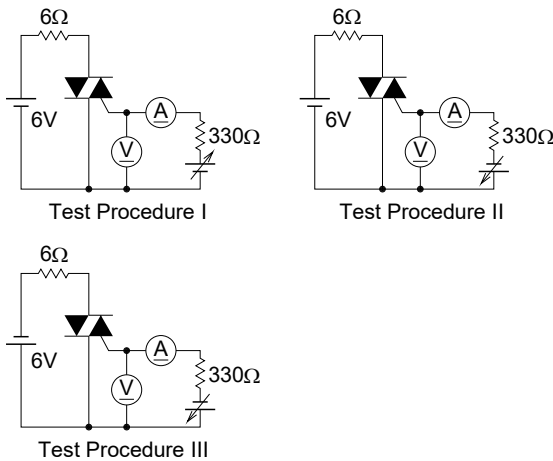
Commutation Characteristics (Tj=125°C)



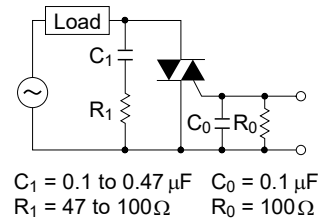
Commutation Characteristics (Tj=150°C)



Gate Trigger Characteristics Test Circuits

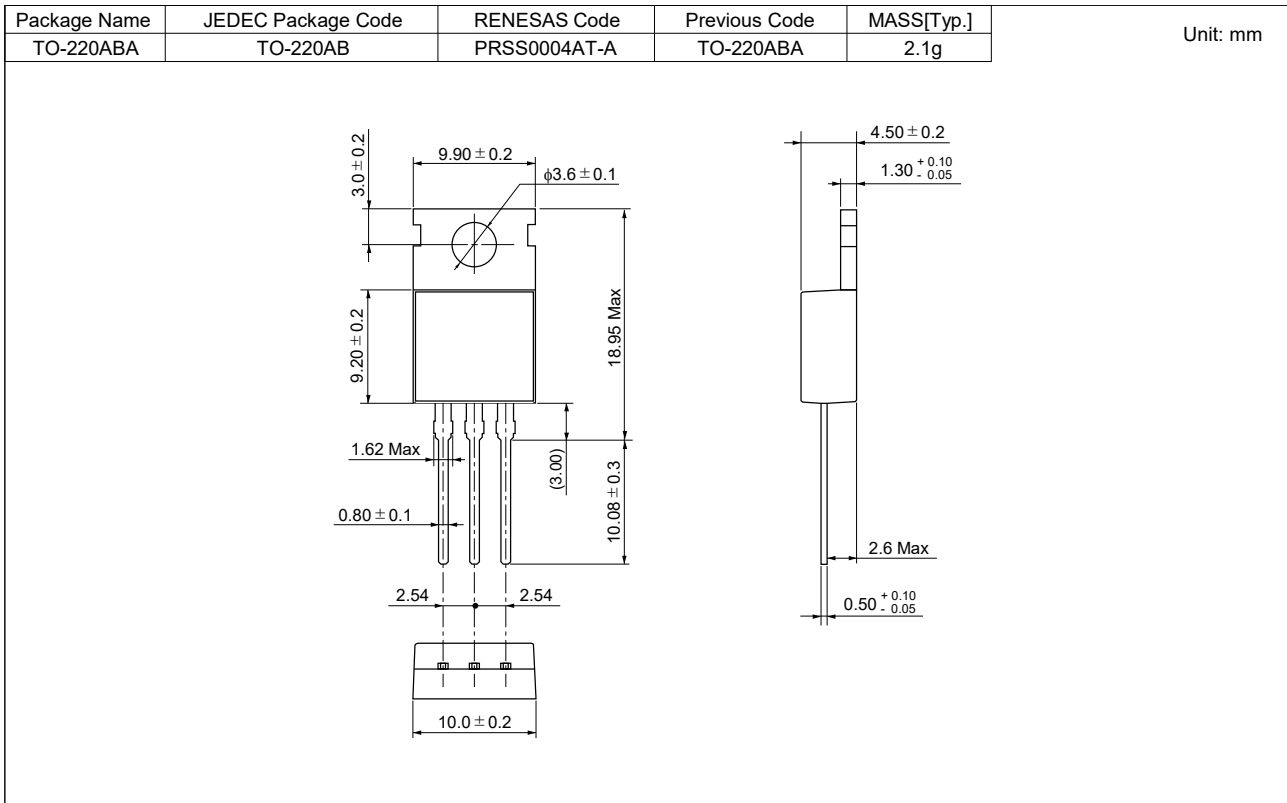


Recommended peripheral components for Triac

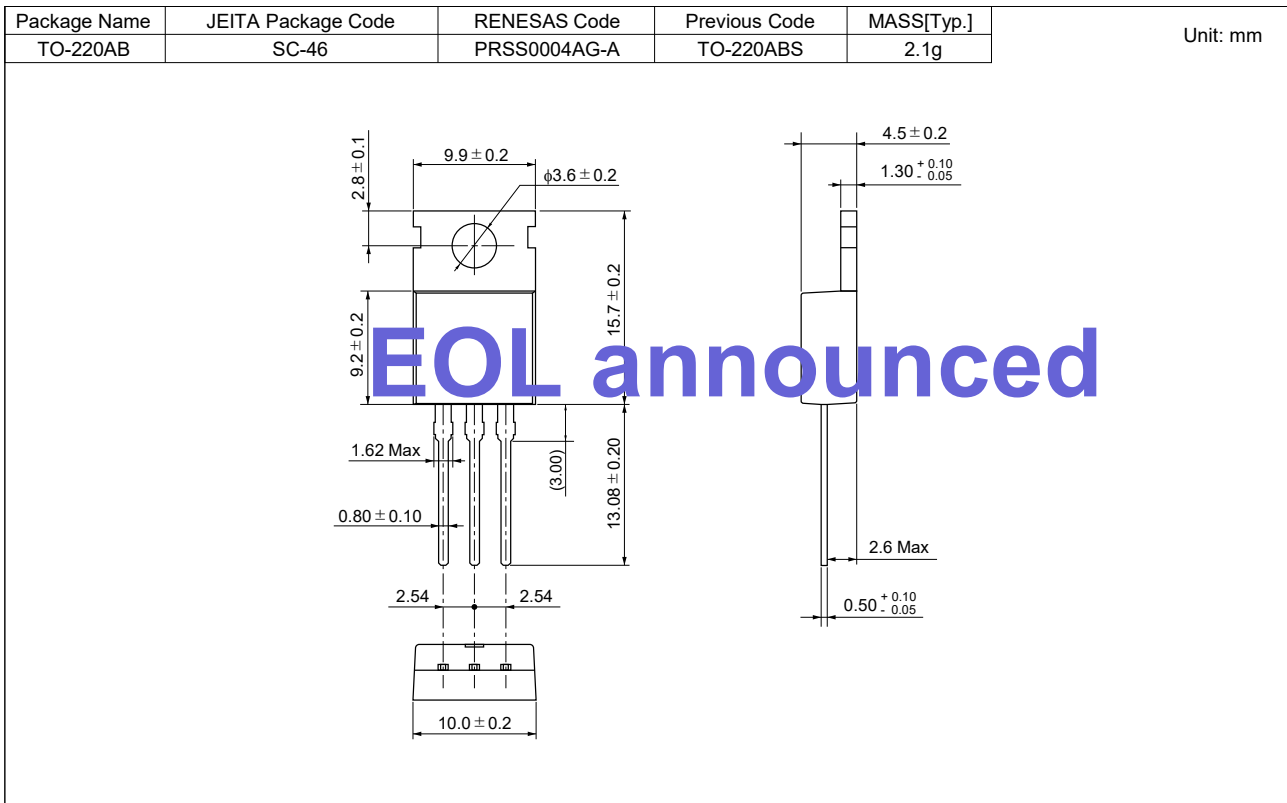


### Package Dimensions

Ordering code: #BH0



Ordering code: #BB0



**Ordering Information**

Orderable Part Number	Package	Quantity <sup>Note6</sup>	Remark	Status
BCR12CM-16LH#BH0	TO-220ABA	50 pcs./ tube	Straight type	Mass Production
BCR12CM-16LH-1#BH0	TO-220ABA	50 pcs./ tube	Straight type, I <sub>GT</sub> item:1	
BCR12CM-16LH#BB0	TO-220ABS	50 pcs./ tube	Straight type	EOL announced
BCR12CM-16LH-1#BB0	TO-220ABS	50 pcs./ tube	Straight type, I <sub>GT</sub> item:1	

Notes: 6. Please confirm the specification about the shipping in detail.



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