

BCR12CM-12LB

600V - 12A - Triac

Medium Power Use

R07DS1030EJ0500


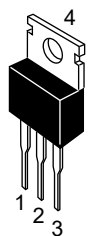
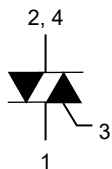
Rev.5.00

Jun. 28, 2018

Features

- $I_T (RMS)$: 12 A
- V_{DRM} : 600 V
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 30 mA (20 mA) ^{Note6}
- T_j : 150°C
- Non-insulated Type
- Planar Passivation Type

Outline

<p>RENESAS Package code: PRSS0004AG-A (Package name: TO-220AB)</p>  <p>To be EOLed PKG</p>	<p>RENESAS Package code: PRSS0004AT-A (Package name: TO-220ABA)</p> 	 <p>1. T₁ Terminal 2. T₂ Terminal 3. Gate Terminal 4. T₂ Terminal</p>
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Application

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

Maximum Ratings

Parameter	Symbol	Voltage class	
		12	Unit
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	600	V
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	720	V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T (RMS)$	12	A	Commercial frequency, sine full wave 360° conduction, $T_c = 123^\circ C$ ^{Note3}
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 ² 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	

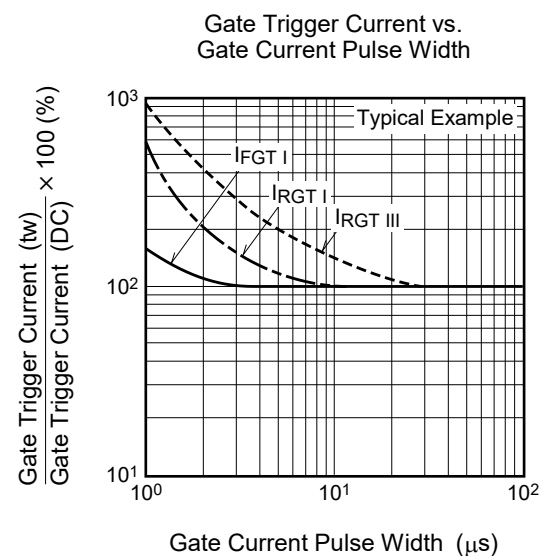
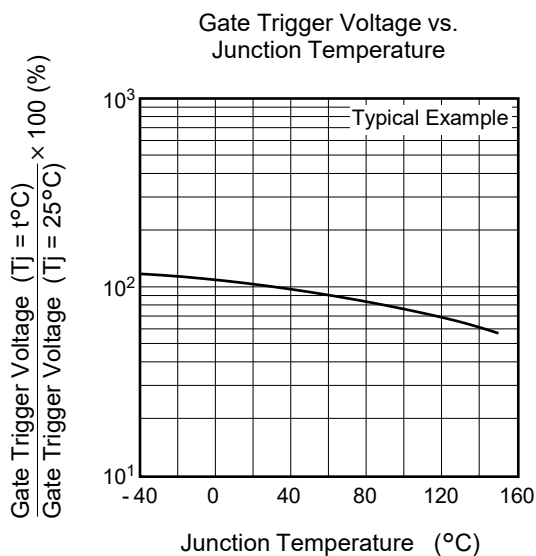
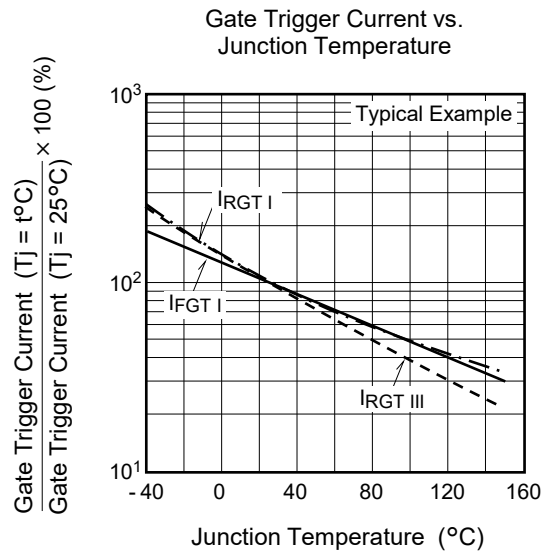
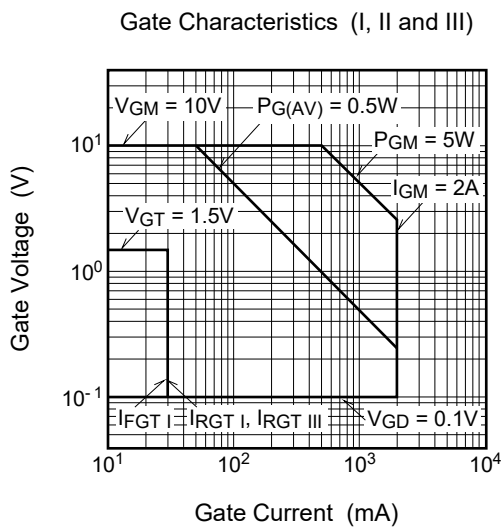
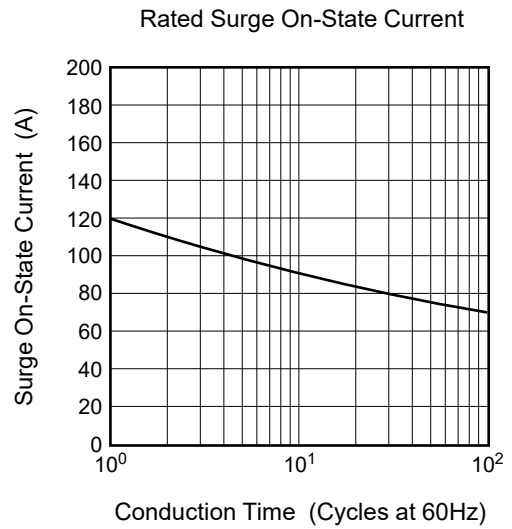
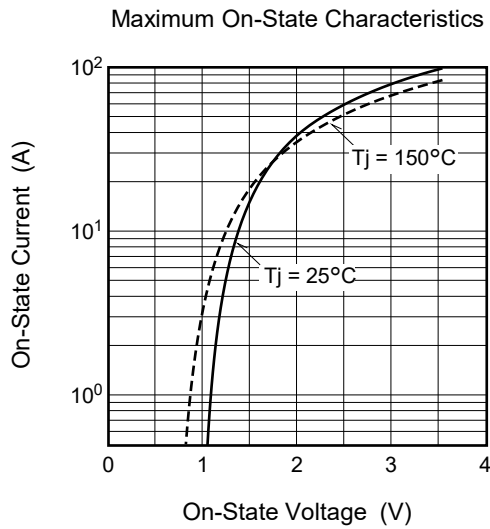
Electrical Characteristics

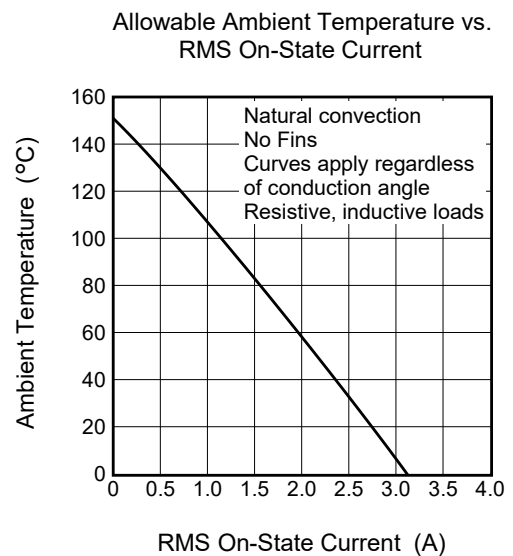
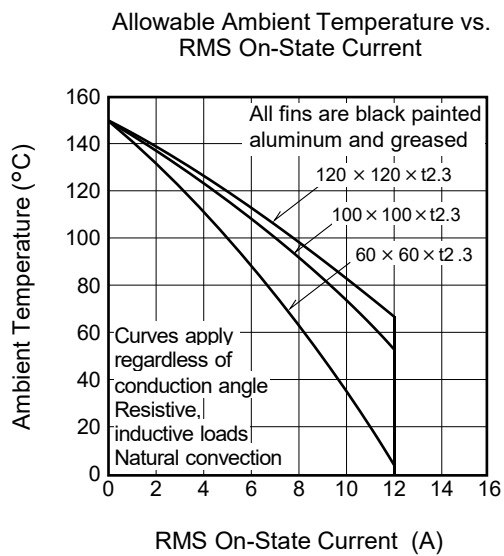
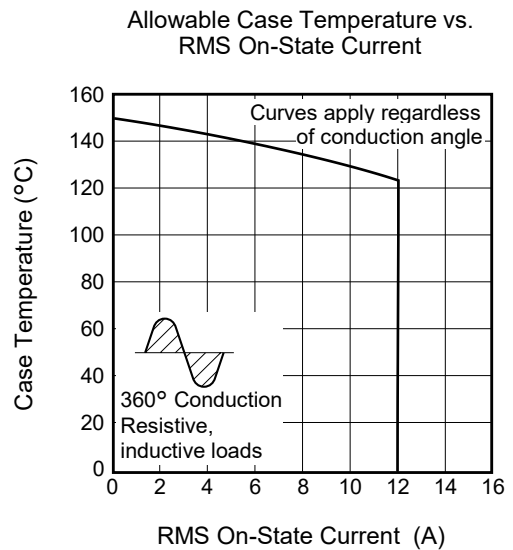
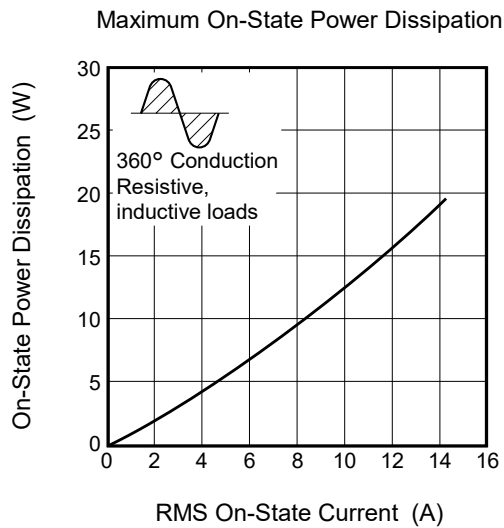
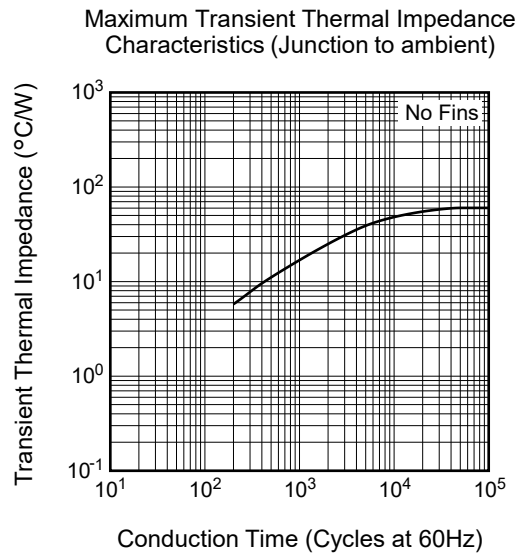
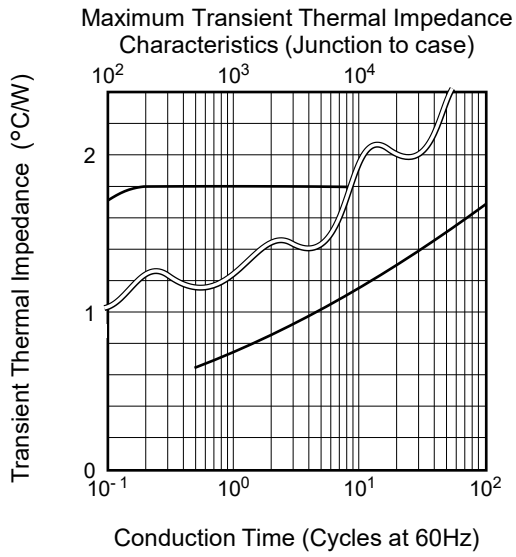
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions	
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_j = 150^\circ\text{C}$, V_{DRM} applied	
On-state voltage	V_{TM}	—	—	1.6	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 20\text{ A}$, instantaneous measurement	
Gate trigger voltage ^{Note2}	I	V_{FGTI}	—	—	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 ^{Note6}	mA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II	I_{RGTI}	—	—	30 ^{Note6}	mA	
	III	I_{RGTIII}	—	—	30 ^{Note6}	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	$R_{th(j-c)}$	—	—	1.8	$^\circ\text{C/W}$	Junction to case ^{Note3 Note4}	
Critical-rate of rise of off-state commutation voltage ^{Note5}	$(dv/dt)_c$	10	—	—	$\text{V}/\mu\text{s}$	$T_j = 125^\circ\text{C}$	
		1	—	—	$\text{V}/\mu\text{s}$	$T_j = 150^\circ\text{C}$	

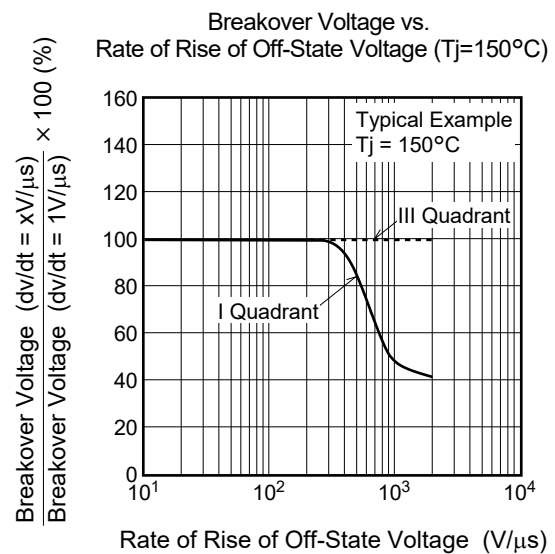
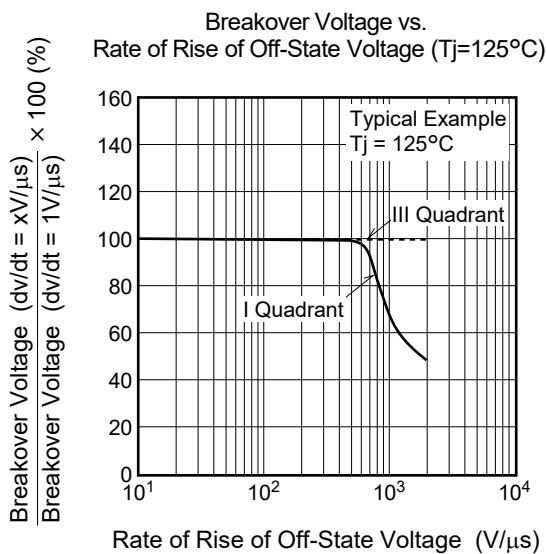
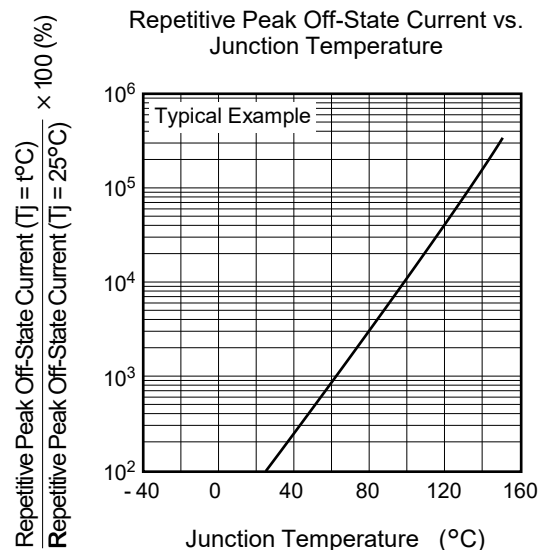
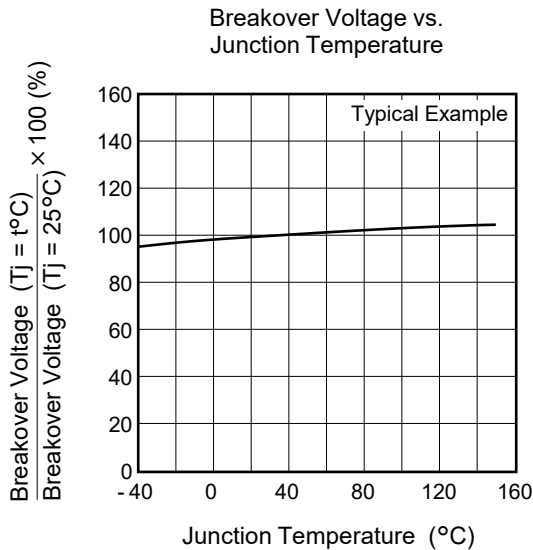
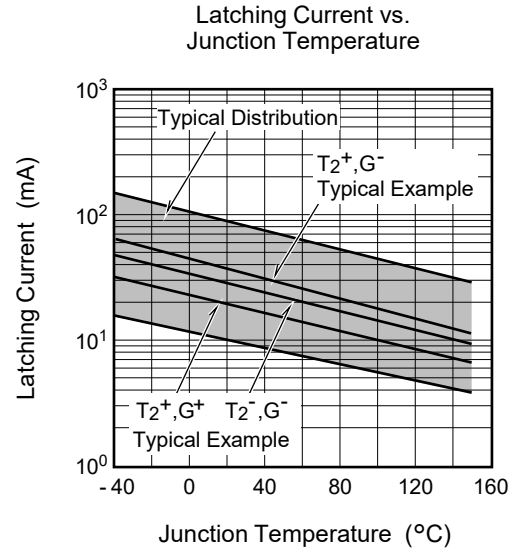
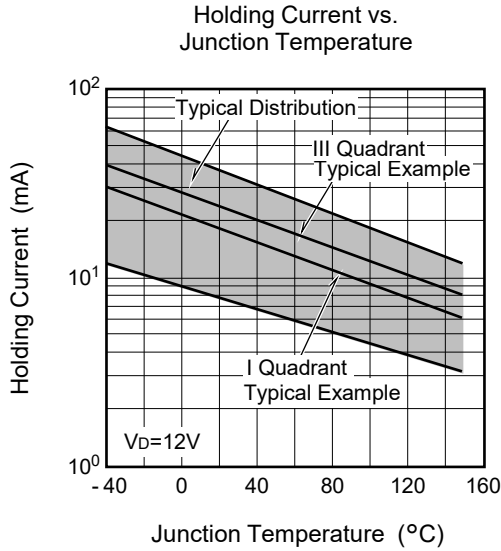
- Notes: 1. Gate open.
 2. Measurement using the gate trigger characteristics measurement circuit.
 3. Case temperature is measured at the T_2 tab 1.5 mm away from the molded case.
 4. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is 1.0°C/W .
 5. Test conditions of the critical-rate of rise of off-state commutation voltage is shown in the table below.
 6. High sensitivity ($I_{GT} \leq 20\text{ mA}$) is also available. (I_{GT} item:1)

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 decay of on-state commutating current $(di/dt)_c = -6.0\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

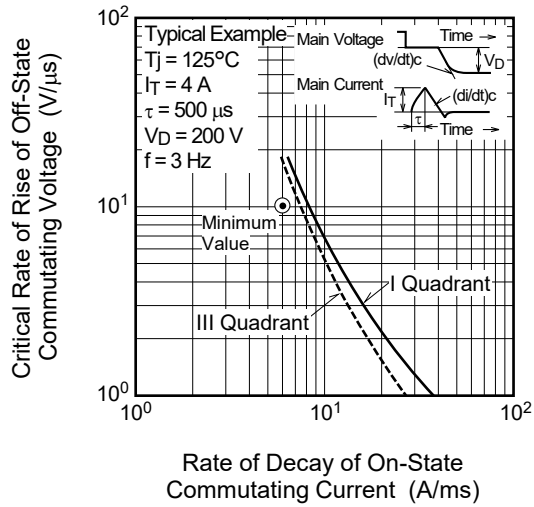
Performance Curves



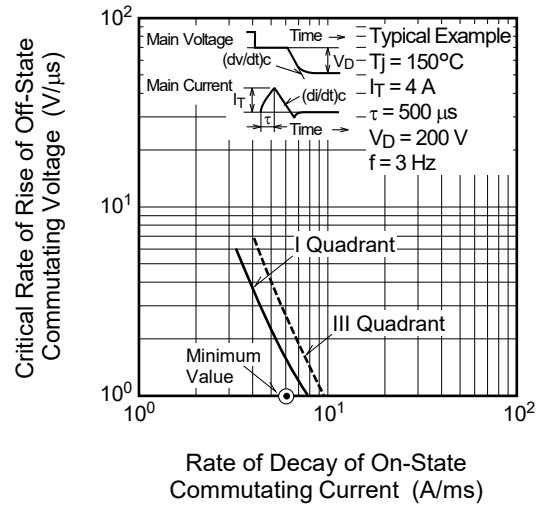




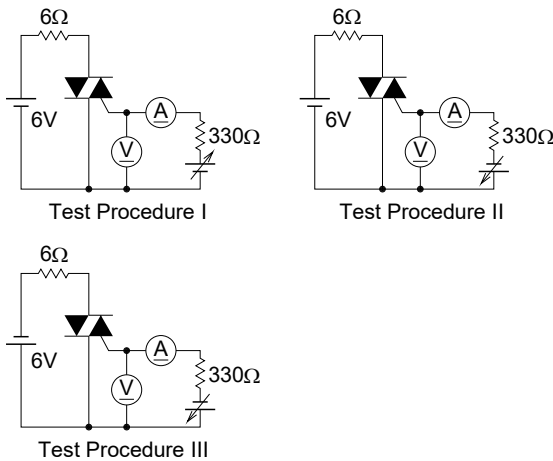
Commutation Characteristics (Tj=125°C)



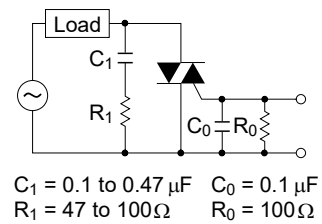
Commutation Characteristics (Tj=150°C)



Gate Trigger Characteristics Test Circuits

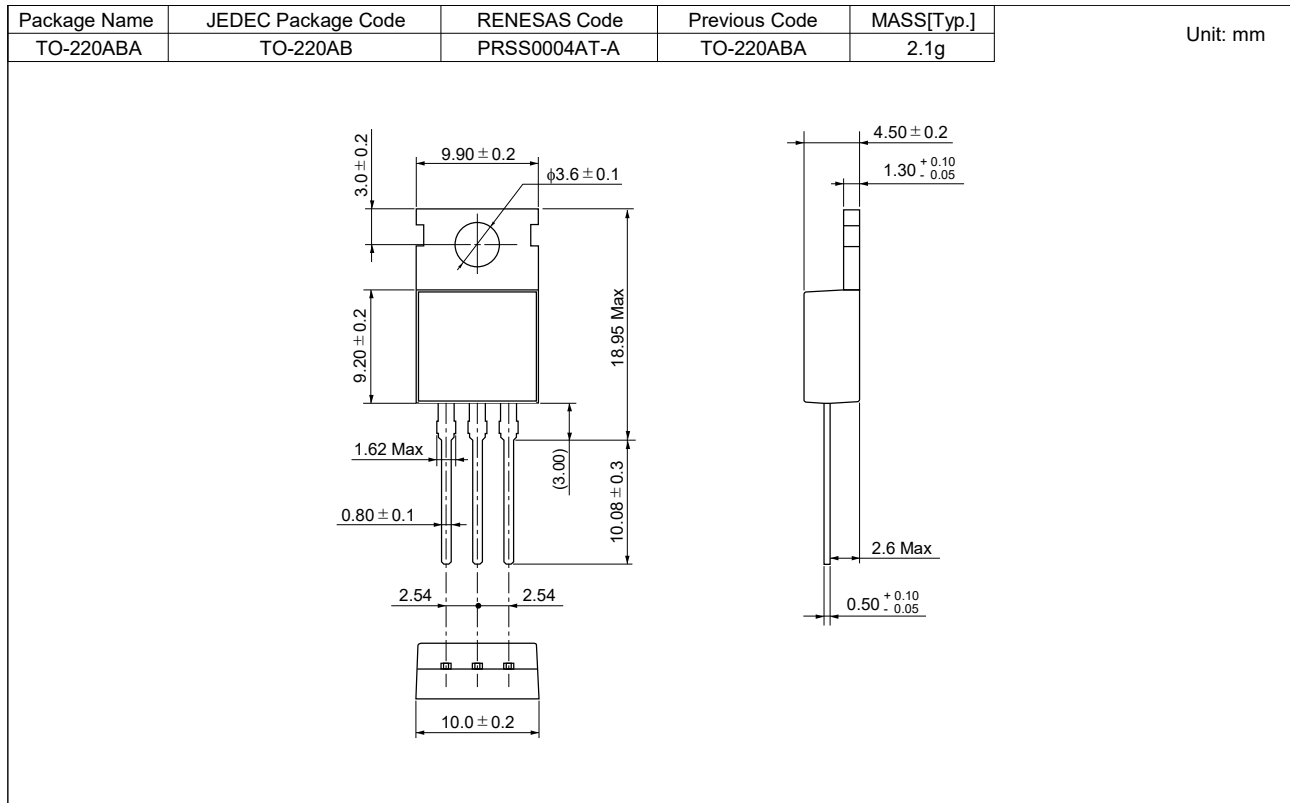


Recommended peripheral components for Triac

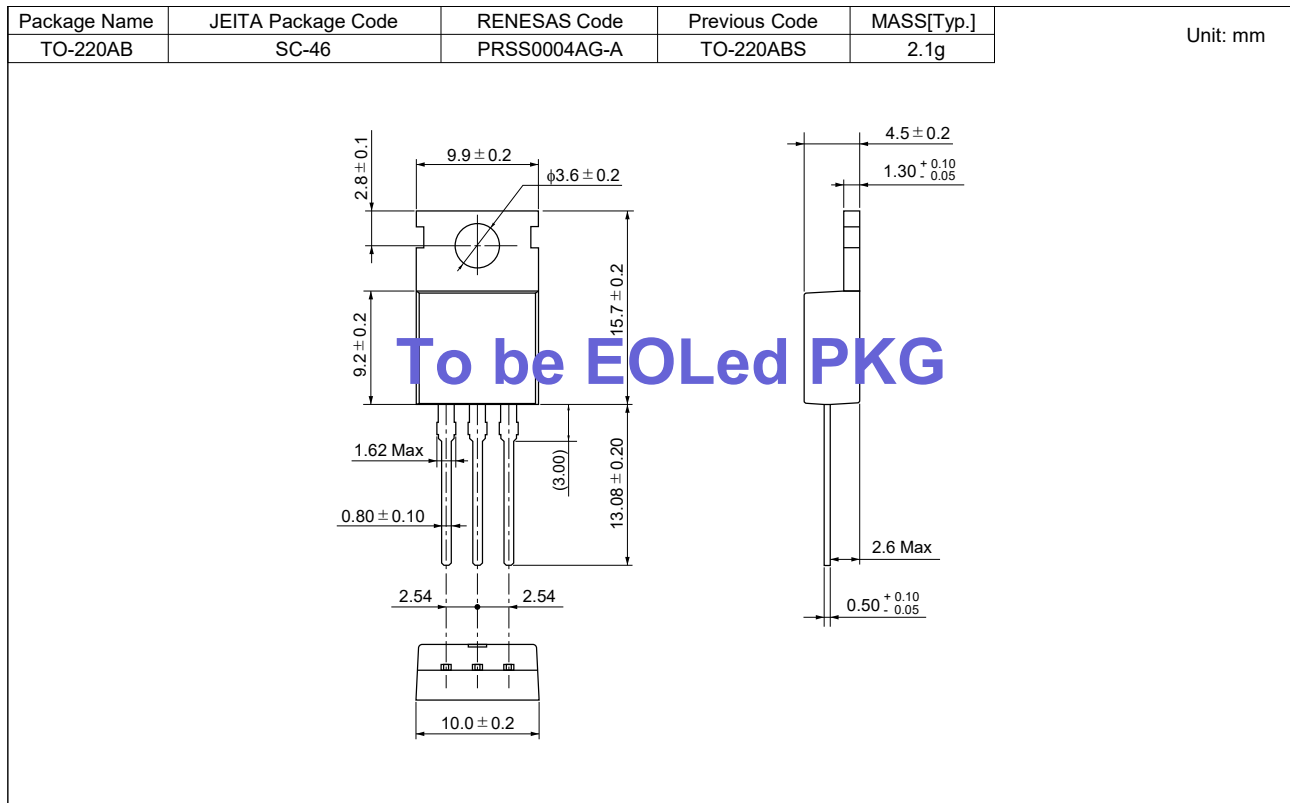


Package Dimensions

Ordering code: #BH0



Ordering code: #BB0



Ordering Information

Orderable Part Number	Package	Quantity ^{Note7}	Remark	Status
BCR12CM-12LB#BH0	TO-220ABA	50 pcs./ tube	Straight type	Mass Production
BCR12CM-12LB-1#BH0	TO-220ABA	50 pcs./ tube	Straight type, I _{GT} item:1	
BCR12CM-12LB#BB0	TO-220ABS	50 pcs./ tube	Straight type	EOL Candidate
BCR12CM-12LB-1#BB0	TO-220ABS	50 pcs./ tube	Straight type, I _{GT} item:1	
BCR12CM-12LB□□#BB0	TO-220ABS	50 pcs./ tube	□□:Lead form type	
BCR12CM12LB1□□#BB0	TO-220ABS	50 pcs./ tube	□□:Lead form type, I _{GT} item:1	

Notes: 7. Please confirm the specification about the shipping in detail.

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