

# BCR20FM-14RA

700V - 20A - Triac

Medium Power Use

R07DS1467EJ0100

Rev.1.00

Oct. 10, 2019

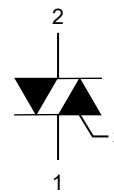
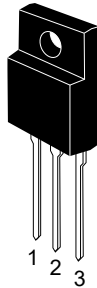
## Features

- $I_T (RMS)$  : 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 <sup>Note1</sup>	$V_{DRM}$	700	V
Non-repetitive peak off-state voltage <sup>Note1</sup>	$V_{DSM}$	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 <sup>2</sup> 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 +125	°C	
Storage temperature	$T_{stg}$	-40 to +125	°C	
Isolation voltage <sup>Note4</sup>	$V_{iso}$	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.

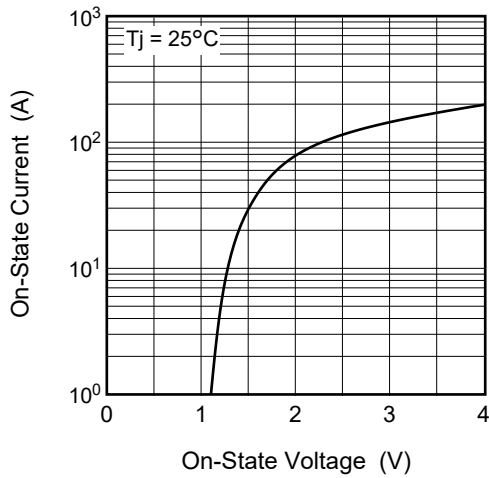
## Electrical Characteristics

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 <sup>Note2</sup>	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 <sup>Note2</sup>	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 <sup>Note3</sup>

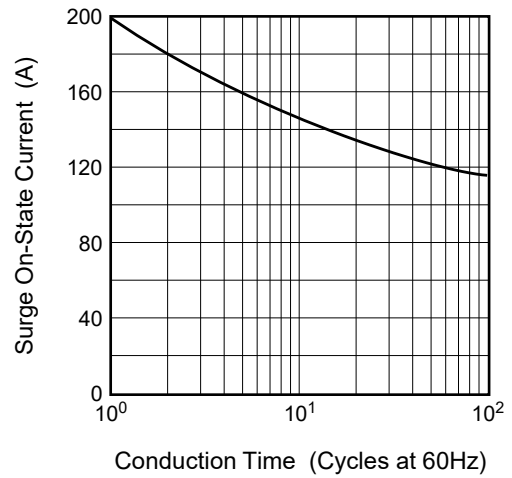
- Notes: 2. Measurement using the gate trigger characteristics measurement circuit.  
 3. The contact thermal resistance  $R_{th(c-f)}$  in case of greasing is  $0.5^\circ\text{C/W}$ .  
 4. Make sure that your finished product containing this device meets your safe isolation requirements.  
 For safety, it's advisable that heatsink is electrically floating.

Performance Curves

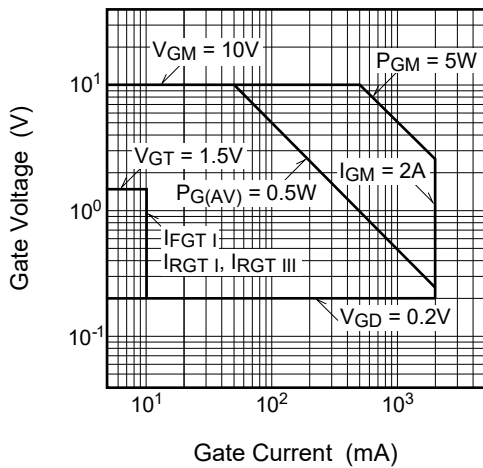
Maximum On-State Characteristics



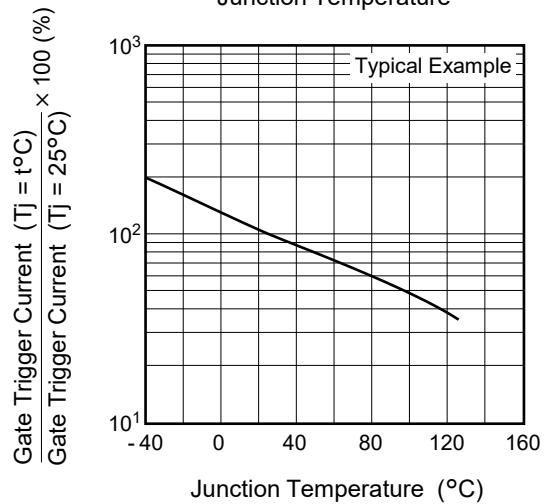
Rated Surge On-State Current



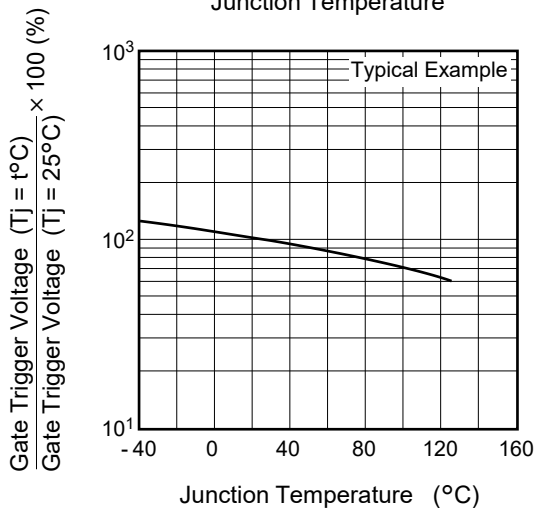
Gate Characteristics (I, II and III)



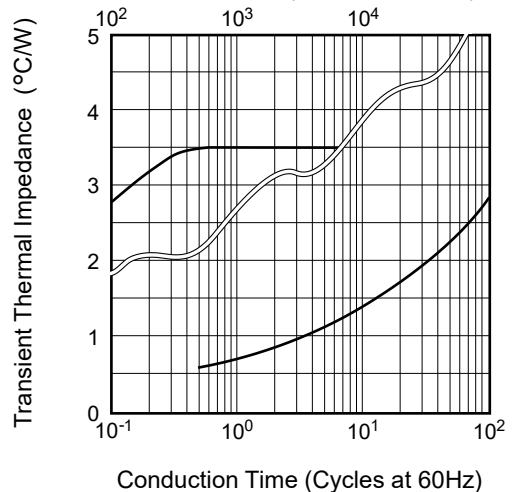
Gate Trigger Current vs. Junction Temperature

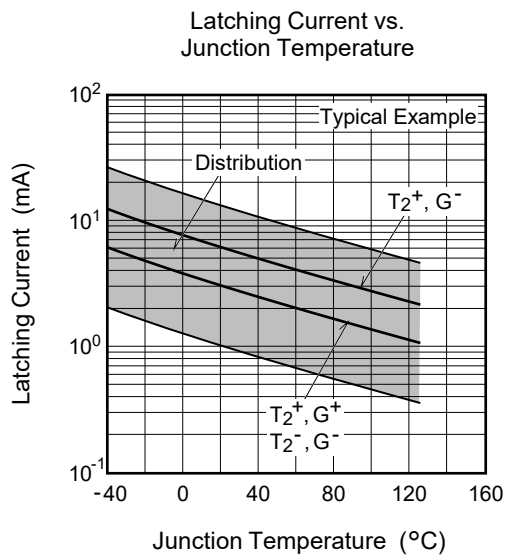
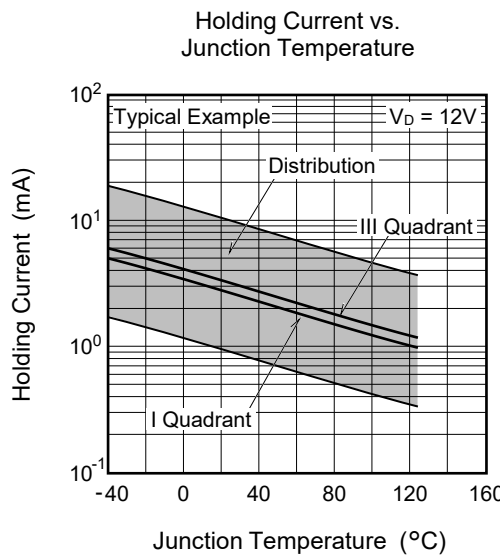
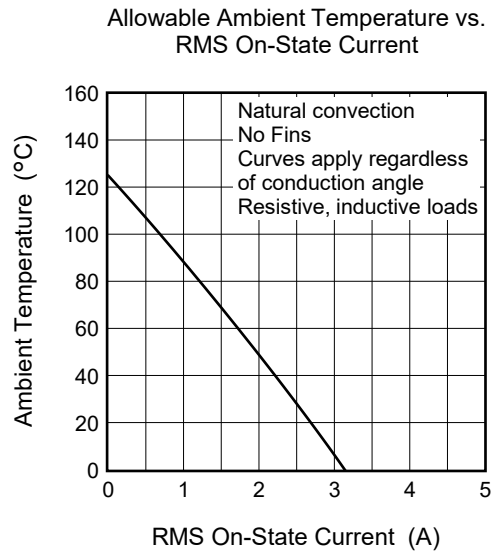
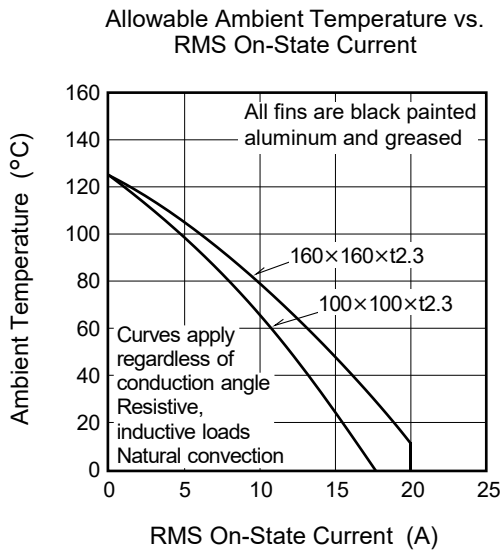
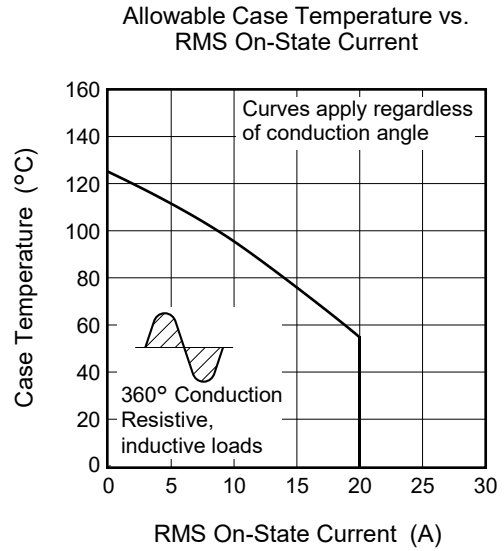
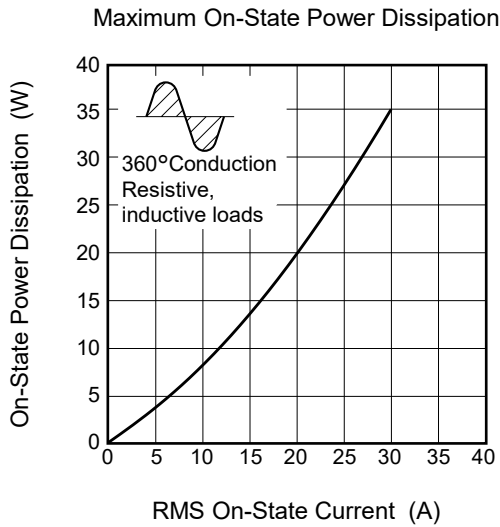


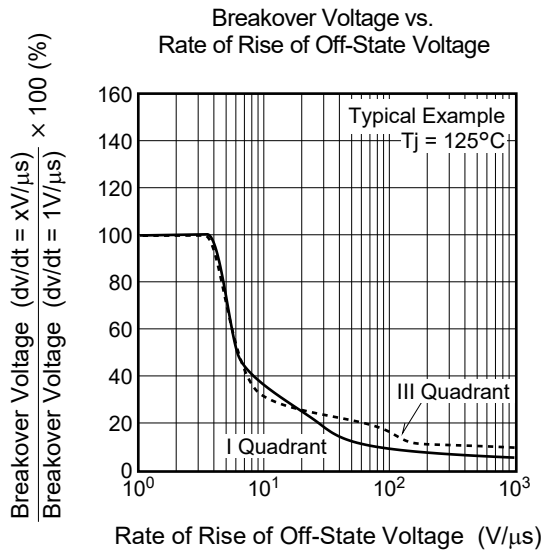
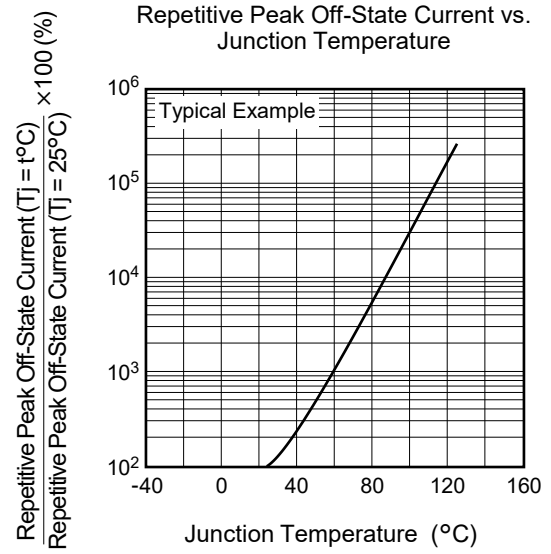
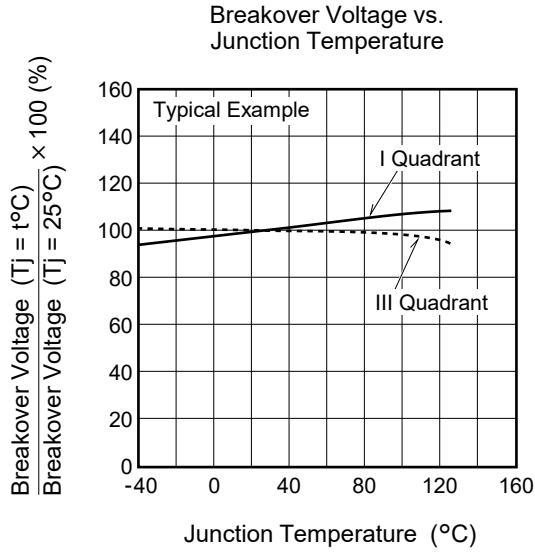
Gate Trigger Voltage vs. Junction Temperature



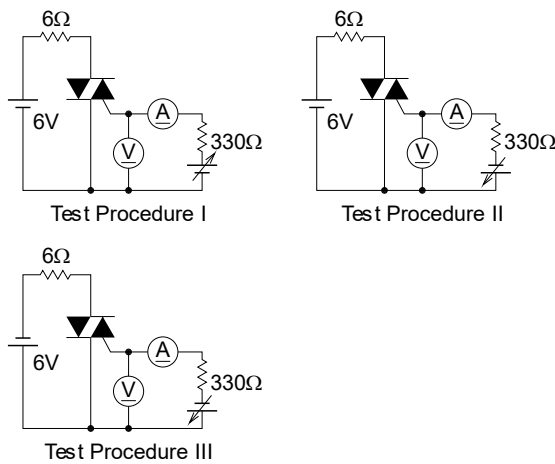
Maximum Transient Thermal Impedance Characteristics (Junction to case)



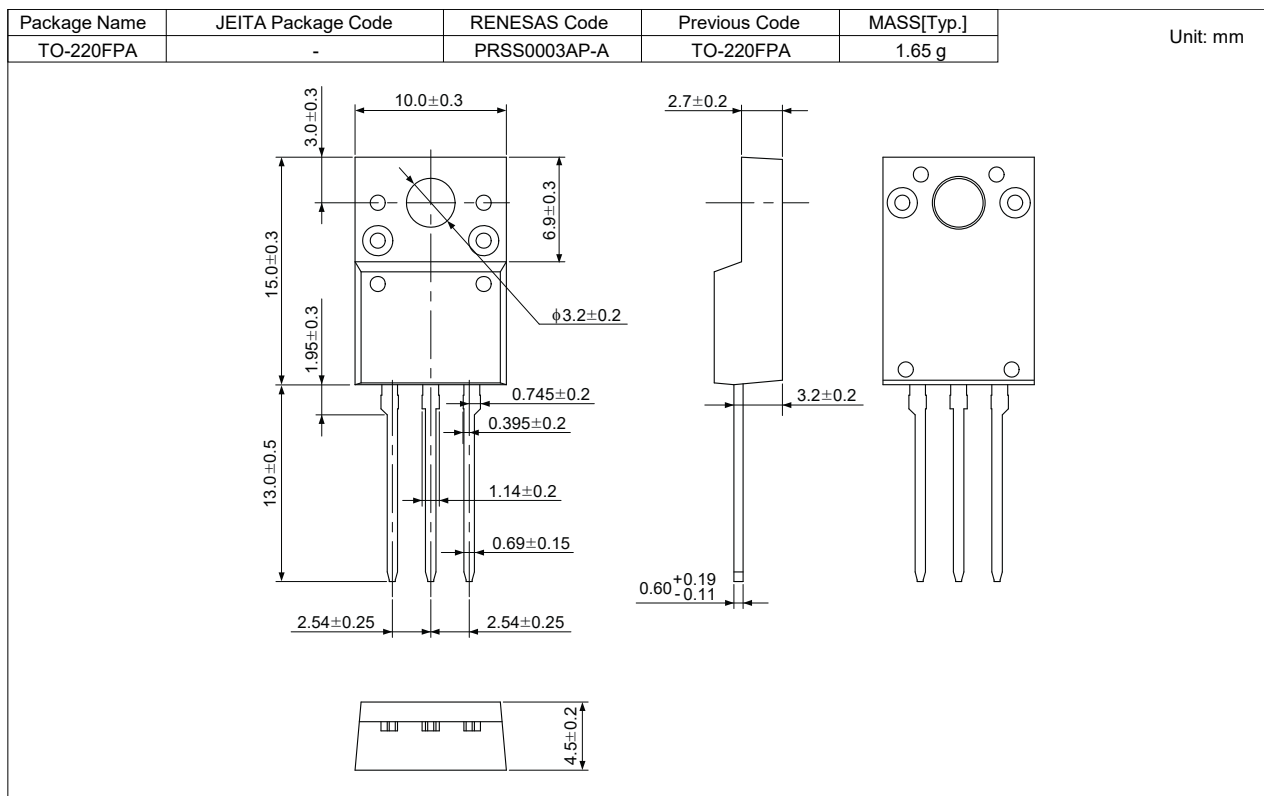




#### Gate Trigger Characteristics Test Circuits



### Package Dimensions



### Ordering Information

Orderable Part Number	Package	Quantity <sup>Note5</sup>	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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