

BCR16FM-16LH

800V - 16A - Triac

Medium Power Use

R07DS1461EJ0100

Rev.1.00

Oct. 10, 2019

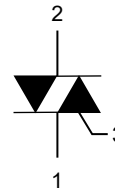
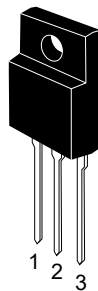
Features

- $I_T (RMS)$: 16 A
- V_{DRM} : 800 V
- T_j : 150 °C
- I_{FGT1} , I_{RGT1} , $I_{RGT III}$: 50 mA or 35 mA (I_{GT} item:1)
- Insulated Type
- Planar Passivation Type
- High Commutation

Outline

RENESAS Package code: PRSS0003AP-A
(Package name: TO-220FPA)

Ordering code
#BG0



1. T1 Terminal
2. T2 Terminal
3. Gate Terminal

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 ^{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	$I_T (RMS)$	16	A	Commercial frequency, sine full wave 360°conduction, $T_c = 87^\circ\text{C}$
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 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	
Isolation voltage ^{Note5}	V_{iso}	2000	V	$T_a=25^\circ\text{C}$, AC 1 minute, $T_1 \cdot T_2 \cdot G$ terminal to case

Electrical Characteristics

Parameter	Symbol	BCR16FM-16LH-1 (I _{GT} item:1)			BCR16FM-16LH			Unit	Test conditions	
		Min.	Typ.	Max.	Min.	Typ.	Max.			
Repetitive peak off-state current	I _{DRM}	—	—	5.0	—	—	5.0	mA	T _j = 150°C V _{DRM} applied	
On-state voltage	V _{TM}	—	—	1.5	—	—	1.5	V	T _c = 25°C, I _{TM} = 25 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)}	—	—	3.5	—	—	3.5	°C/W	Junction to case ^{Note3}	
Critical-rate of fall of on-state commutating current ^{Note4}	(di/dt) _c	9	—	—	15	—	—	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. The contact thermal resistance R_{th(c-f)} in case of greasing is 0.5°C/W.

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

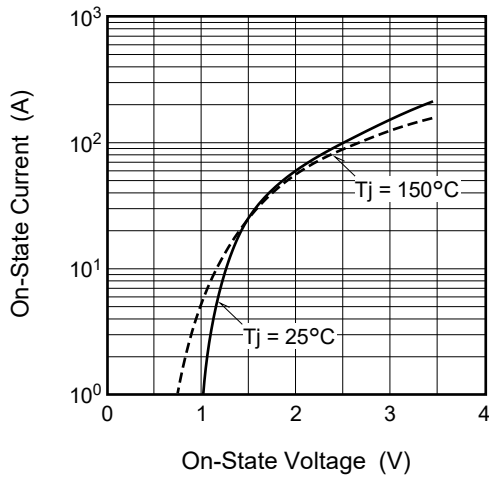
5. Make sure that your finished product containing this device meets your safe isolation requirements.

For safety, it's advisable that heatsink is electrically floating.

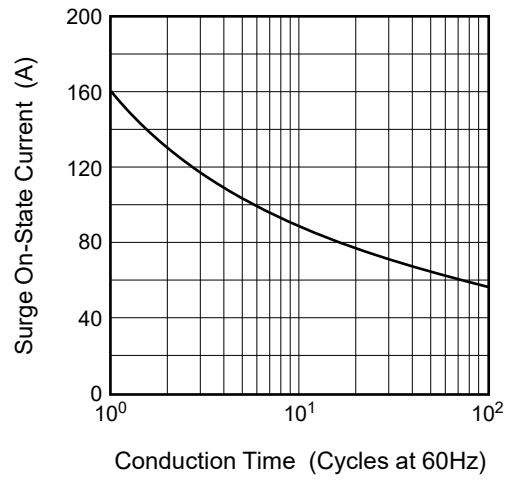
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature T _j = 125°C 2. Peak off-state voltage V _D = 400 V 3. Rate of rise of off-state commutating voltage (dv/dt) _c < 100 V/μs	

Performance Curves

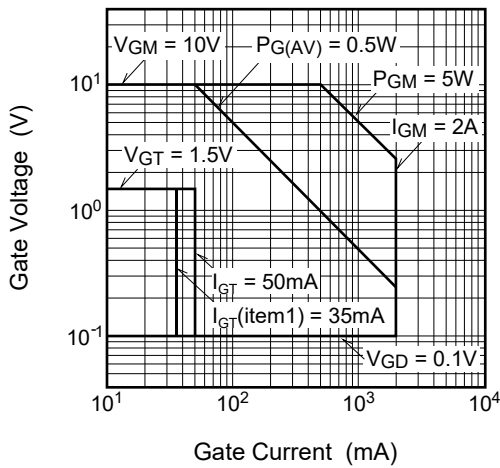
Maximum On-State Characteristics



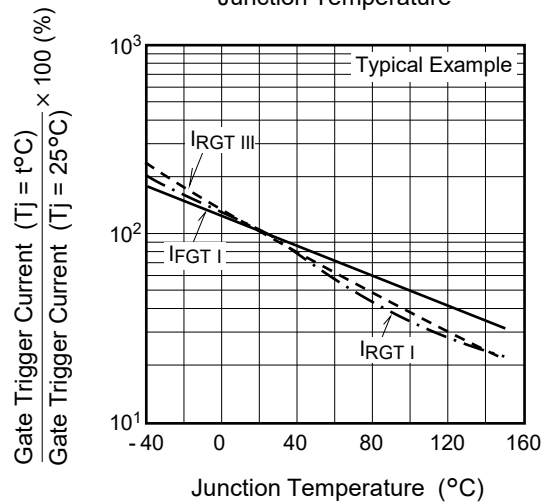
Rated Surge On-State Current



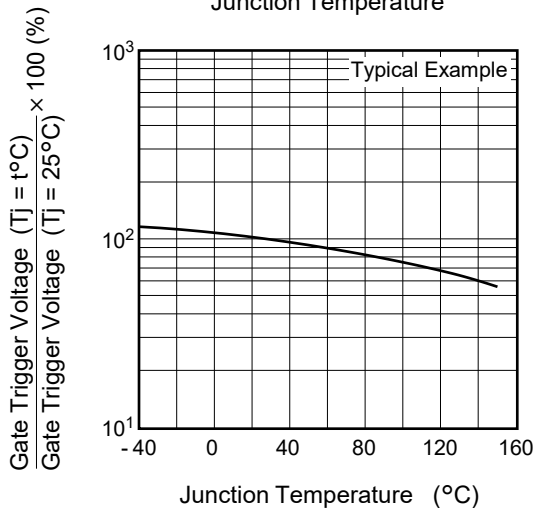
Gate Characteristics (I, II and III)



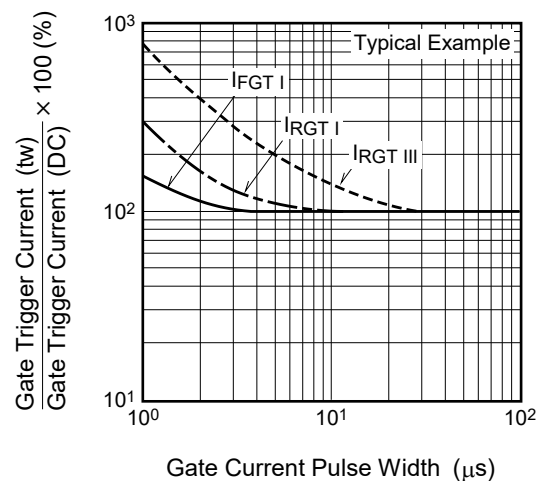
Gate Trigger Current vs. Junction Temperature

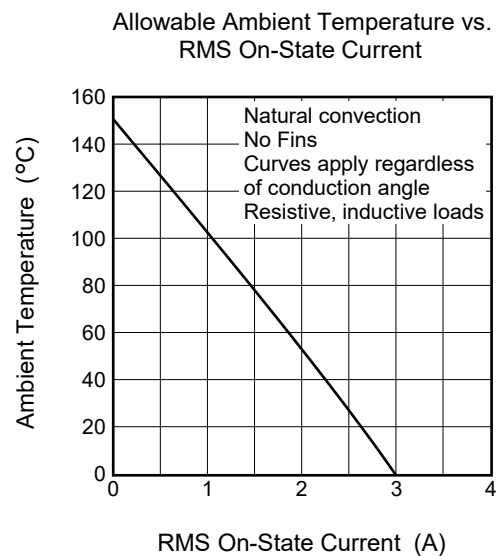
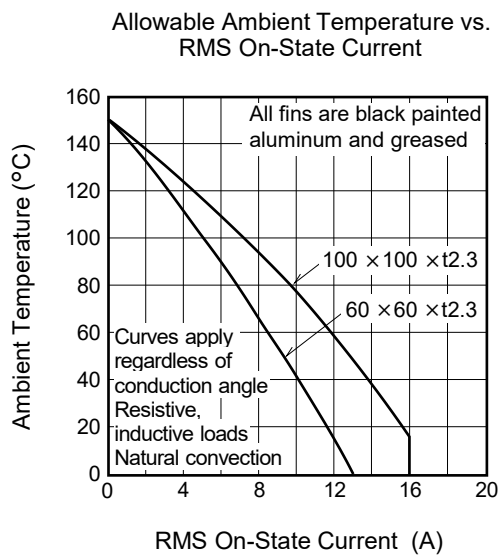
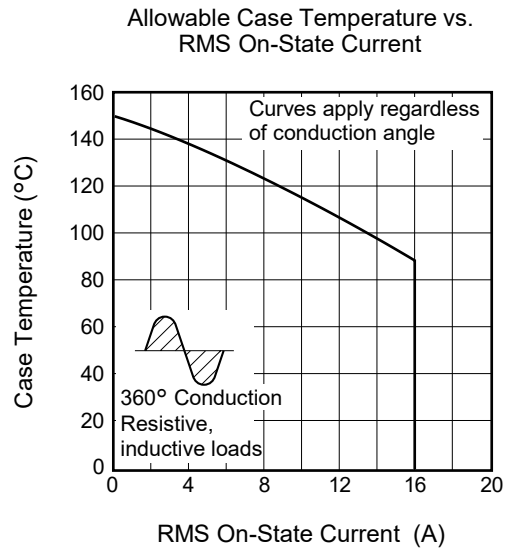
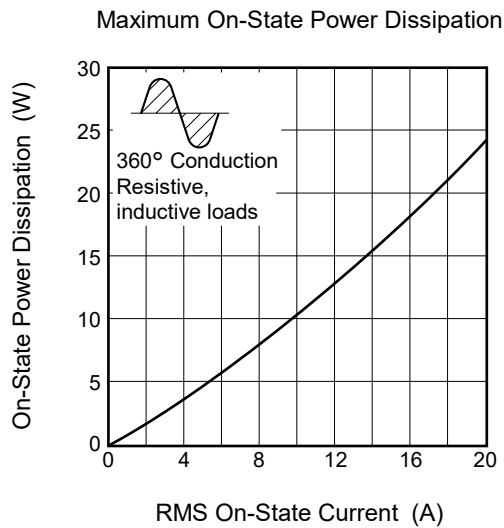
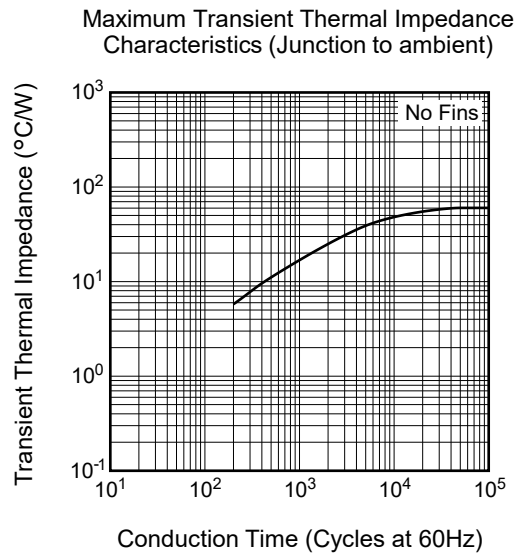
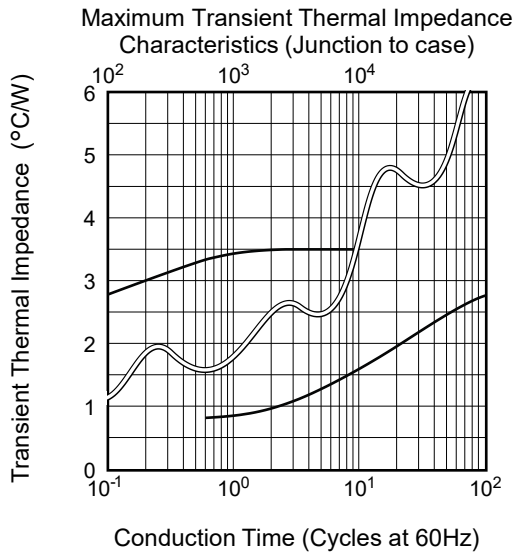


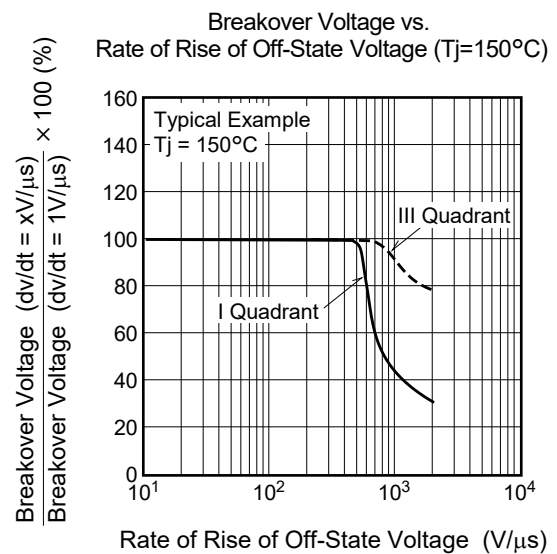
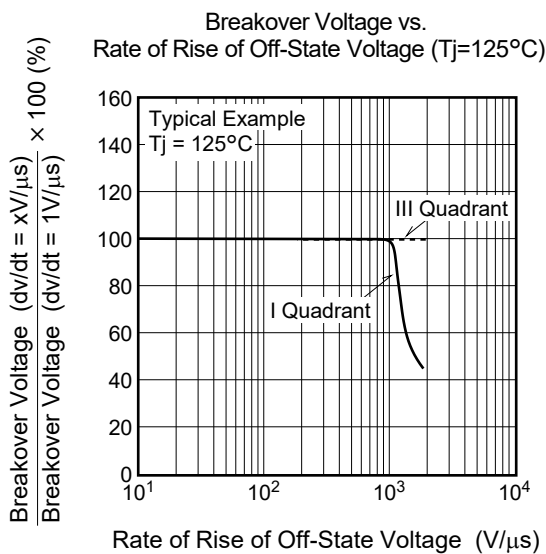
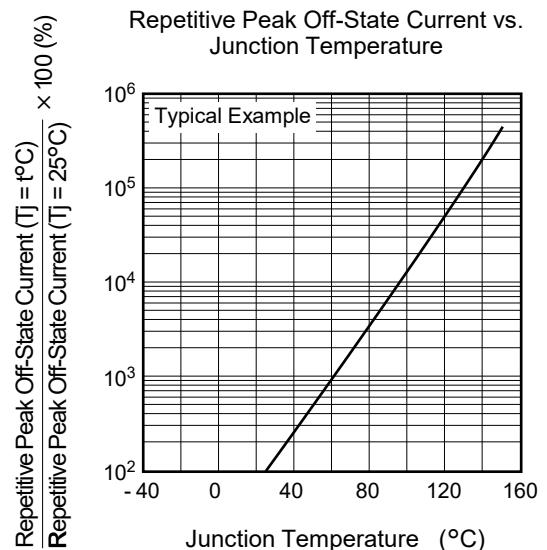
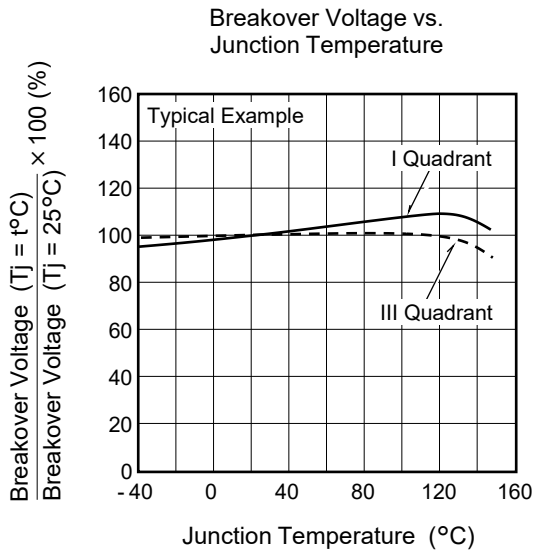
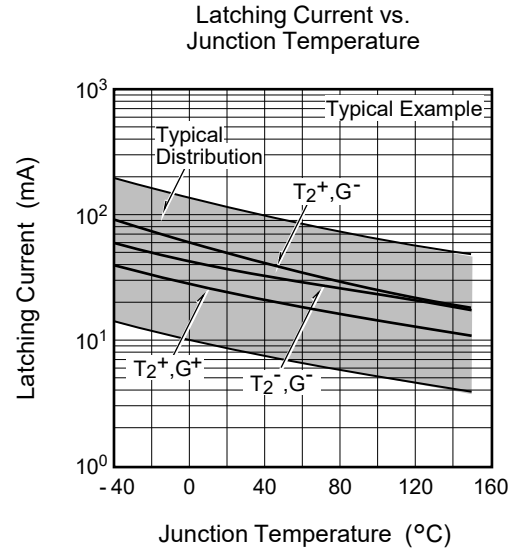
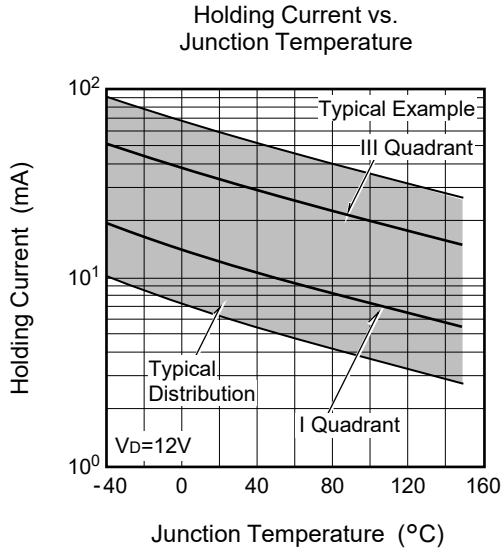
Gate Trigger Voltage vs. Junction Temperature



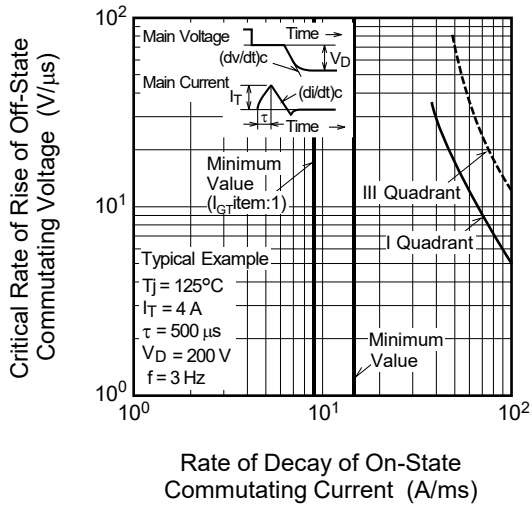
Gate Trigger Current vs. Gate Current Pulse Width



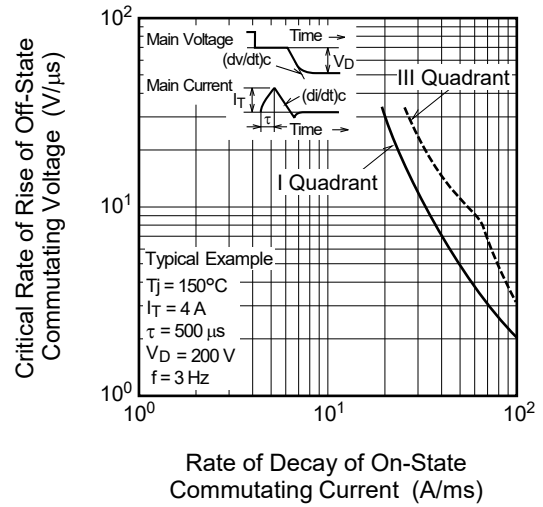




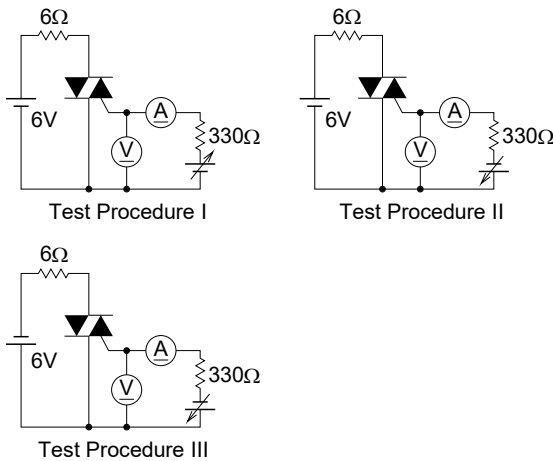
Commutation Characteristics (Tj=125°C)



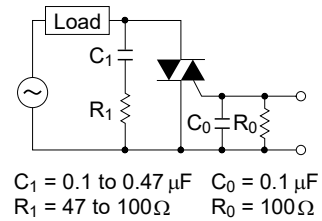
Commutation Characteristics (Tj=150°C)



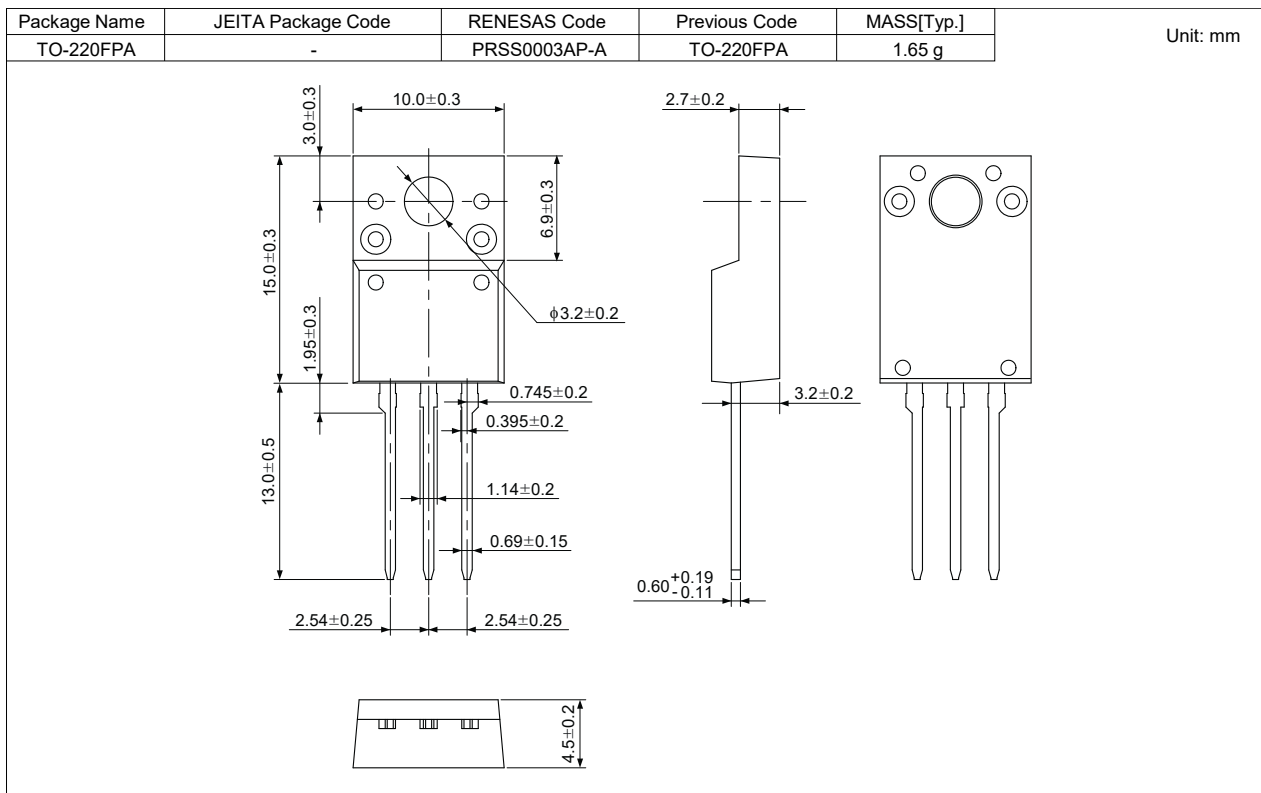
Gate Trigger Characteristics Test Circuits



Recommended peripheral components for Triac



Package Dimensions



Ordering Information

Orderable Part Number	Package	Quantity ^{Note6}	Remark	Status
BCR16FM-16LH#BG0	TO-220FPA	50 pcs./ tube	Straight type	Mass Production
BCR16FM-16LH-1#BG0	TO-220FPA	50 pcs./ tube	Straight type, I _{GT} item:1	

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

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