

BCR12CM-16LH

800V - 12A - Triac

Medium Power Use

R07DS0261EJ0300

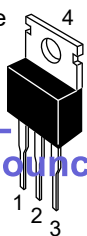
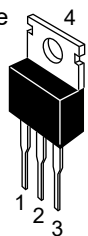
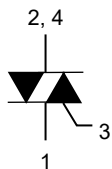
Rev.3.00

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 	
EOL announced		1. T ₁ Terminal 2. T ₂ Terminal 3. Gate Terminal 4. T ₂ Terminal

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 ^{Note1}	V_{DRM}	800	V
Non-repetitive peak off-state voltage ^{Note1}	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, $T_c = 123^\circ C$ ^{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	BCR12CM-16LH-1 (I _{GT} item:1)			BCR12CM-16LH			Unit	Test conditions	
		Min.	Typ.	Max.	Min.	Typ.	Max.			
Repetitive peak off-state current	I _{DRM}	—	—	2.0	—	—	2.0	mA	T _j = 150°C V _{DRM} applied	
On-state voltage	V _{TM}	—	—	1.5	—	—	1.5	V	T _c = 25°C, I _{TM} = 20 A instantaneous measurement	
Gate trigger voltage ^{Note2}	I	V _{FGTI}	—	—	1.5	—	—	1.5	V	T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω
	II	V _{RGTI}	—	—	1.5	—	—	1.5	V	
	III	V _{RGTIII}	—	—	1.5	—	—	1.5	V	
Gate trigger current ^{Note2}	I	I _{FGTI}	—	—	35	—	—	50	mA	T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω
	II	I _{RGTI}	—	—	35	—	—	50	mA	
	III	I _{RGTIII}	—	—	35	—	—	50	mA	
Gate non-trigger voltage	V _{GD}	0.2	—	—	0.2	—	—	V	T _j = 125°C V _D = 1/2 V _{DRM}	
		0.1	—	—	0.1	—	—	V	T _j = 150°C V _D = 1/2 V _{DRM}	
Thermal resistance	R _{th(j-c)}	—	—	1.8	—	—	1.8	°C/W	Junction to case ^{Note3,4}	
Critical-rate of fall of on-state commutating current ^{Note5}	(di/dt) _c	7	—	—	13	—	—	A/ms	T _j = 125°C (dv/dt) _c < 100 V/μs	

Notes: 1. Gate open.

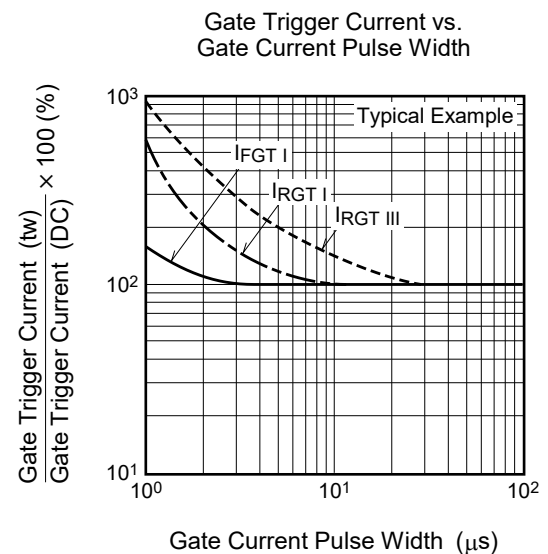
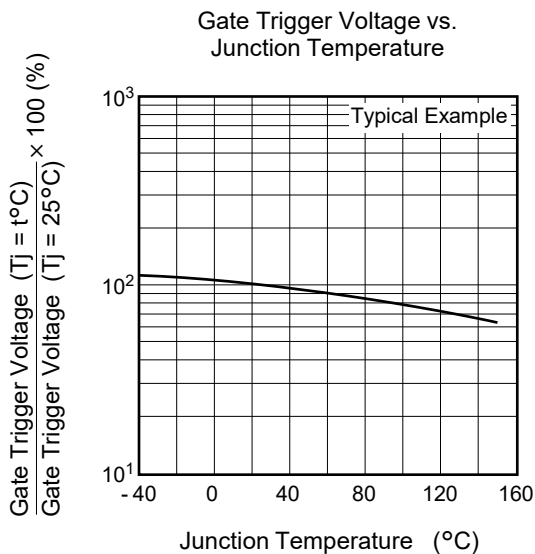
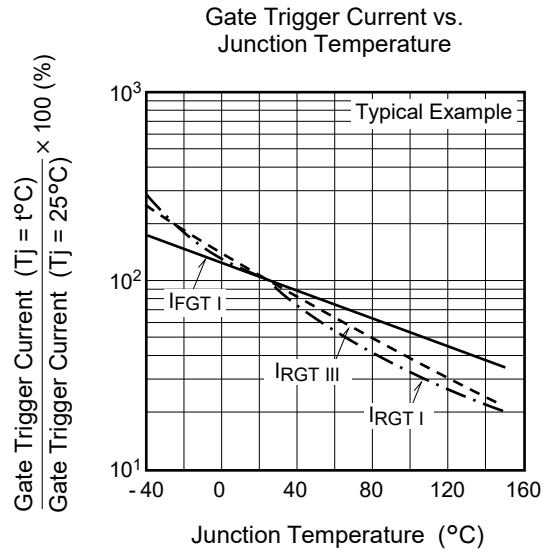
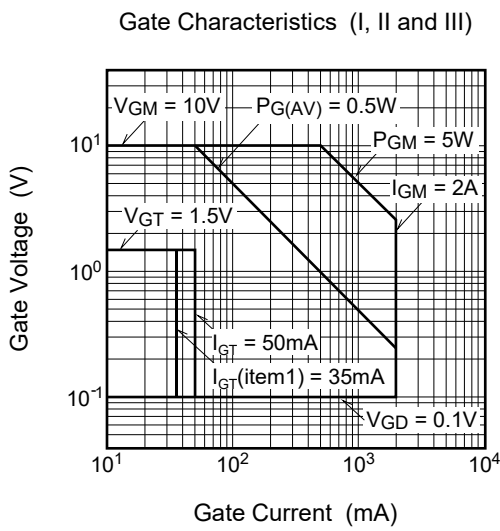
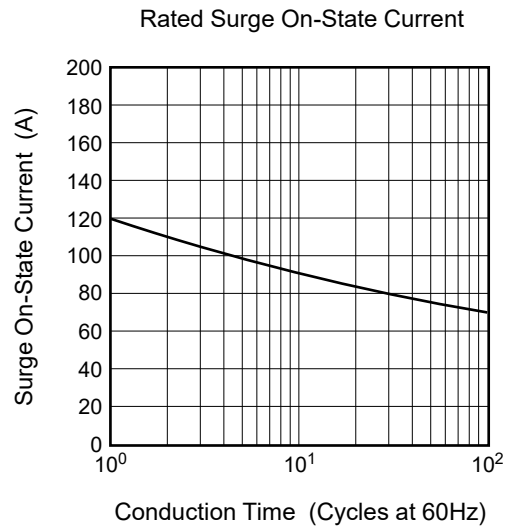
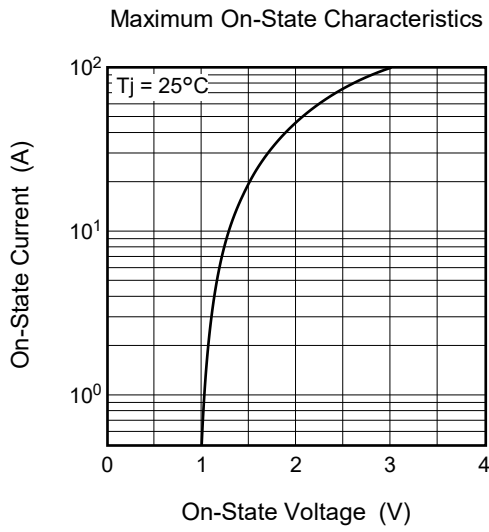
2. Measurement using the gate trigger characteristics measurement circuit.

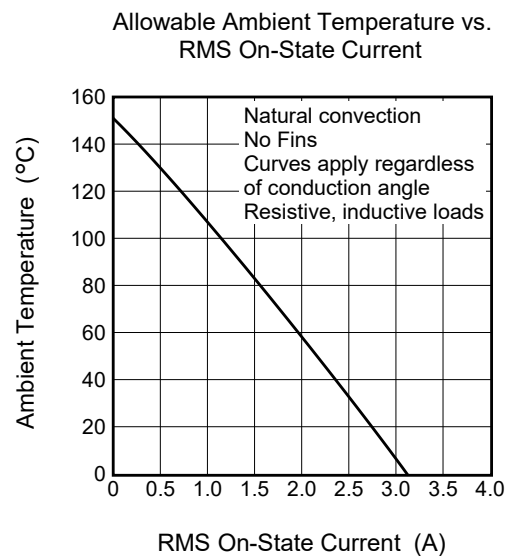
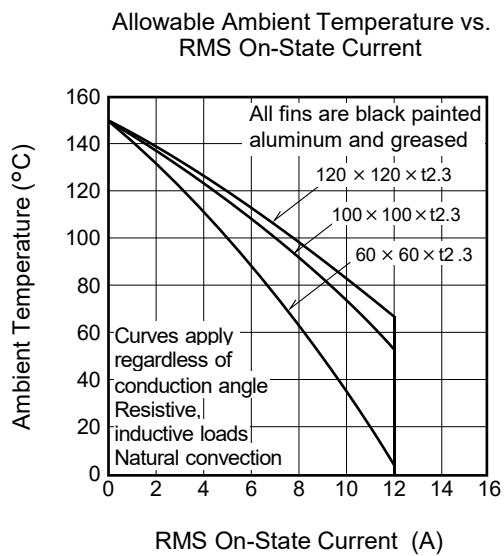
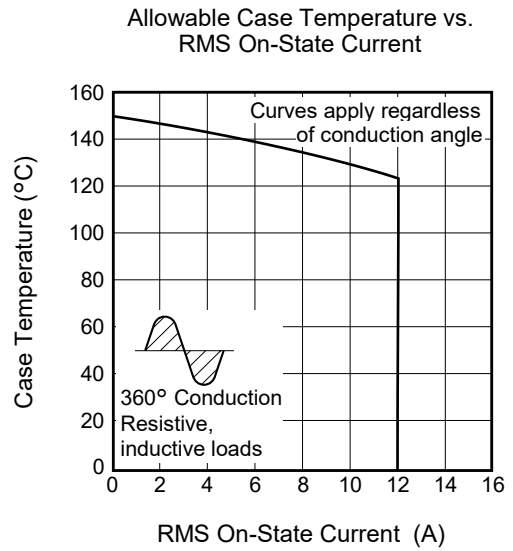
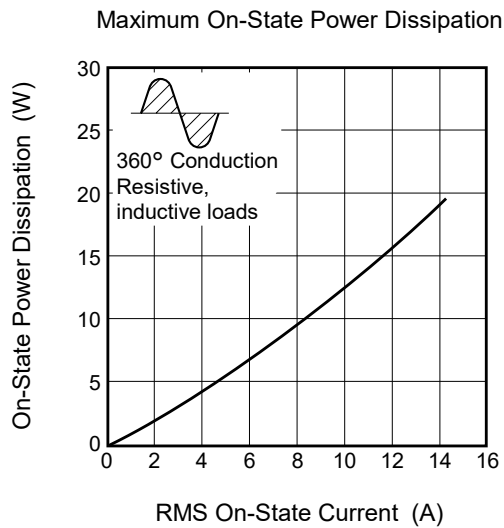
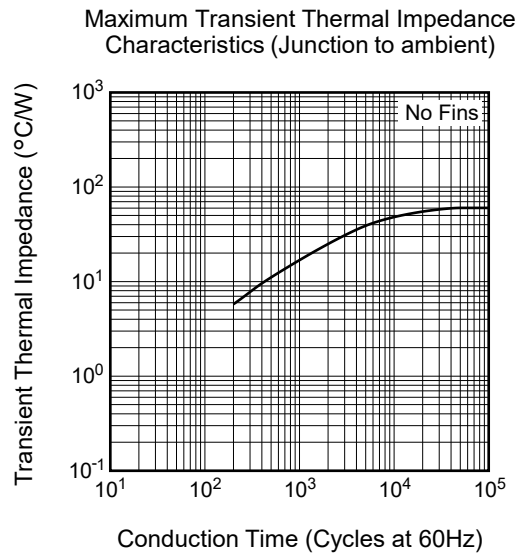
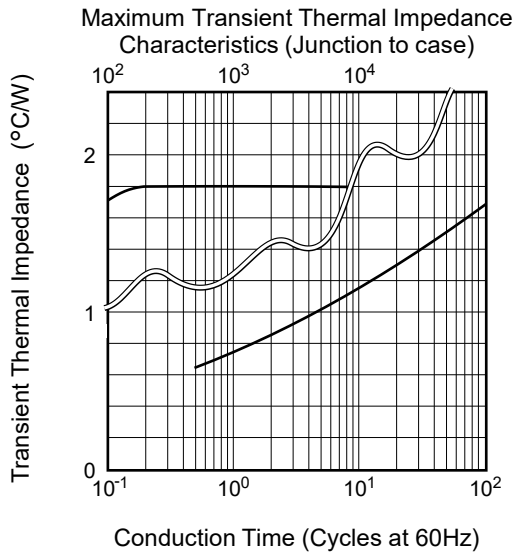
3. Case temperature is measured at the T₂ tab 1.5 mm away from the molded case.4. The contact thermal resistance R_{th(c-f)} in case of greasing is 1.0°C/W.

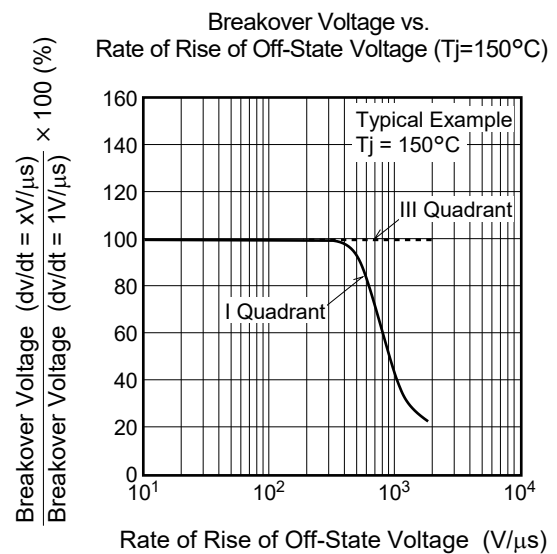
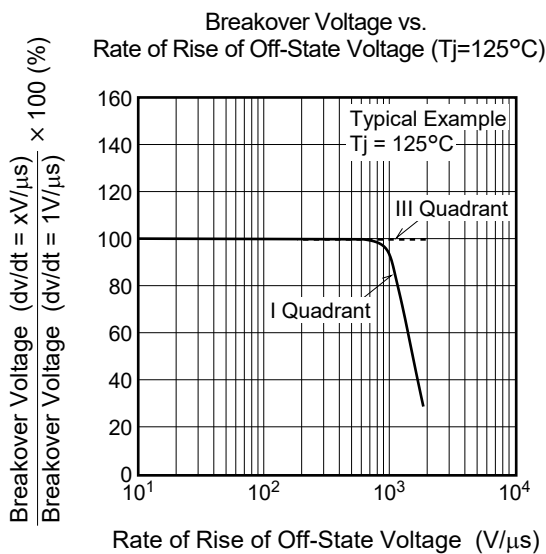
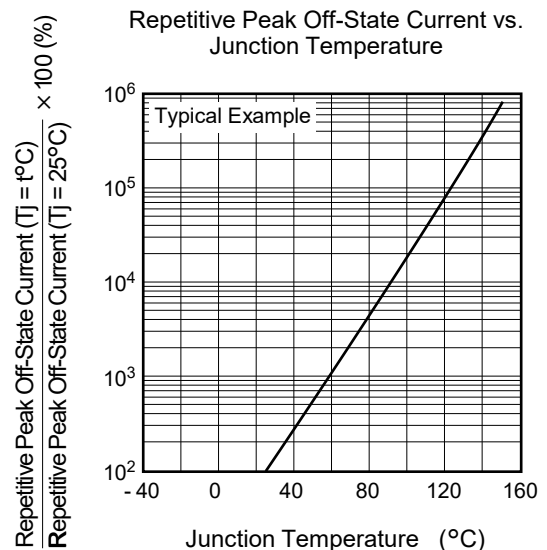
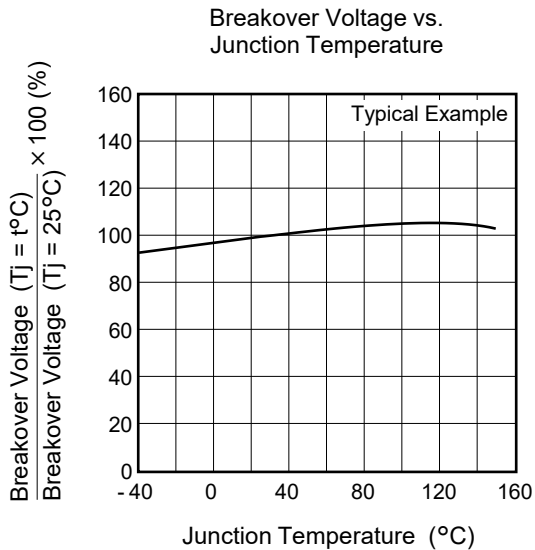
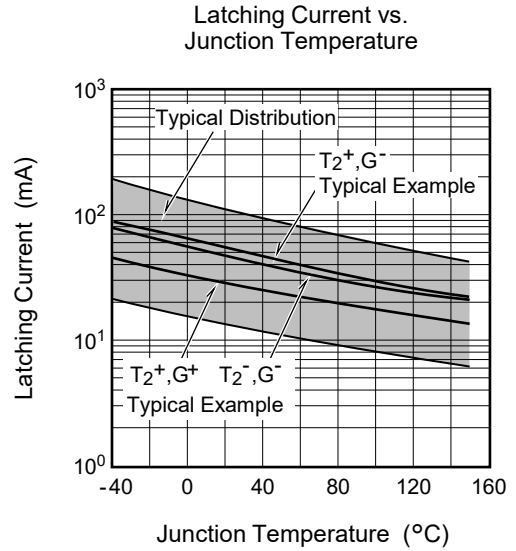
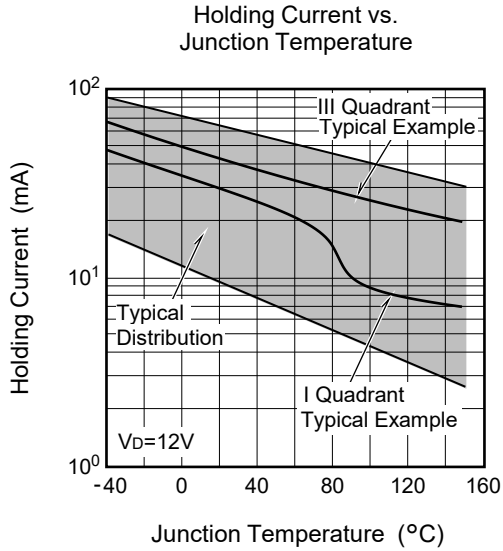
5. Test conditions of the critical-rate of fall of on-state commutation current are shown in the table below.

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

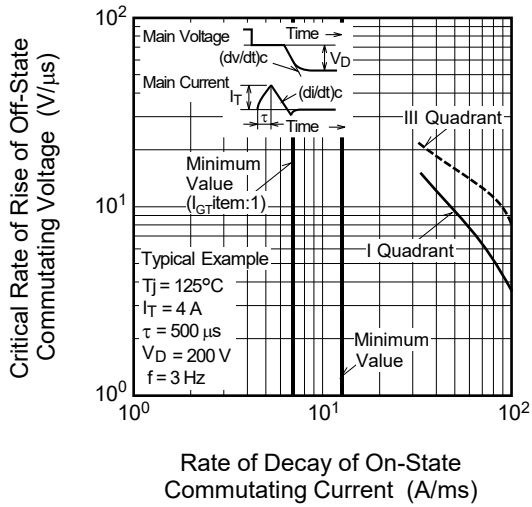
Performance Curves



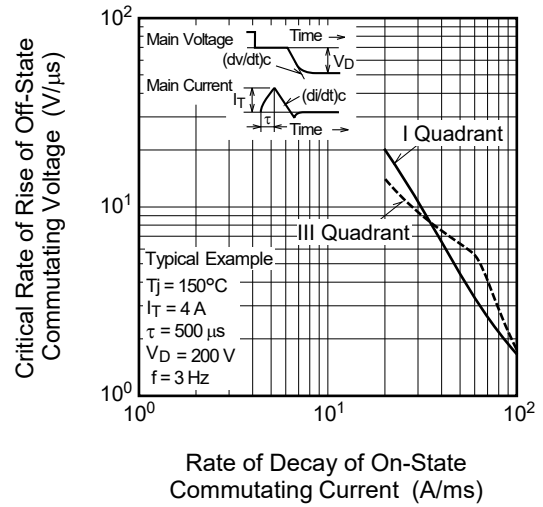




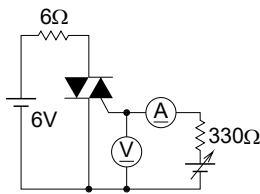
Commutation Characteristics (Tj=125°C)



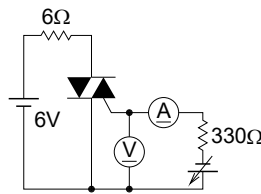
Commutation Characteristics (Tj=150°C)



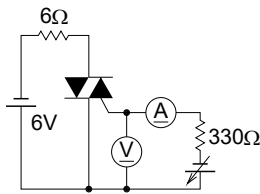
Gate Trigger Characteristics Test Circuits



Test Procedure I

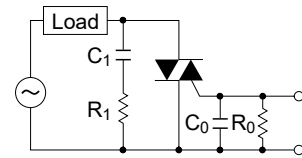


Test Procedure II



Test Procedure III

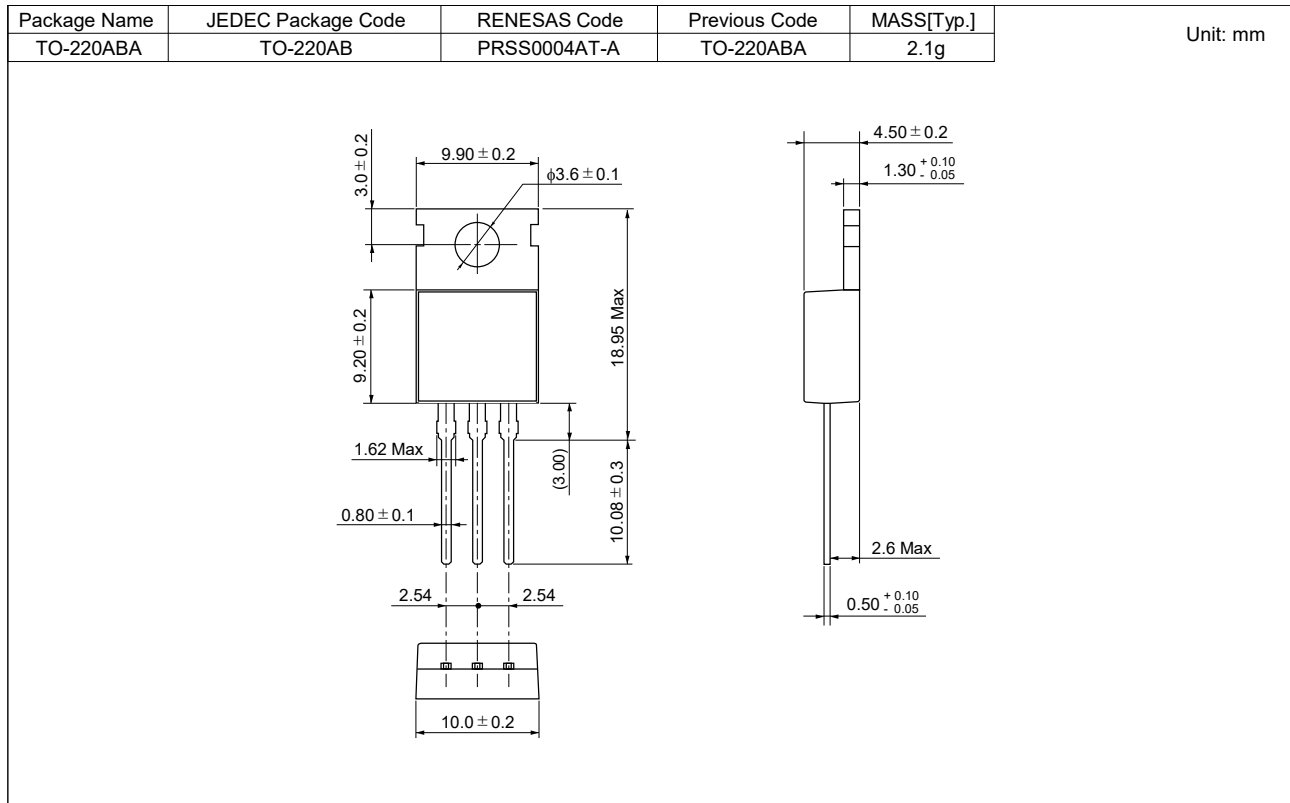
Recommended peripheral components for Triac



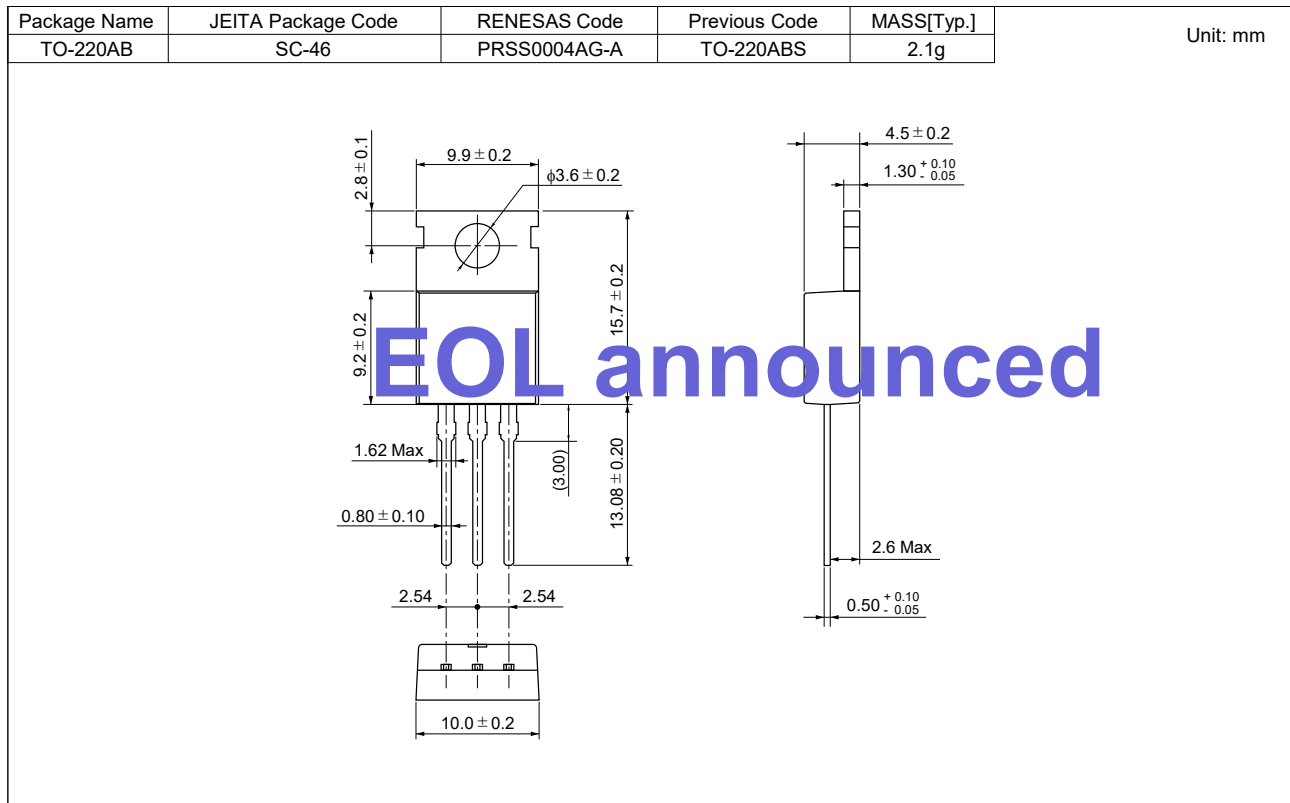
C₁ = 0.1 to 0.47 μF C₀ = 0.1 μF
 R₁ = 47 to 100 Ω R₀ = 100 Ω

Package Dimensions

Ordering code: #BH0



Ordering code: #BB0



Ordering Information

Orderable Part Number	Package	Quantity ^{Note6}	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 _{GT} 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 _{GT} item:1	

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

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(Rev.4.0-1 November 2017)



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