

# BCR16CM-16LH

800V - 16A - Triac

Medium Power Use

R07DS0420EJ0300

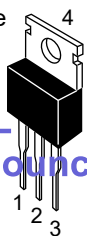
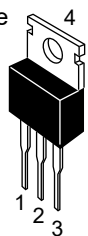
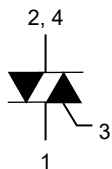
Rev.3.00

Feb. 1, 2019

## Features

- $I_T (RMS)$  : 16 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

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

Power supply, motor control, heater 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	$I_T (RMS)$	16	A	Commercial frequency, sine full wave 360°conduction, $T_c = 125^\circ\text{C}$ <sup>Note3</sup>
Surge on-state current	$I_{TSM}$	160	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusion	$I^2t$	106.5	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	BCR16CM-16LH-1 (I <sub>GT</sub> item:1)			BCR16CM-16LH			Unit	Test conditions	
		Min.	Typ.	Max.	Min.	Typ.	Max.			
Repetitive peak off-state current	I <sub>DRM</sub>	—	—	5.0	—	—	5.0	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> = 25 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>	—	—	1.4	—	—	1.4	°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>	9	—	—	15	—	—	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.

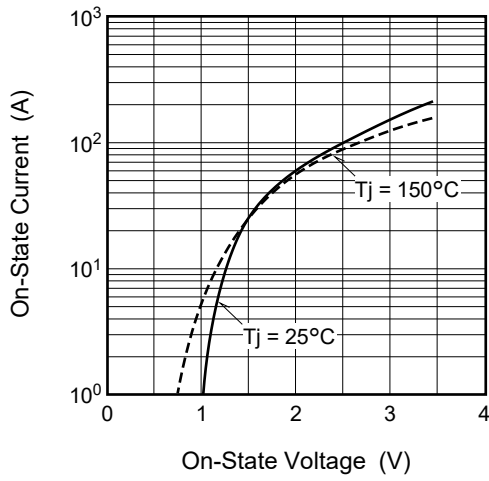
4. The contact thermal resistance R<sub>th(c-f)</sub> in case of greasing is 1.0°C/W.

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

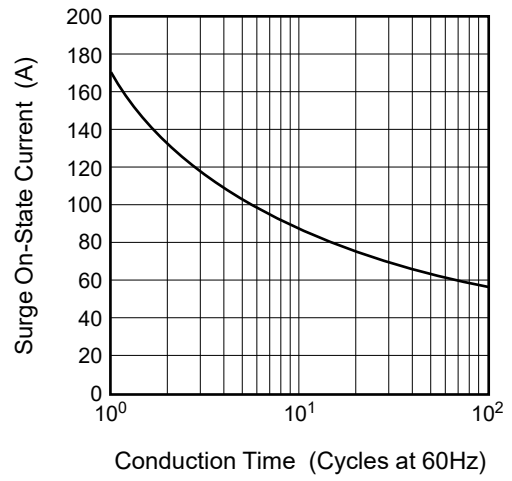
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature T <sub>j</sub> = 125°C 2. Peak off-state voltage V <sub>D</sub> = 400 V 3. Rate of rise of off-state commutating voltage (dv/dt) <sub>c</sub> < 100 V/μs	

Performance Curves

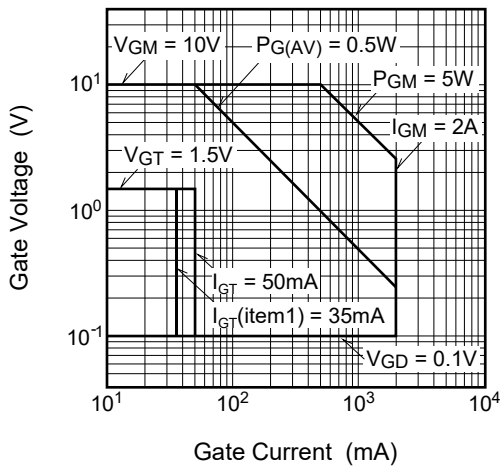
Maximum On-State Characteristics



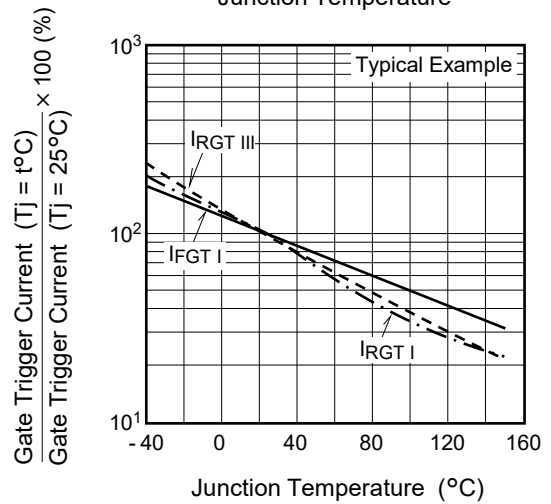
Rated Surge On-State Current



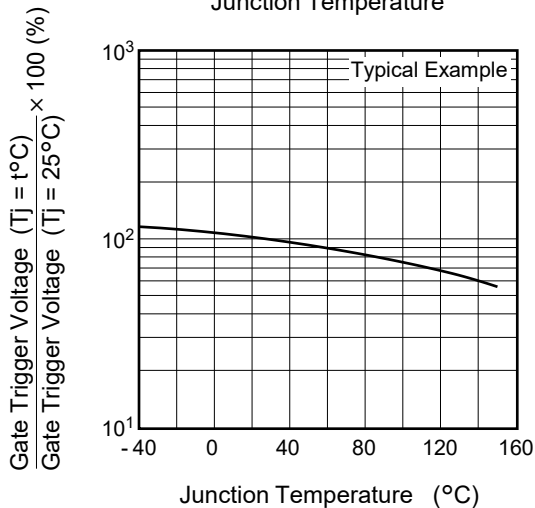
Gate Characteristics (I, II and III)



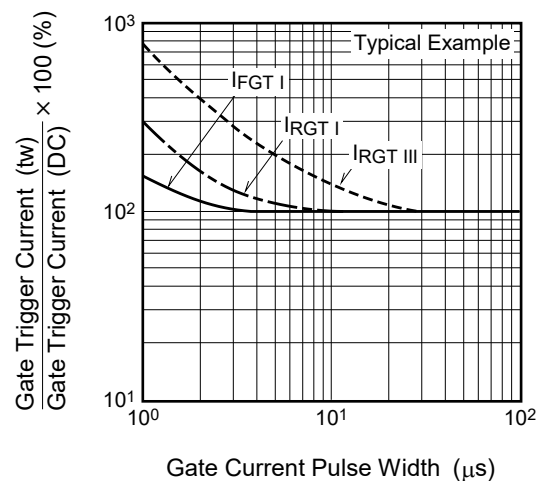
Gate Trigger Current vs. Junction Temperature

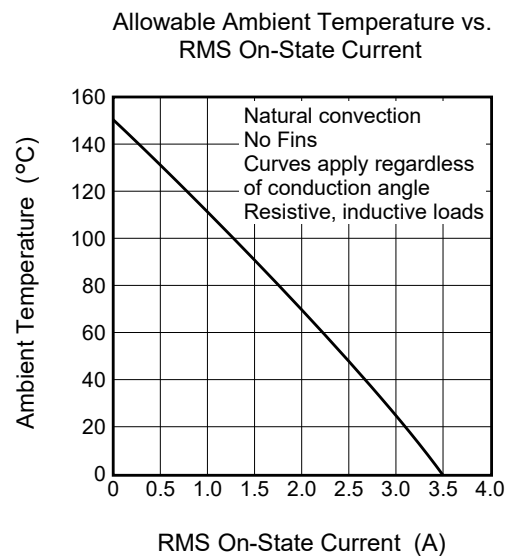
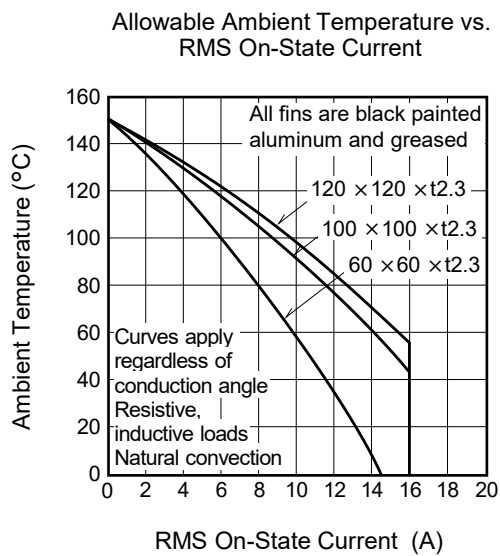
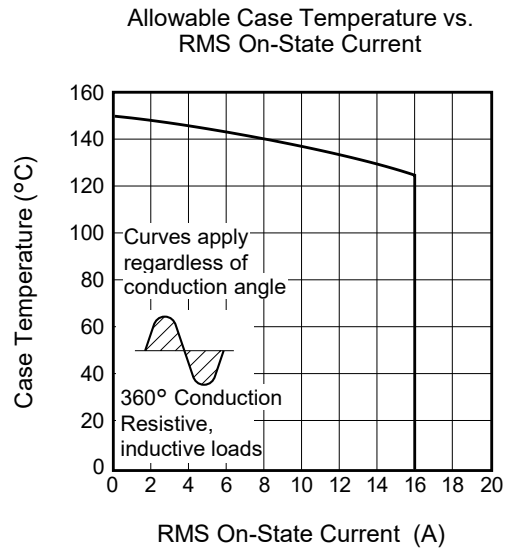
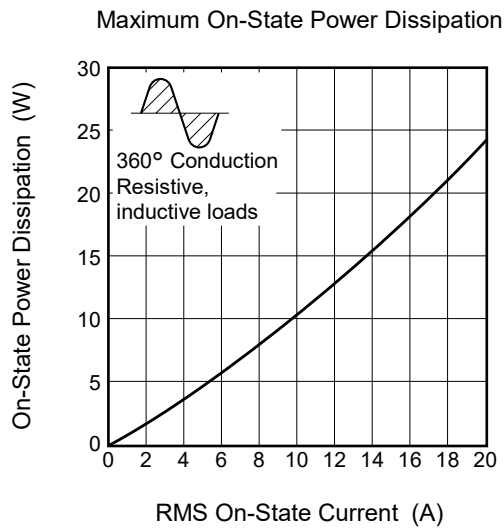
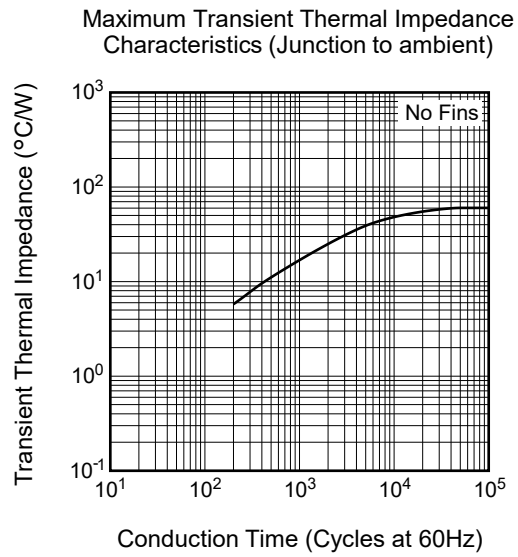
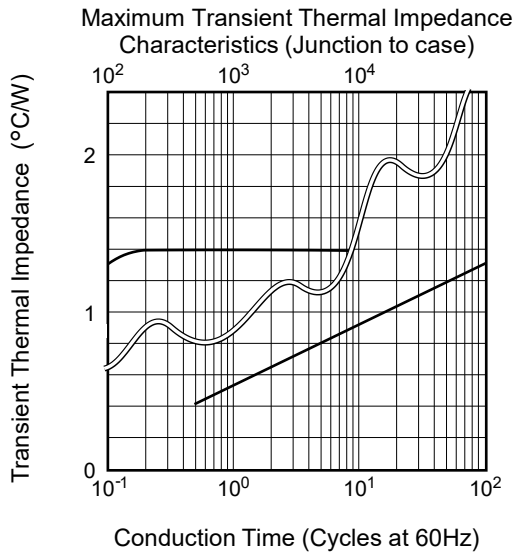


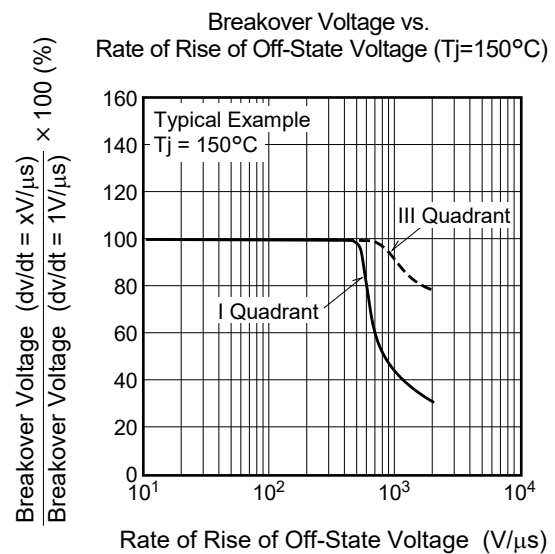
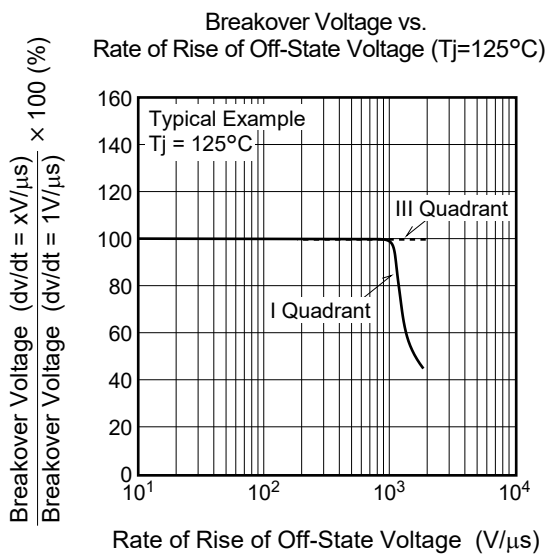
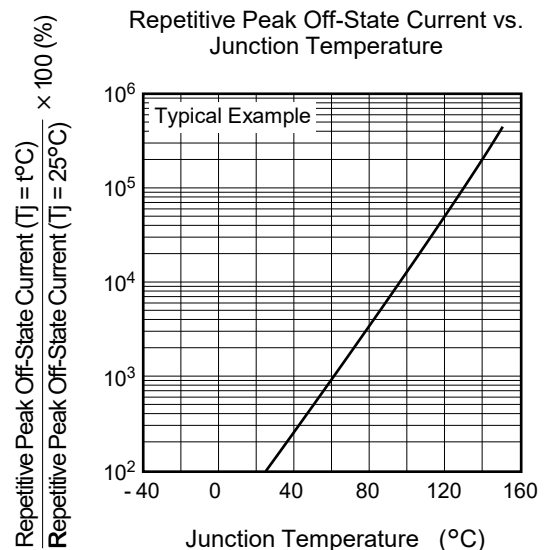
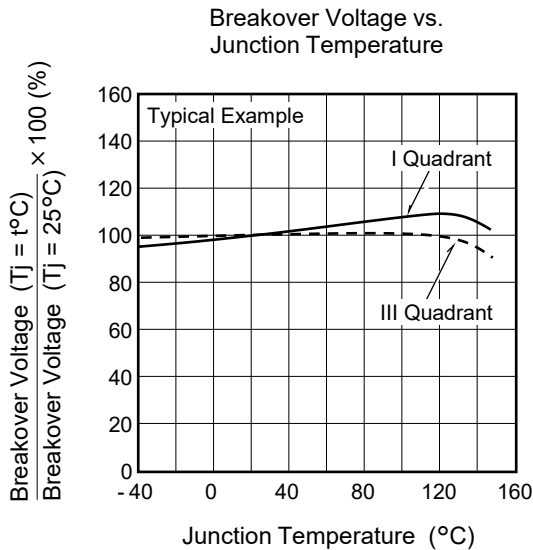
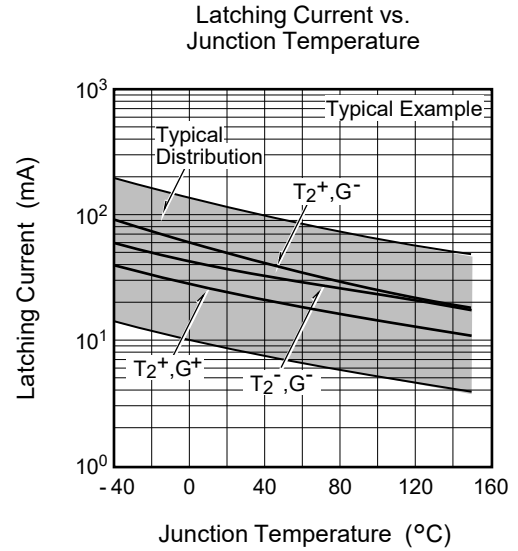
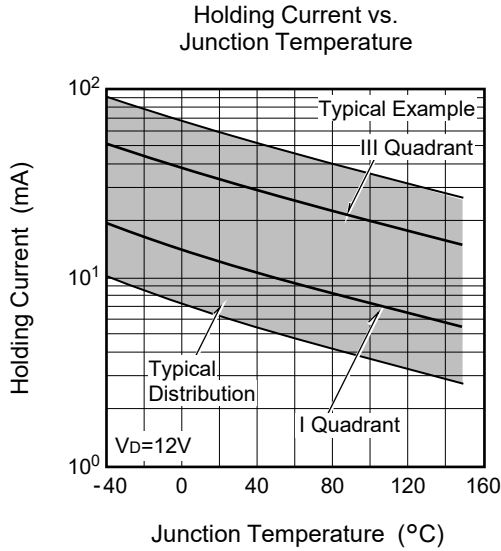
Gate Trigger Voltage vs. Junction Temperature



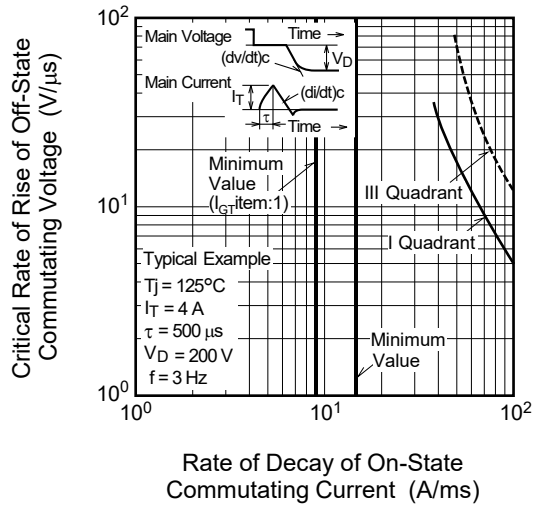
Gate Trigger Current vs. Gate Current Pulse Width



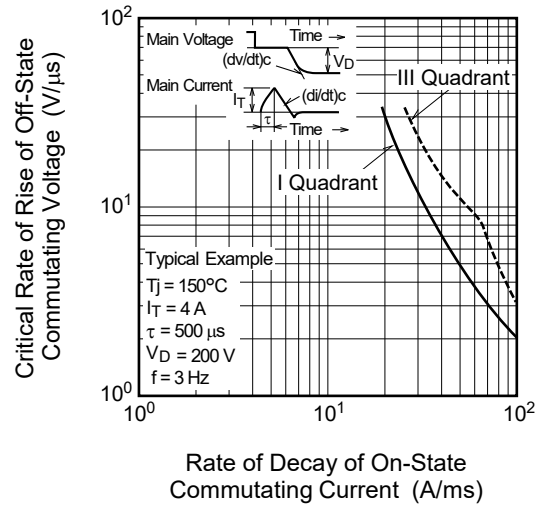




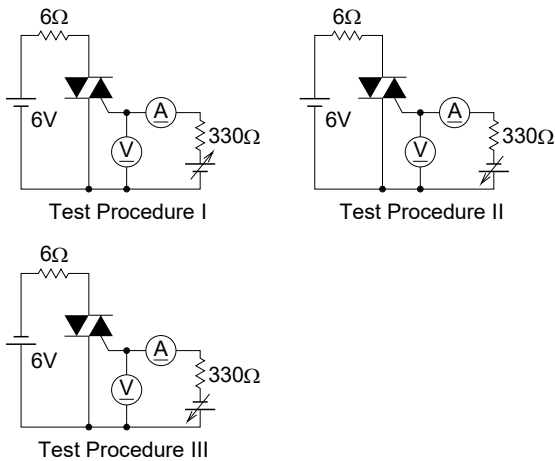
Commutation Characteristics (Tj=125°C)



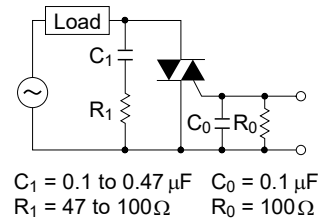
Commutation Characteristics (Tj=150°C)



Gate Trigger Characteristics Test Circuits

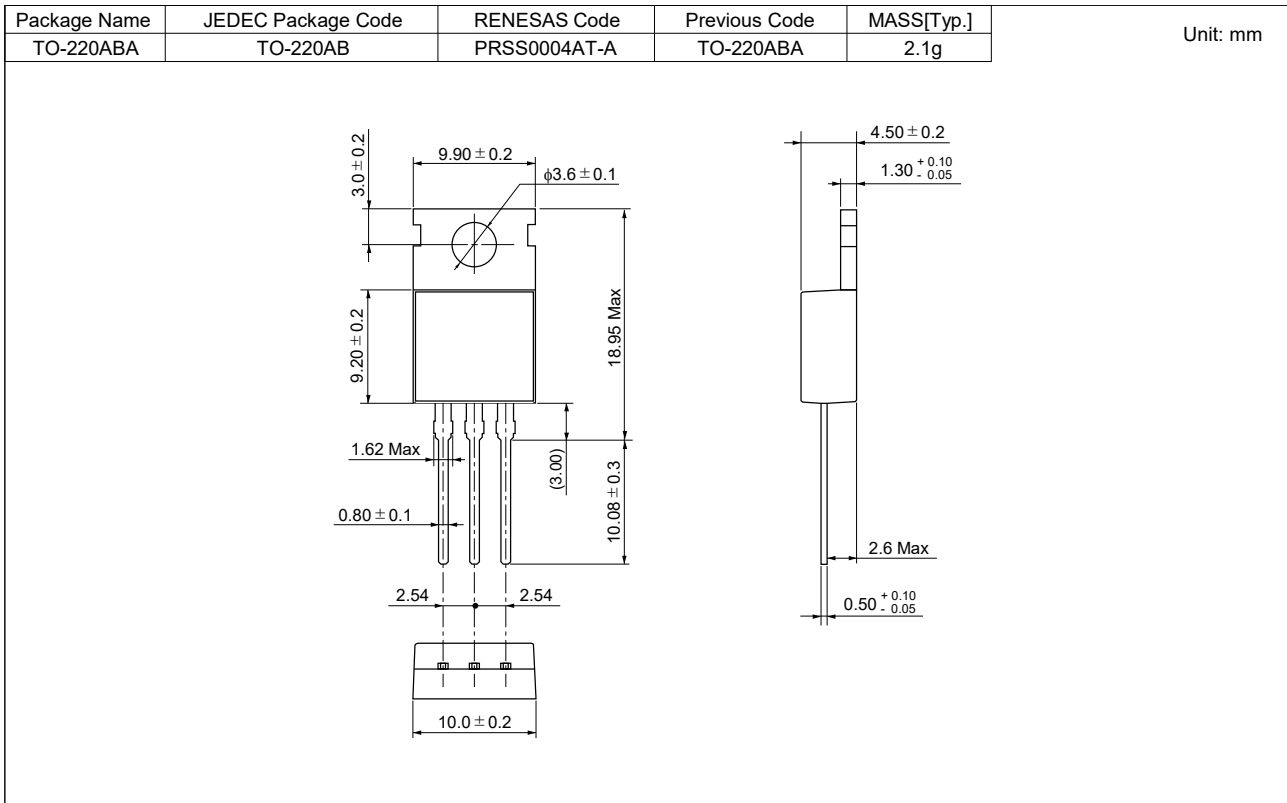


Recommended peripheral components for Triac

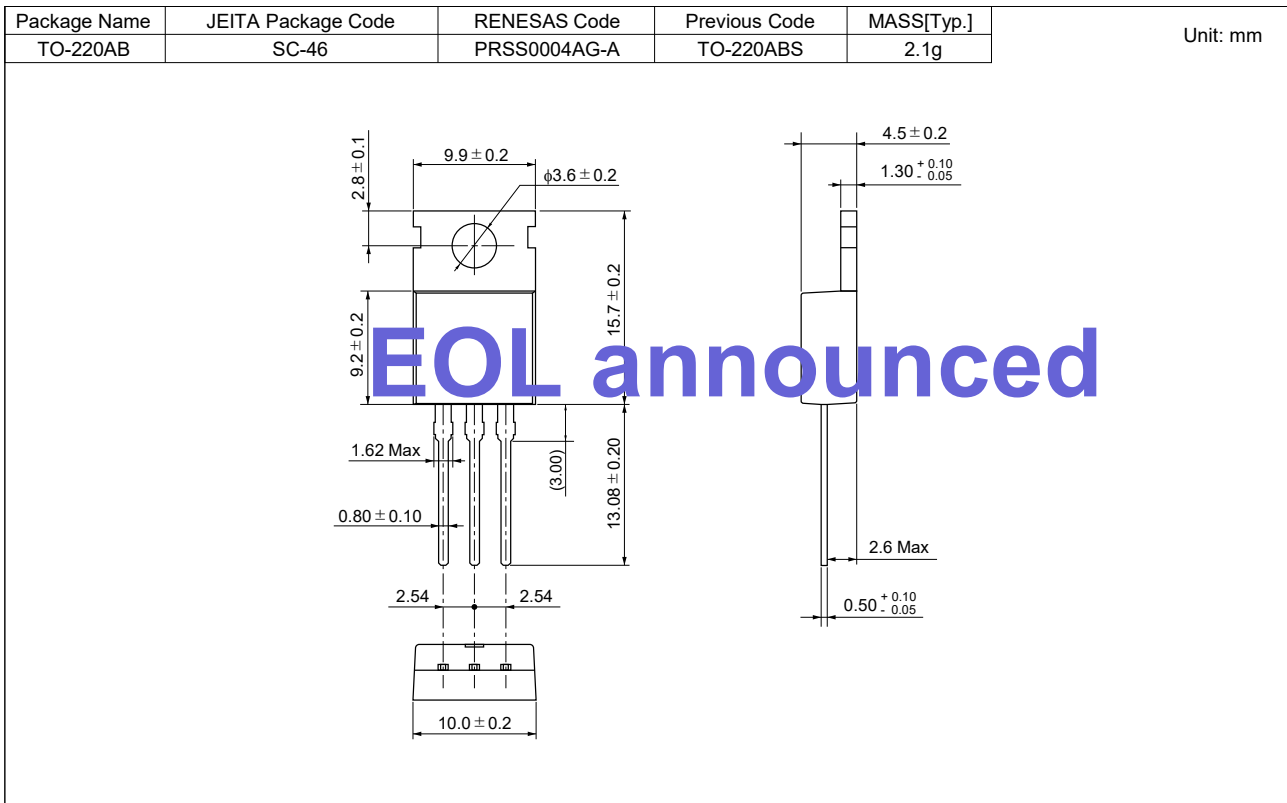


### Package Dimensions

Ordering code: #BH0



Ordering code: #BB0



## Ordering Information

Orderable Part Number	Package	Quantity <sup>Note6</sup>	Remark	Status
BCR16CM-16LH#BH0	TO-220ABA	50 pcs./ tube	Straight type	Mass Production
BCR16CM-16LH-1#BH0	TO-220ABA	50 pcs./ tube	Straight type, I <sub>GT</sub> item:1	
BCR16CM-16LH#BB0	TO-220ABS	50 pcs./ tube	Straight type	EOL announced
BCR16CM-16LH-1#BB0	TO-220ABS	50 pcs./ tube	Straight type, I <sub>GT</sub> item:1	
BCR16CM-16LH□□#BB0	TO-220ABS	50 pcs./ tube	□□:Lead form type	

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



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