

BCR3FM-12RB

600V - 3A - Triac
Medium Power Use

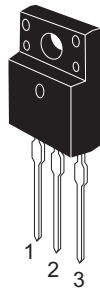
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Features

- $I_{T(RMS)}$: 3 A
- V_{DRM} : 600 V
- T_j : 150 °C
- I_{FGTB} , I_{RGTB} , I_{RGTIII} : 15 mA (10 mA) ^{Note4}
- Insulated Type
- Planar Passivation Type
- Viso: 2000 V

Outline

RENESAS Package code: PRSS0003AG-A
(Package name: TO-220FP)



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

Applications

Electric rice cooker, electric pot, and controller for other heater

Maximum Ratings

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

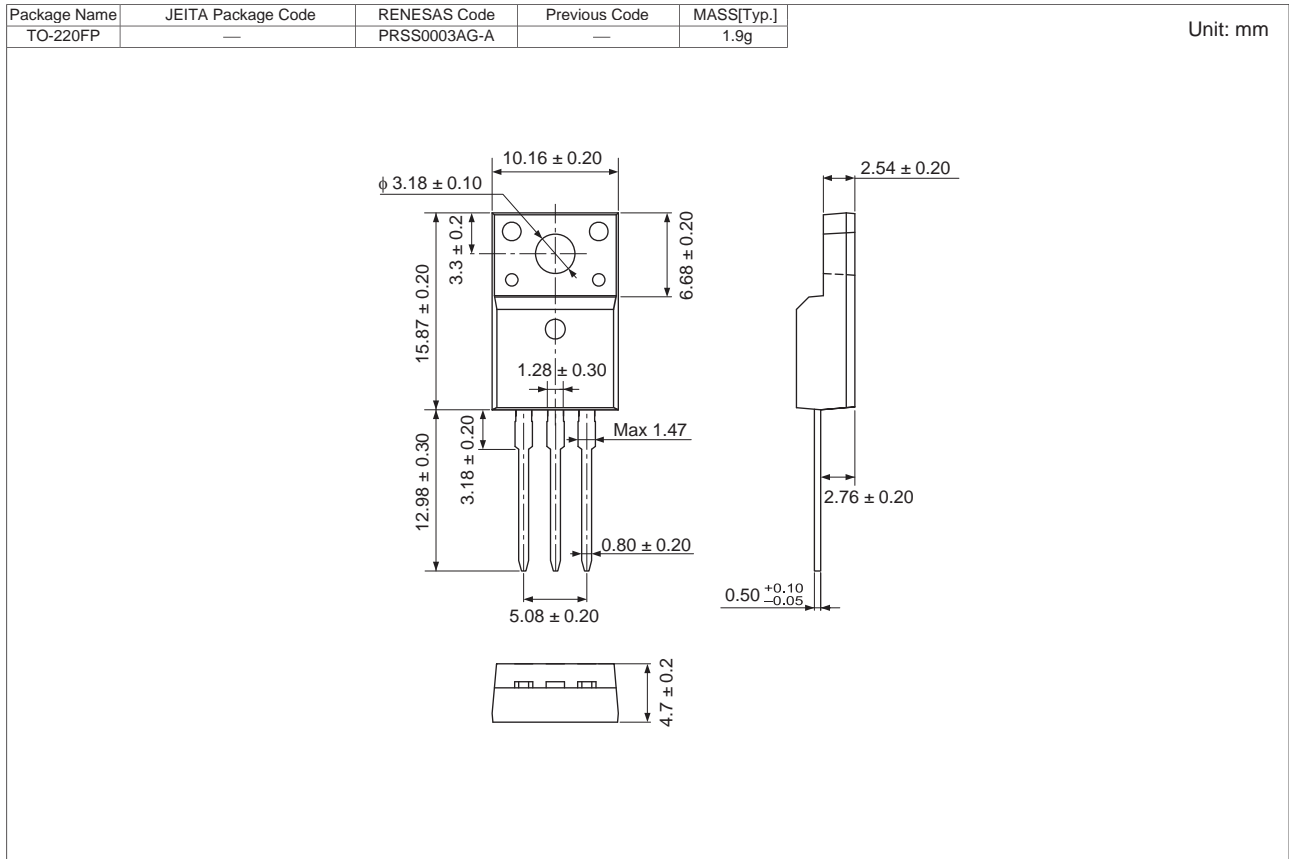
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	3	A	Commercial frequency, sine full wave 360° conduction, $T_c = \begin{cases} 136^\circ\text{C} \text{ (#BB0, See Ordering Info.)} \\ 130^\circ\text{C} \text{ (#FA0, See Ordering Info.)} \end{cases}$
Surge on-state current	I_{TSM}	30	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	3.7	A^2s	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	P_{GM}	3	W	
Average gate power dissipation	$P_{G(AV)}$	0.3	W	
Peak gate voltage	V_{GM}	6	V	
Peak gate current	I_{GM}	0.5	A	
Junction Temperature	T_j	-40 to +150	°C	
Storage temperature	T_{stg}	-40 to +150	°C	
Mass	—	1.9	g	Typical value
Isolation voltage ^{Note5}	Viso	2000	V	$T_a = 25^\circ\text{C}$, AC 1 minute $T_1 \bullet T_2 \bullet G$ terminal to case

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}	—	—	1.5	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 4.5$ A, instantaneous measurement	
Gate trigger voltage ^{Note2}	I	V_{FGTI}	—	—	1.5	V	$T_j = 25^\circ\text{C}$, $V_D = 6$ 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}	—	—	15 ^{Note4}	mA	$T_j = 25^\circ\text{C}$, $V_D = 6$ V, $R_L = 6 \Omega$, $R_G = 330 \Omega$
	II	I_{RGTI}	—	—	15 ^{Note4}	mA	
	III	I_{RGTIII}	—	—	15 ^{Note4}	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	$R_{th(j-c)}$	—	—	4.0	°C/W	Junction to case ^{Note3} #BB0 (See Ordering Info.)	
		—	—	5.2	°C/W	Junction to case ^{Note3} #FA0 (See Ordering Info.)	

- 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. High sensitivity ($I_{GT} \leq 10$ mA) is also available (I_{GT} item: 1).
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.

Package Dimensions



Ordering Information

Orderable Part Number	Packing	Quantity	Remark	Quality Grade ^{Note8}
BCR3FM-12RB#BB0	Tube ^{Note6}	50 pcs.	Straight type	General Industrial & General Consumer Use
BCR3FM-12RB-1#BB0	Tube ^{Note6}	50 pcs.	Straight type, lGT item:1	
BCR3FM-12RB-□□#BB0	Tube ^{Note6}	50 pcs.	□□:Lead forming type	
BCR3FM-12RB1□□#BB0	Tube ^{Note6}	50 pcs.	□□:Lead forming type, lGT item:1	
BCR3FM-12RB#FA0	Tube ^{Note6}	50 pcs.	Straight type	Special Consumer Use ^{Note7}
BCR3FM-12RB-1#FA0	Tube ^{Note6}	50 pcs.	Straight type, lGT item:1	
BCR3FM-12RB-□□#FA0	Tube ^{Note6}	50 pcs.	□□:Lead forming type	
BCR3FM-12RB1□□#FA0	Tube ^{Note6}	50 pcs.	□□:Lead forming type, lGT item:1	

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

- 7. "Special Consumer Use" grade product is not tested for the "Temperature Humidity Bias" reliability in the condition of rated V_{DRM} . Please be sure to implement qualification tests and judge whether the product meets your criteria. If necessary, please apply moisture-proof measures according to user's conditions.
- 8. For further details about the classification in the Standard quality grade, please refer to the application note.

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