

BCR20FM-14RA

700V - 20A - Triac

Medium Power Use

R07DS1467EJ0100

Rev.1.00

Oct. 10, 2019

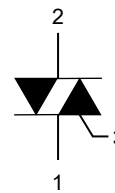
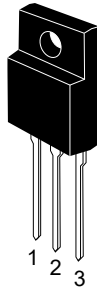
Features

- $I_T (RMS)$: 20 A
- V_{DRM} : 700 V
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 10 mA
- Insulated Type
- Planar Passivation Type
- Viso: 2000V

Outline

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

Ordering code
#BG0



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

Application

Resistive loads (heaters, lamps, etc.), Dimming LED bulbs

Maximum Ratings

Parameter	Symbol	Voltage class	
		14	Unit
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	700	V
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	840	V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T (RMS)$	20	A	Commercial frequency, sine full wave 360°conduction, $T_c = 55^\circ\text{C}$
Surge on-state current	I_{TSM}	200	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	167	A^2s	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 +125	$^\circ\text{C}$	
Storage temperature	T_{stg}	-40 to +125	$^\circ\text{C}$	
Isolation voltage ^{Note4}	V_{iso}	2000	V	$T_a=25^\circ\text{C}$, AC 1 minute, $T_1 \cdot T_2 \cdot G$ terminal to case

Notes: 1. Gate open.

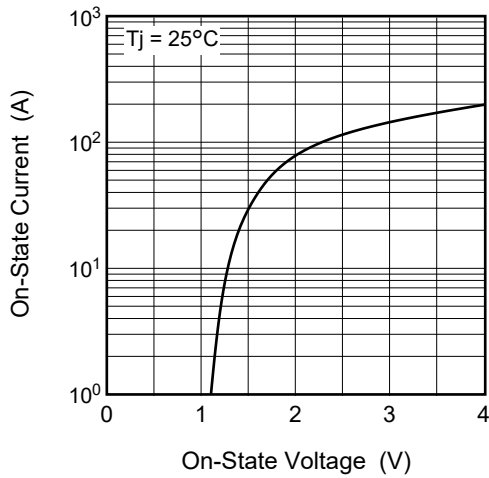
Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_j = 125^\circ\text{C}$, V_{DRM} applied
On-state voltage	V_{TM}	—	—	1.5	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 30\text{ A}$, instantaneous measurement
Gate trigger voltage ^{Note2}	I	V_{FGTI}	—	—	1.5	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II	V_{RGTI}	—	—	1.5	
	III	V_{RGTIII}	—	—	1.5	
Gate trigger current ^{Note2}	I	I_{FGTI}	—	—	10	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II	I_{RGTI}	—	—	10	
	III	I_{RGTIII}	—	—	10	
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$
Thermal resistance	$R_{th(j-c)}$	—	—	3.5	$^\circ\text{C/W}$	Junction to case ^{Note3}

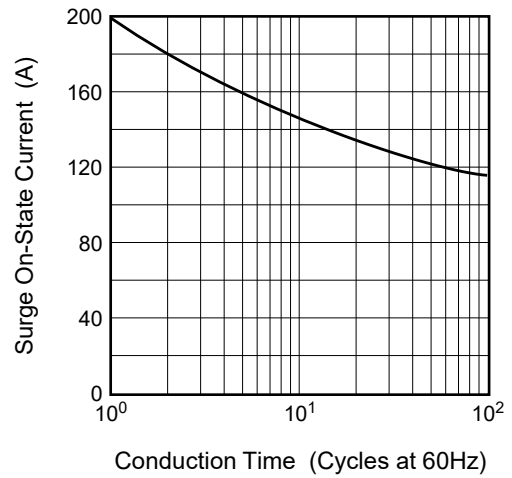
- Notes:
- Measurement using the gate trigger characteristics measurement circuit.
 - The contact thermal resistance $R_{th(c-f)}$ in case of greasing is 0.5°C/W .
 - Make sure that your finished product containing this device meets your safe isolation requirements.
For safety, it's advisable that heatsink is electrically floating.

Performance Curves

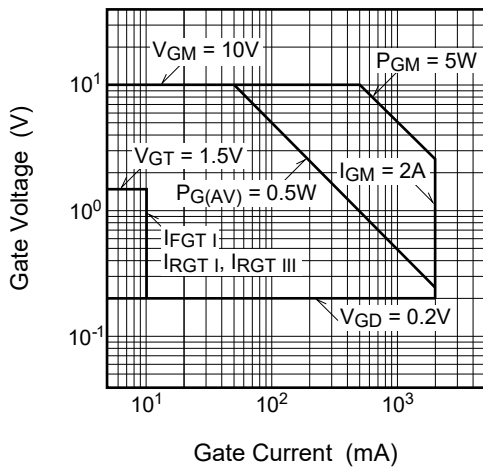
Maximum On-State Characteristics



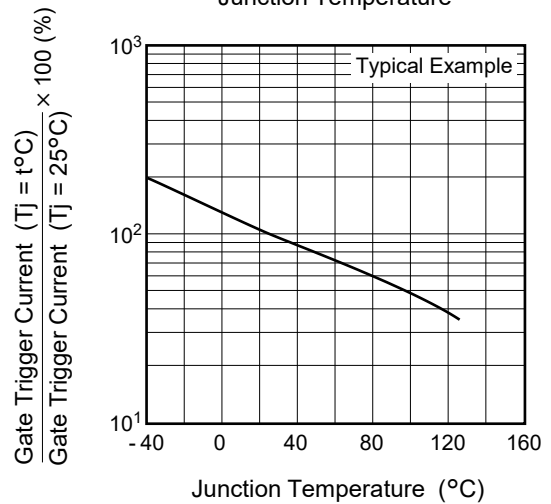
Rated Surge On-State Current



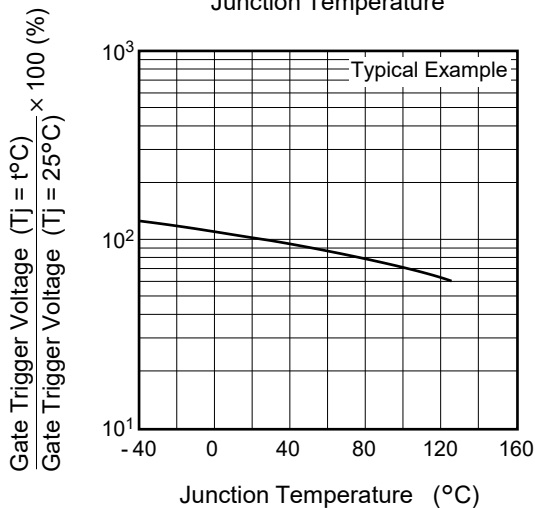
Gate Characteristics (I, II and III)



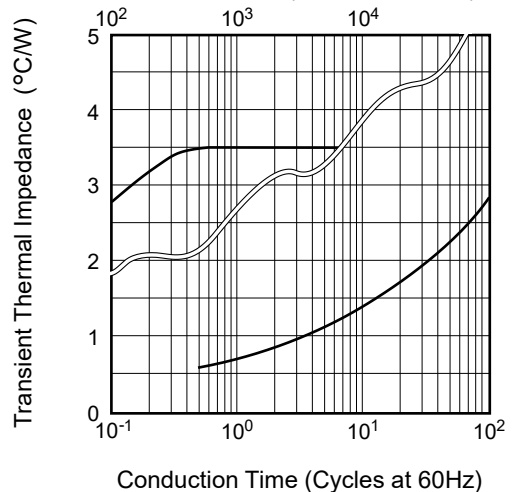
Gate Trigger Current vs. Junction Temperature

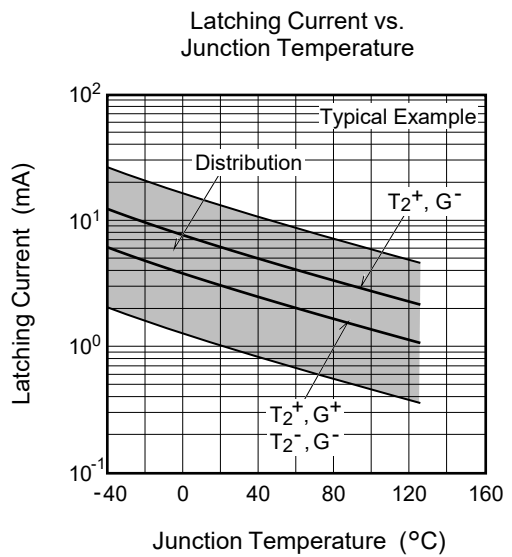
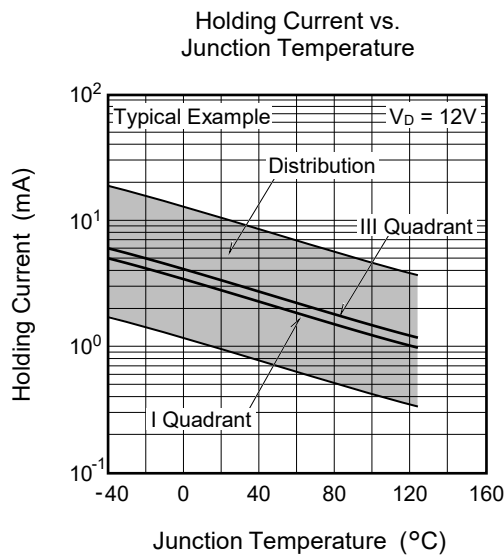
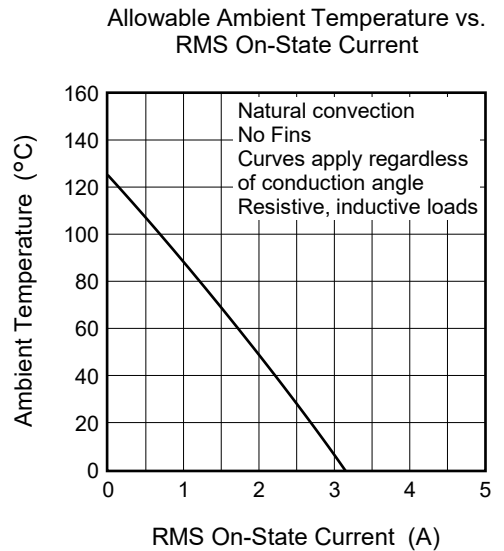
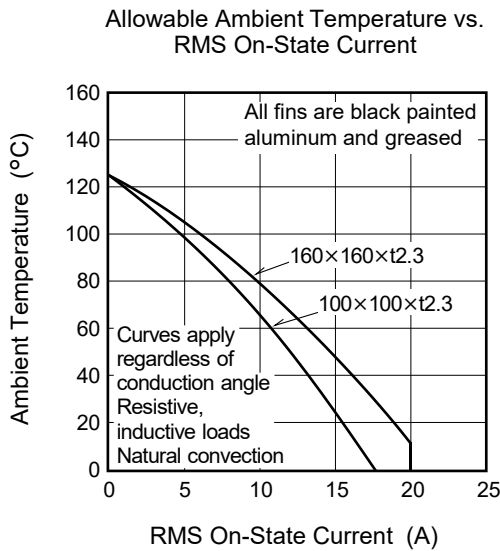
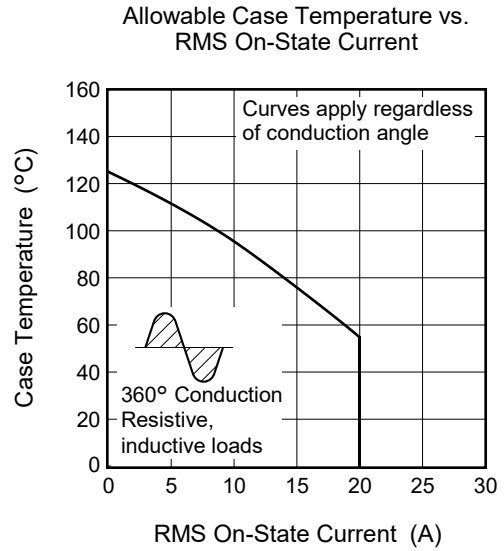
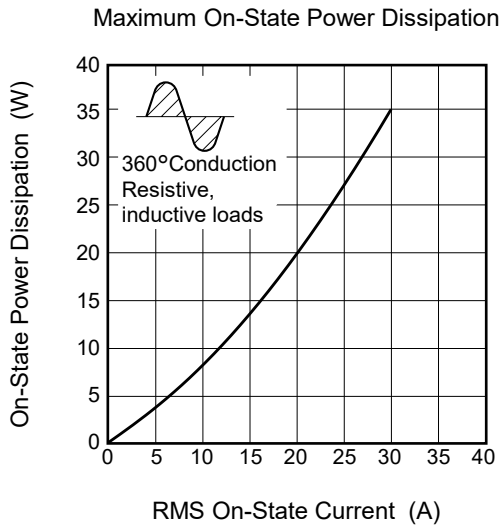


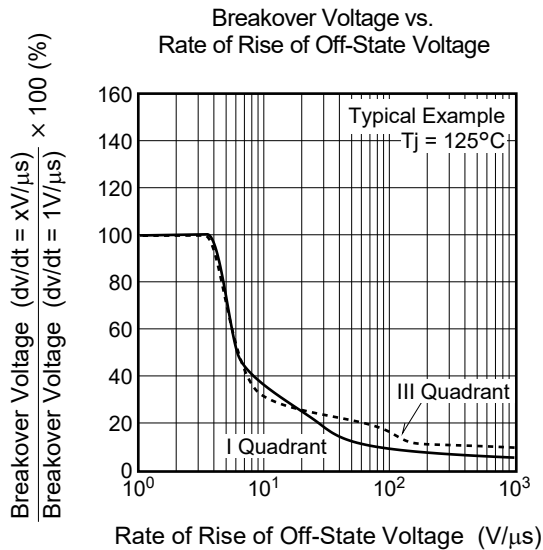
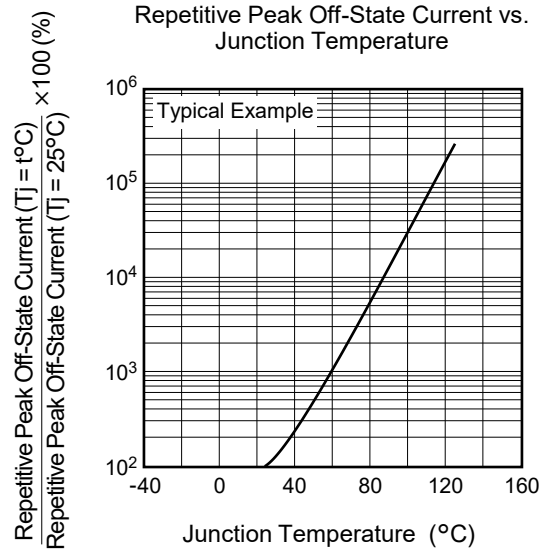
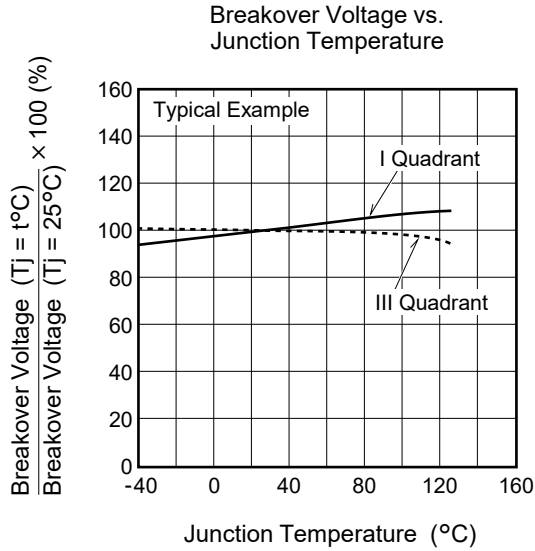
Gate Trigger Voltage vs. Junction Temperature



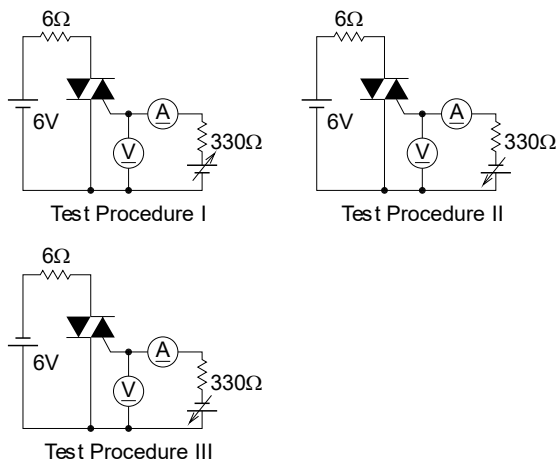
Maximum Transient Thermal Impedance Characteristics (Junction to case)



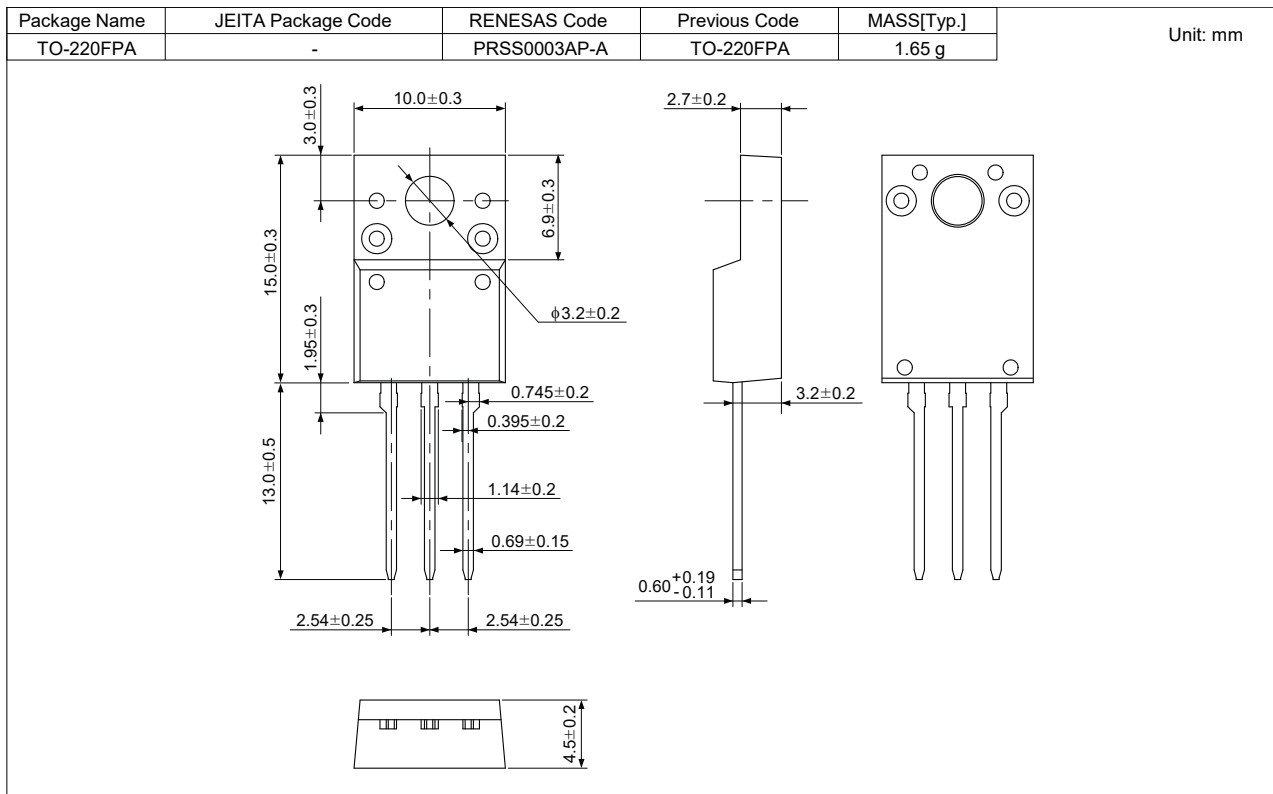




Gate Trigger Characteristics Test Circuits



Package Dimensions



Ordering Information

Orderable Part Number	Package	Quantity ^{Note5}	Remark	Status
BCR20FM-14RA#BG0	TO-220FPA	50 pcs./ tube	Straight type	Mass Production
BCR20FM-14RA□□#BG0	TO-220FPA	50 pcs./ tube	□□:Lead form type	

Notes: 5. Please confirm the specification about the shipping in detail.

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