

BCR3LM-12RB

600V - 3A - Triac

Low Power Use

R07DS0863EJ0100

Rev.1.00

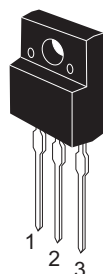
Nov 14, 2012

Features

- $I_{T(RMS)}$: 3 A
- V_{DRM} : 600 V
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 15 mA (10 mA)^{Note3}
- V_{iso} : 1800 V
- The Product guaranteed maximum junction temperature 150°C
- Insulated Type
- Planar Type
- UL Recognized: File No. E223904

Outline

RENESAS Package code: PRSS0003AF-A)
(Package name: TO-220FL)



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

Applications

Electric rice cooker, electric pot, and other heater control

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	$I_{T(RMS)}$	3	A	Commercial frequency, sine full wave 360° conduction, Tc = 130°C
Surge on-state current	I_{TSM}	30	A	60 Hz sine wave 1 full cycle, peak value, non-repetitive
I ² t for fusion	I ² t	3.7	A ² s	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	—	1.5	g	Typical value
Isolation voltage ^{Note5}	Viso	1800	V	Ta = 25°C, AC 1 minute T ₁ • T ₂ • G terminal to case

Electrical Characteristics

Parameter	Symbol	Rated value			Unit	Test conditions
		Min.	Typ.	Max.		
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	$T_c = 25^\circ\text{C}$, $I_{TM} = 4.5\text{A}$, instantaneous measurement
Gate trigger voltage ^{Note2}	I	V_{FGT_I}	—	—	1.5	$T_j = 25^\circ\text{C}$, $V_D = 6\text{V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II	V_{RGT_I}	—	—	1.5	
	III	$V_{RGT_{III}}$	—	—	1.5	
Gate trigger current ^{Note2}	I	I_{FGT_I}	—	—	15 ^{Note3}	$T_j = 25^\circ\text{C}$, $V_D = 6\text{V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II	I_{RGT_I}	—	—	15 ^{Note3}	
	III	$I_{RGT_{III}}$	—	—	15 ^{Note3}	
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	$R_{th(j-c)}$	—	—	5.2	$^\circ\text{C/W}$	Junction to case ^{Note4}

Notes: 1. Gate open

2. Measurement using the gate trigger characteristics measurement circuit.

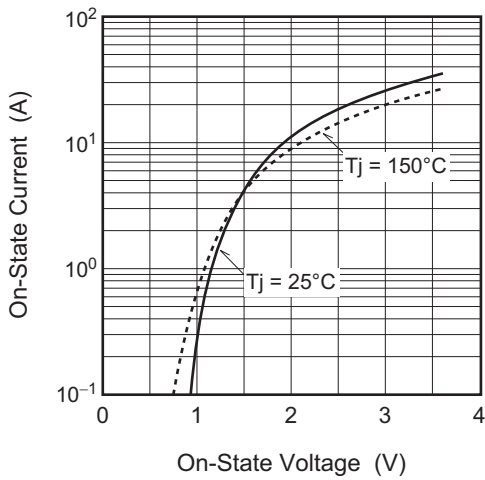
3. High sensitivity ($I_{GT} \leq 10\text{ mA}$) is also available. (IGT item: 1)

4. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is 0.5°C/W .

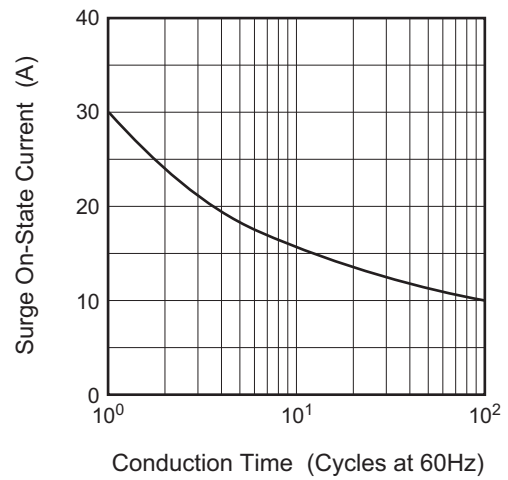
5. Make sure that your finished product containing this device meets your safe isolation requirements. For safety, it's advisable that heatsink is electrically floating.

Performance Curves

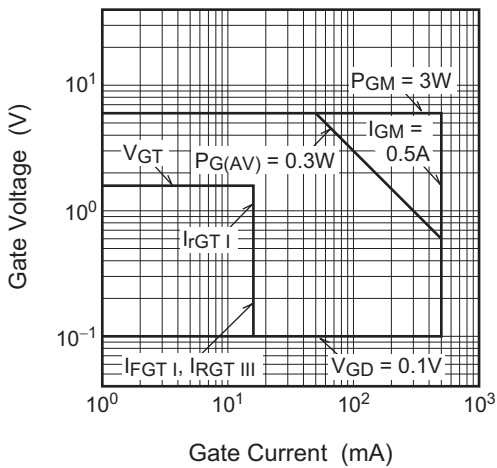
Maximum On-State Characteristics



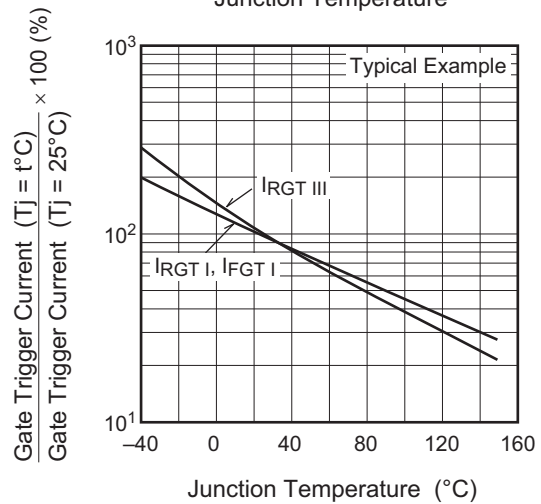
Rated Surge On-State Current



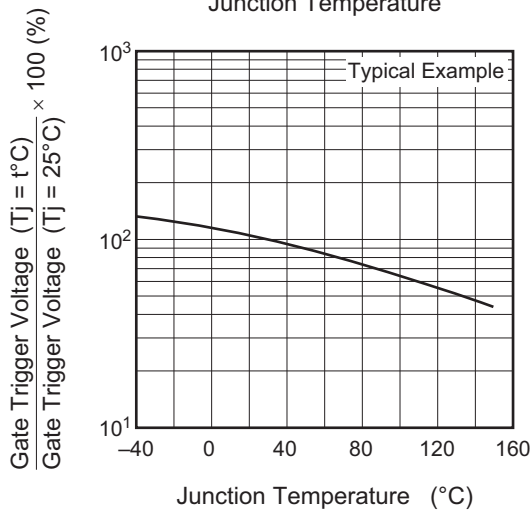
Gate Characteristics (I, II and III)



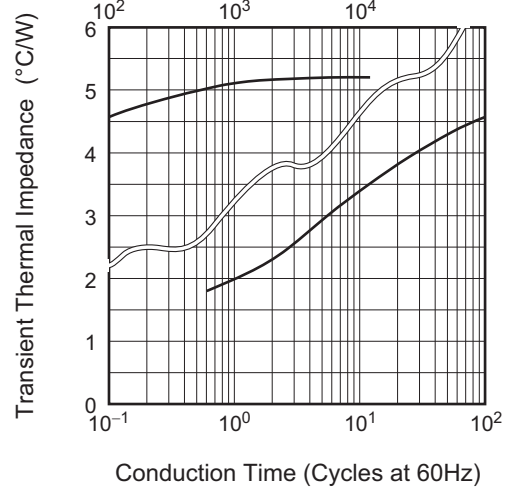
Gate Trigger Current vs. Junction Temperature



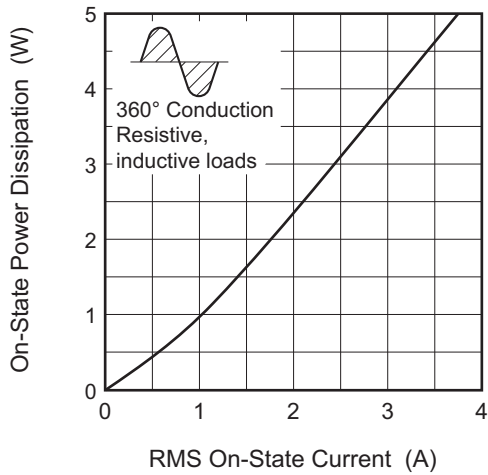
Gate Trigger Voltage vs. Junction Temperature



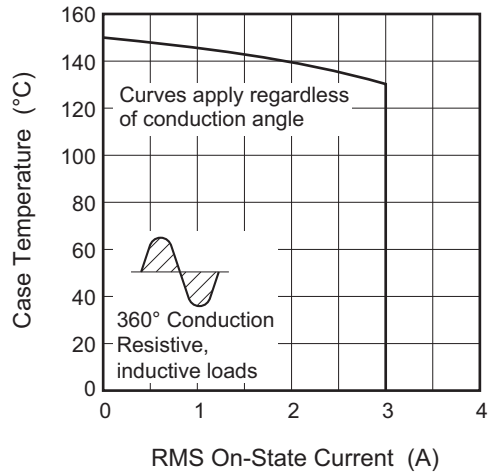
Maximum Transient Thermal Impedance Characteristics (Junction to case)



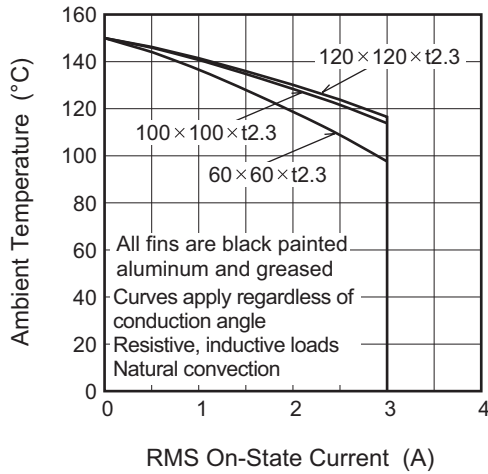
Maximum On-State Power Dissipation



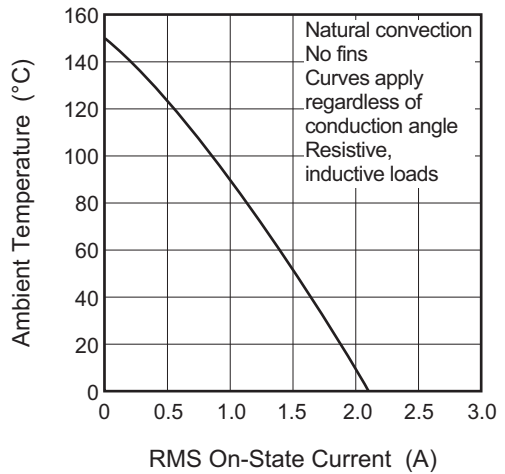
Allowable Case Temperature vs. RMS On-State Current



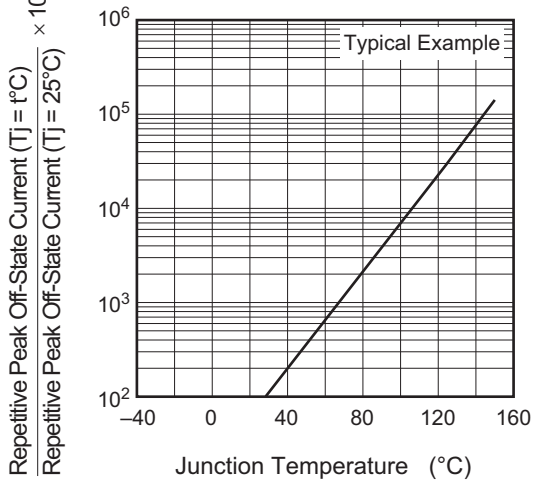
Allowable Ambient Temperature vs. RMS On-State Current



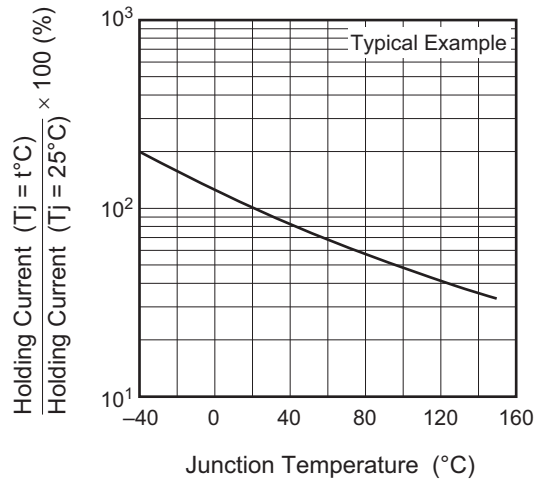
Allowable Ambient Temperature vs. RMS On-State Current



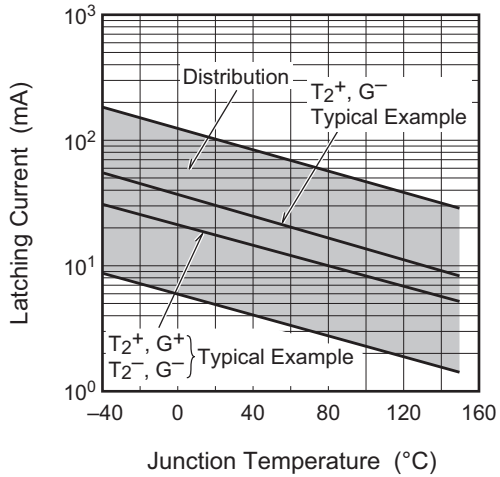
Repetitive Peak Off-State Current vs. Junction Temperature



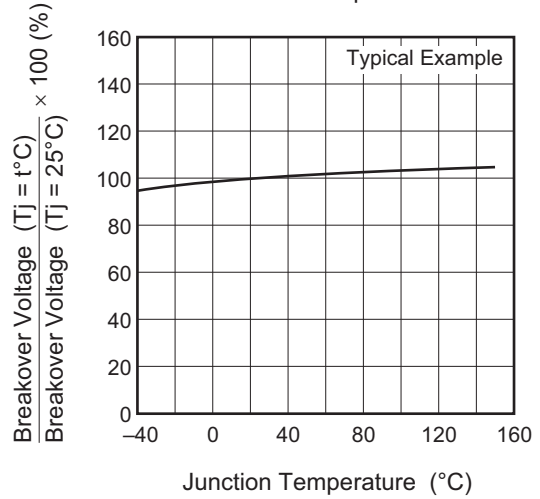
Holding Current vs. Junction Temperature



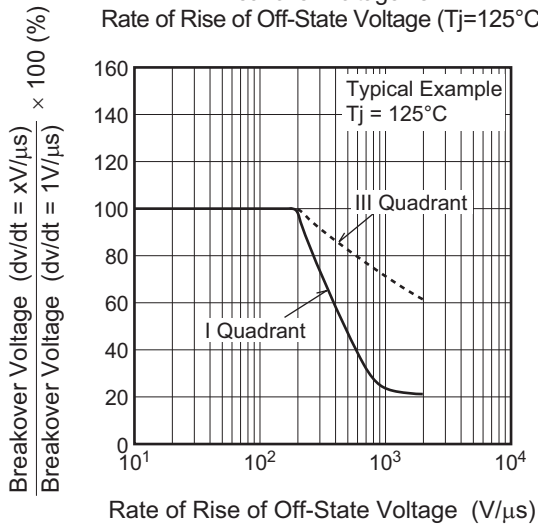
Latching Current vs. Junction Temperature



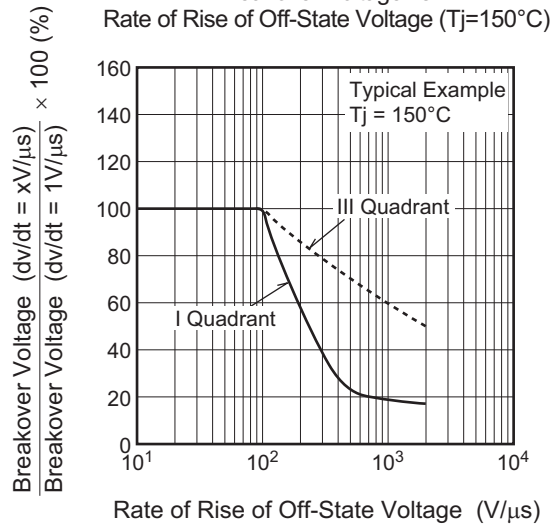
Breakover Voltage vs. Junction Temperature



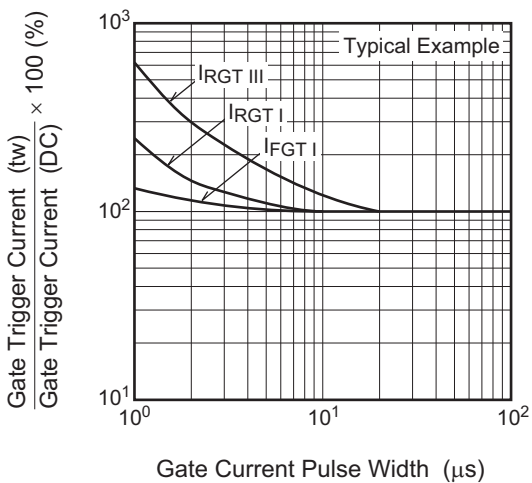
Breakover Voltage vs. Rate of Rise of Off-State Voltage ($T_j=125^{\circ}C$)



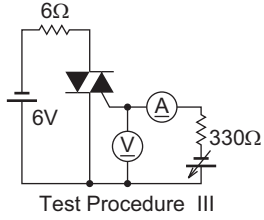
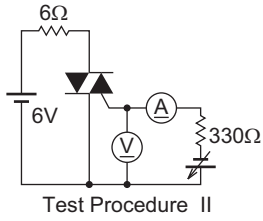
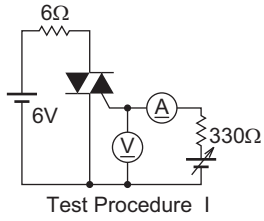
Breakover Voltage vs. Rate of Rise of Off-State Voltage ($T_j=150^{\circ}C$)



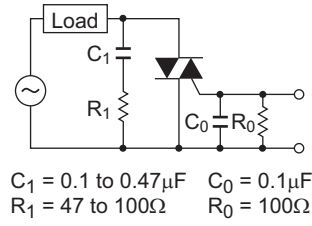
Gate Trigger Current vs. Gate Current Pulse Width



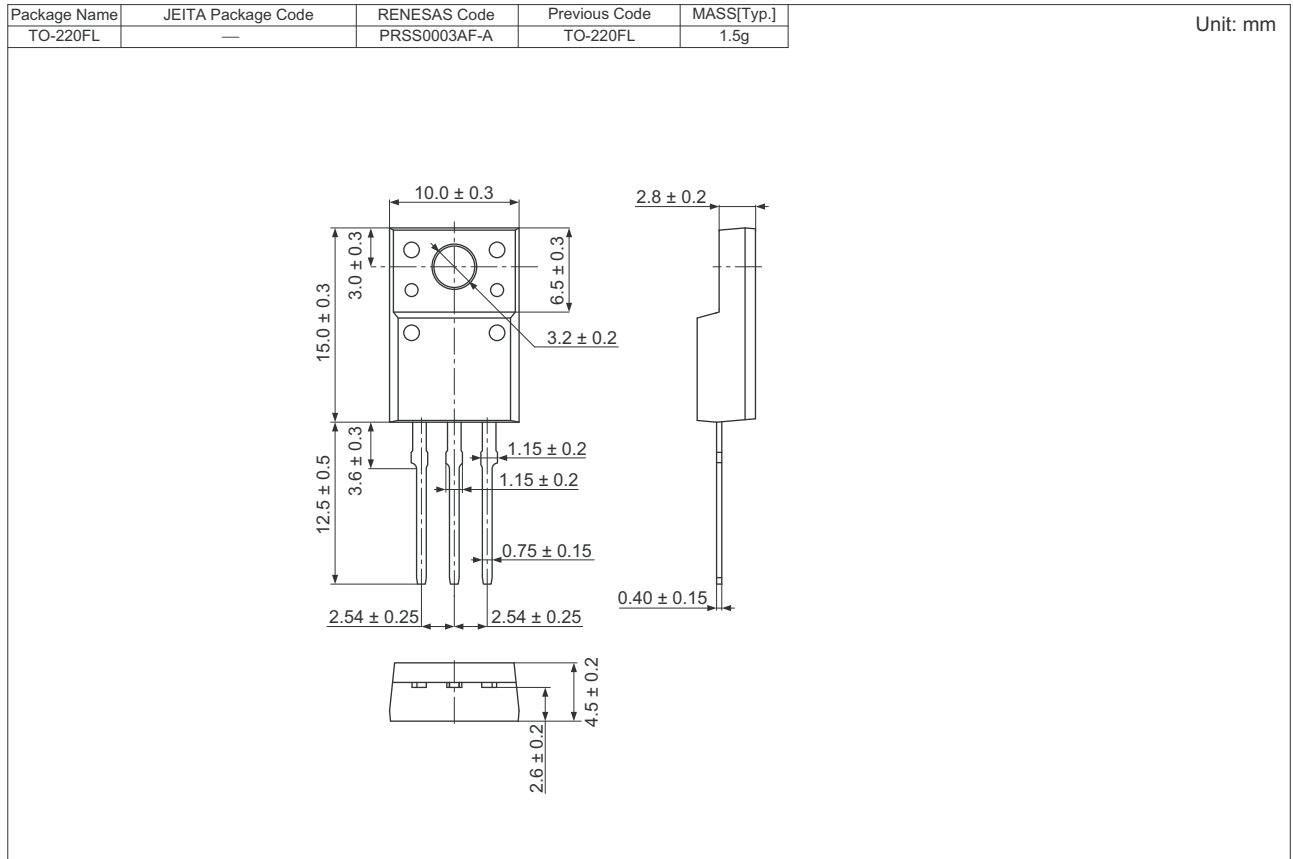
Gate Trigger Characteristics Test Circuits



Recommended Circuit Values Around The Triac



Package Dimensions



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR3LM-12RB#B00	Tube	50 pcs.	Straight type
BCR3LM-12RB-A8#B00	Tube	50 pcs.	A8 Lead form

Note : Please confirm the specification about the shipping in detail.

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