

CR8FM-12B

600V - 8A - Thyristor

Medium Power Use

R07DS1099EJ0200

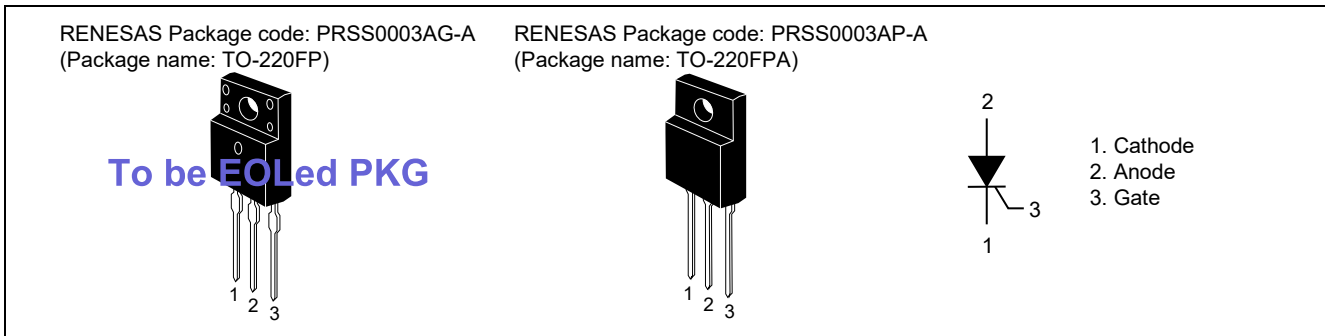
Rev.2.00

Sep. 11, 2018

Features

- $I_T(AV)$: 8 A
- V_{DRM} : 600 V
- I_{GT} : 15 mA
- T_j : 150°C
- Insulated Type (V_{iso} : 2000 V)
- Planar Passivation Type

Outline



Application

Power supply, motor control, heater control and other general purpose applications.

Maximum Ratings

Parameter	Symbol	Voltage class		Unit
		12		
Repetitive peak reverse voltage	V_{RRM}	600		V
Non-repetitive peak reverse voltage	V_{RSM}	720		V
DC reverse voltage	$V_R(DC)$	480		V
Repetitive peak off-state voltage	V_{DRM}	600		V
DC off-state voltage	$V_D(DC)$	480		V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T(RMS)$	12.6	A	
Average on-state current	$I_T(AV)$	8	A	Commercial frequency, sine half wave 180°conduction, $T_c = 106^\circ\text{C}$
Surge on-state current	I_{TSM}	120	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	60	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 forward voltage	V_{FGM}	6	V	
Peak gate reverse voltage	V_{RGM}	10	V	
Peak gate forward current	I_{FGM}	2	A	
Junction temperature	T_j	-40 to +150	°C	
Storage temperature	T_{stg}	-40 to +150	°C	
Isolation voltage ^{Note2}	V_{iso}	2000	V	$T_a=25^\circ\text{C}$, AC 1 minute, each terminal to case

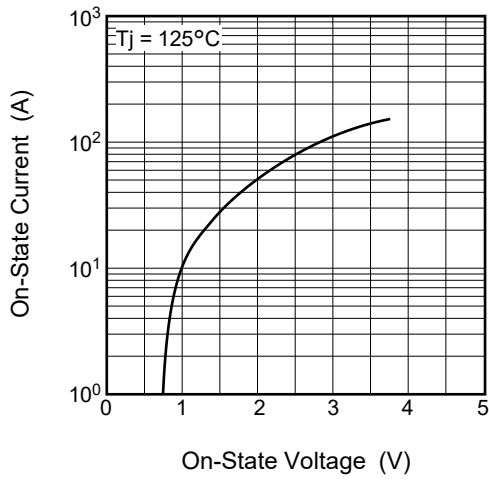
Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I _{RRM}	—	—	2.0	mA	T _j = 125°C, V _{RRM} applied
		—	—	5.0	mA	T _j = 150°C, V _{RRM} applied
Repetitive peak off-state current	I _{DRM}	—	—	2.0	mA	T _j = 125°C, V _{DRM} applied
		—	—	5.0	mA	T _j = 150°C, V _{DRM} applied
On-state voltage	V _{TM}	—	—	1.4	V	T _c = 25°C, I _{TM} = 25 A, instantaneous value
Gate trigger voltage	V _{GT}	—	—	1.0	V	T _j = 25°C, V _D = 6 V, I _T = 1 A
Gate non-trigger voltage	V _{GD}	0.2	—	—	V	T _j = 125°C, V _D = 1/2 V _{DRM}
		0.1	—	—	V	T _j = 150°C, V _D = 1/2 V _{DRM}
Gate trigger current	I _{GT}	—	—	15	mA	T _j = 25°C, V _D = 6 V, I _T = 1 A
Holding current	I _H	—	15	—	mA	T _j = 25°C, V _D = 12 V
Thermal resistance	R _{th(j-c)}	—	—	3.7	°C/W	Junction to case ^{Note1}

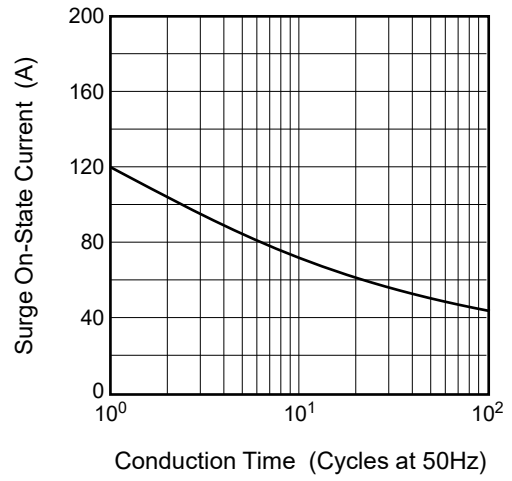
- Notes: 1. The contact thermal resistance R_{th(c-f)} in case of greasing is 0.5°C/W.
 2. Make sure that your finished product containing this device meets your safe isolation requirements.
 For safety, it's advisable that heatsink is electrically floating.

Performance Curves

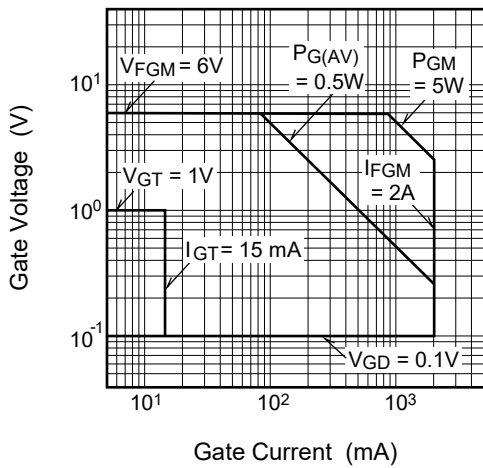
Maximum On-State Characteristics



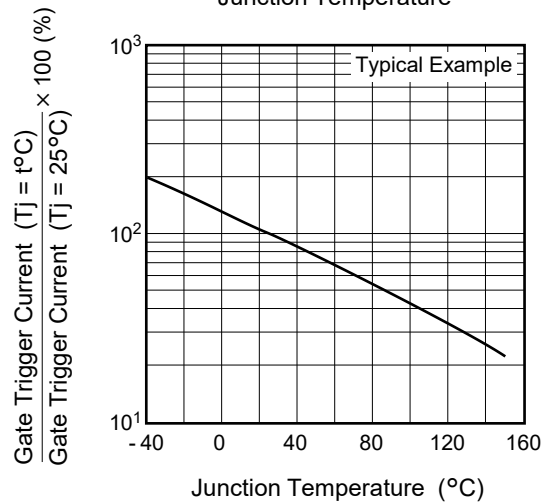
Rated Surge On-State Current



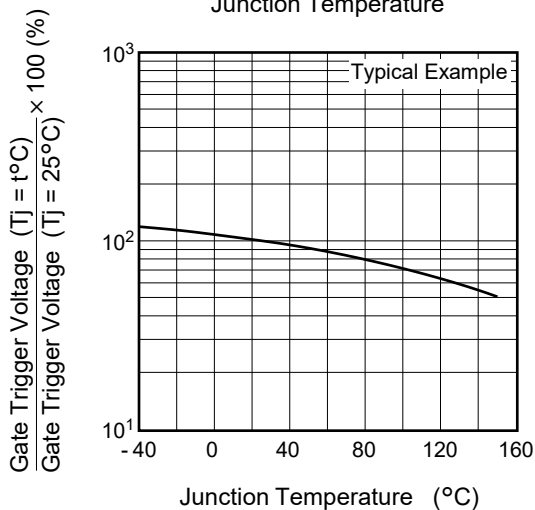
Gate Characteristics



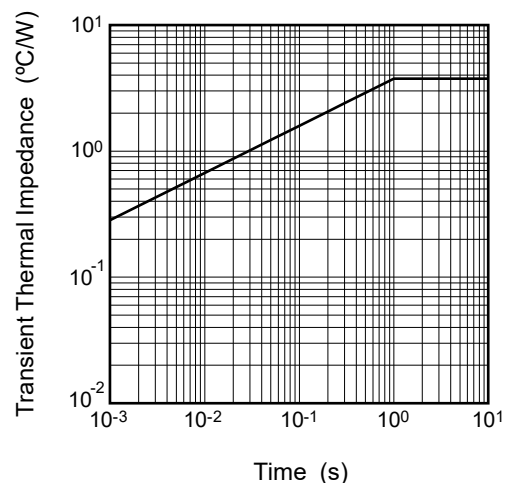
Gate Trigger Current vs. Junction Temperature

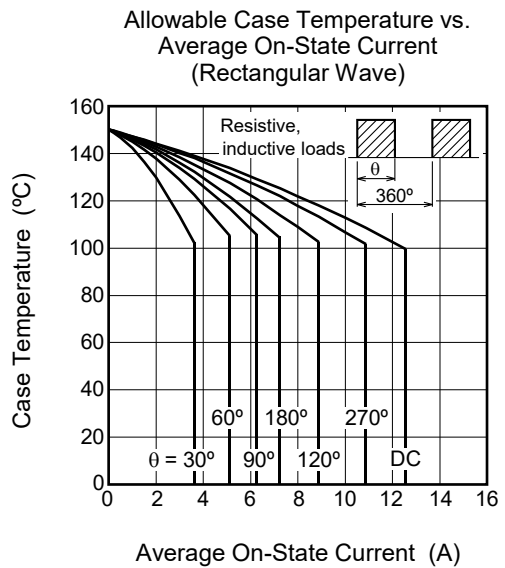
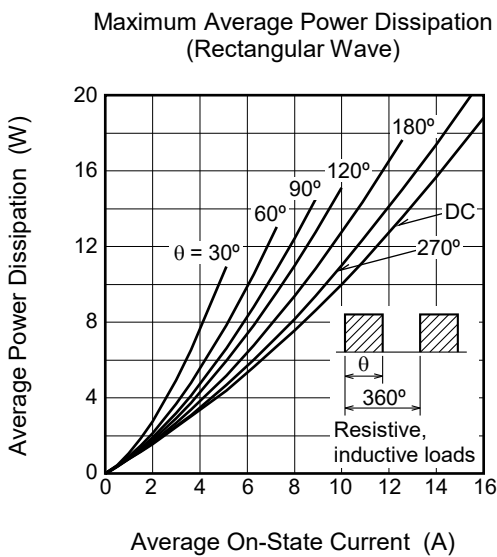
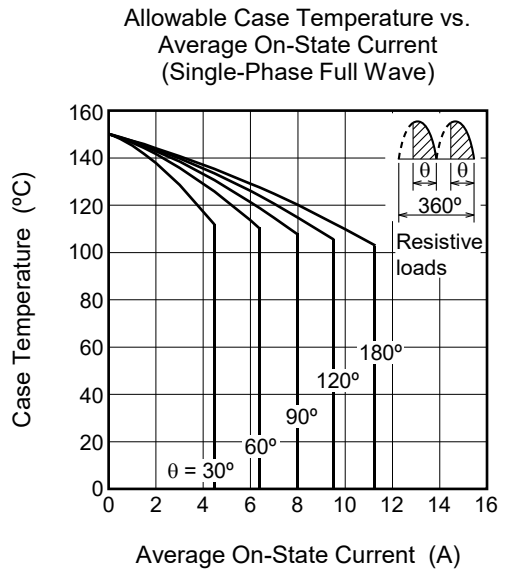
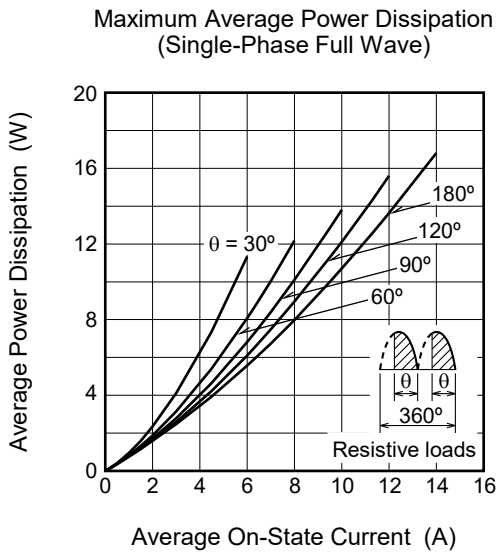
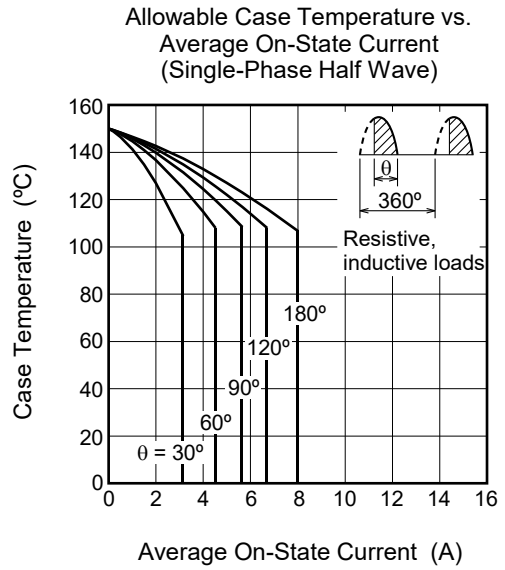
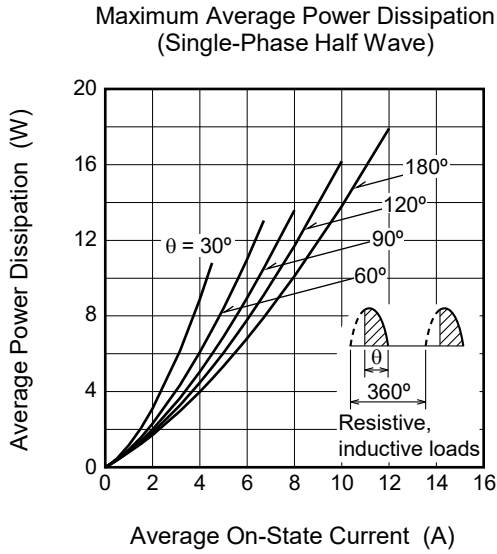


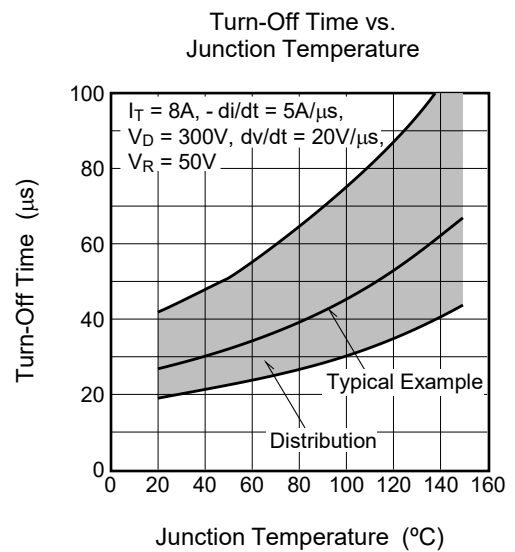
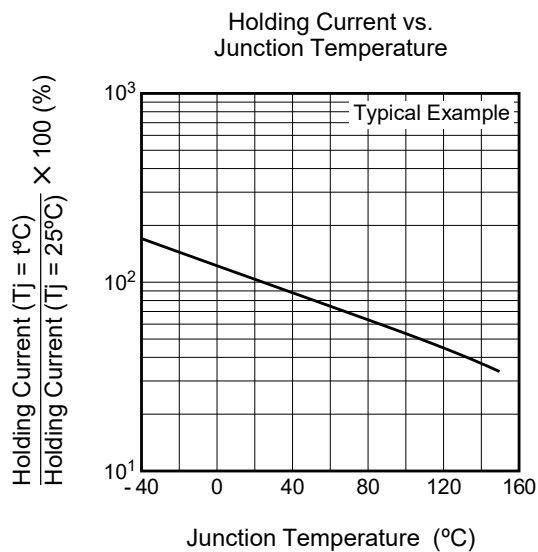
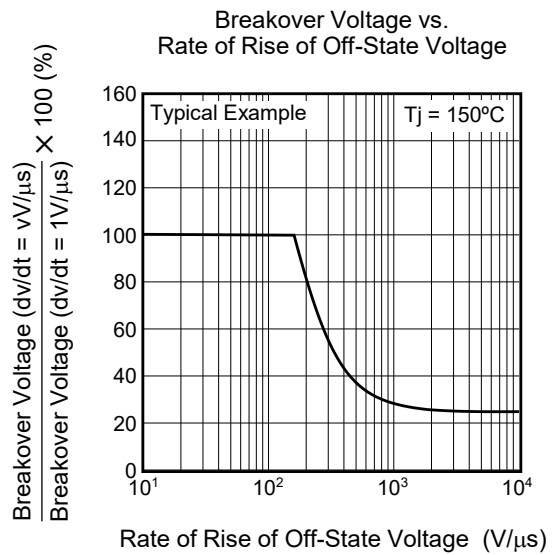
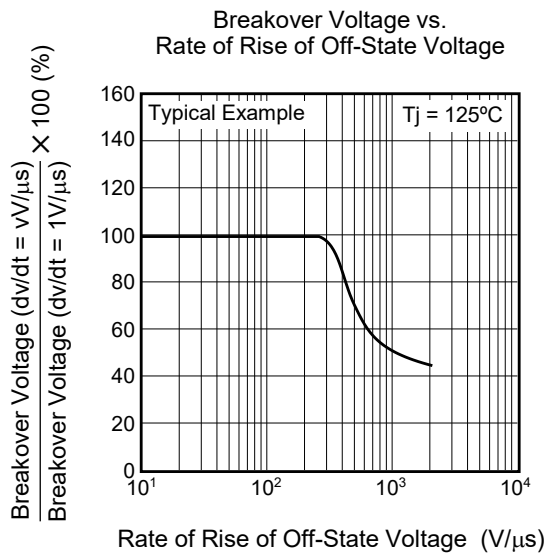
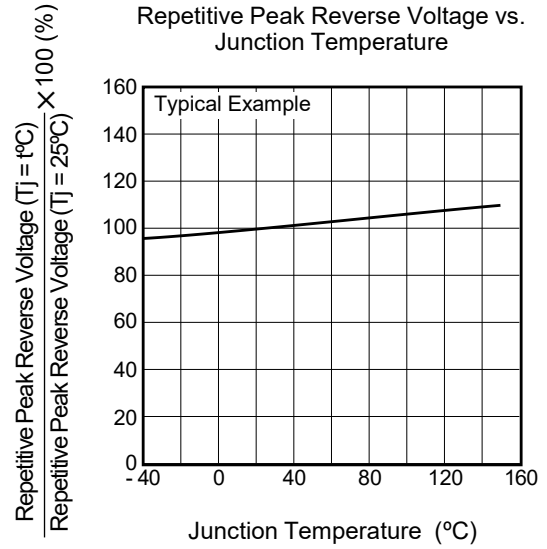
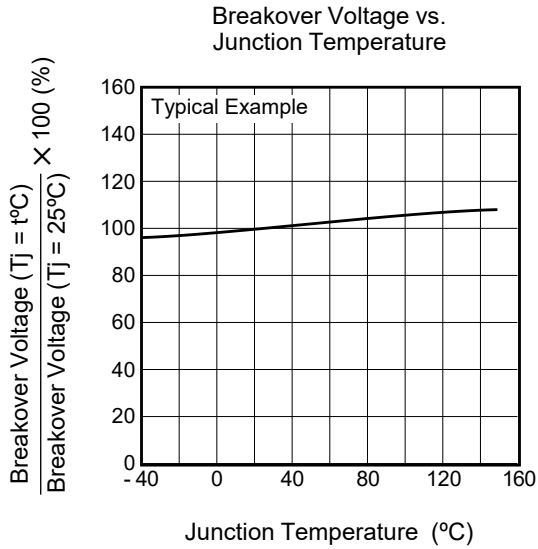
Gate Trigger Voltage vs. Junction Temperature

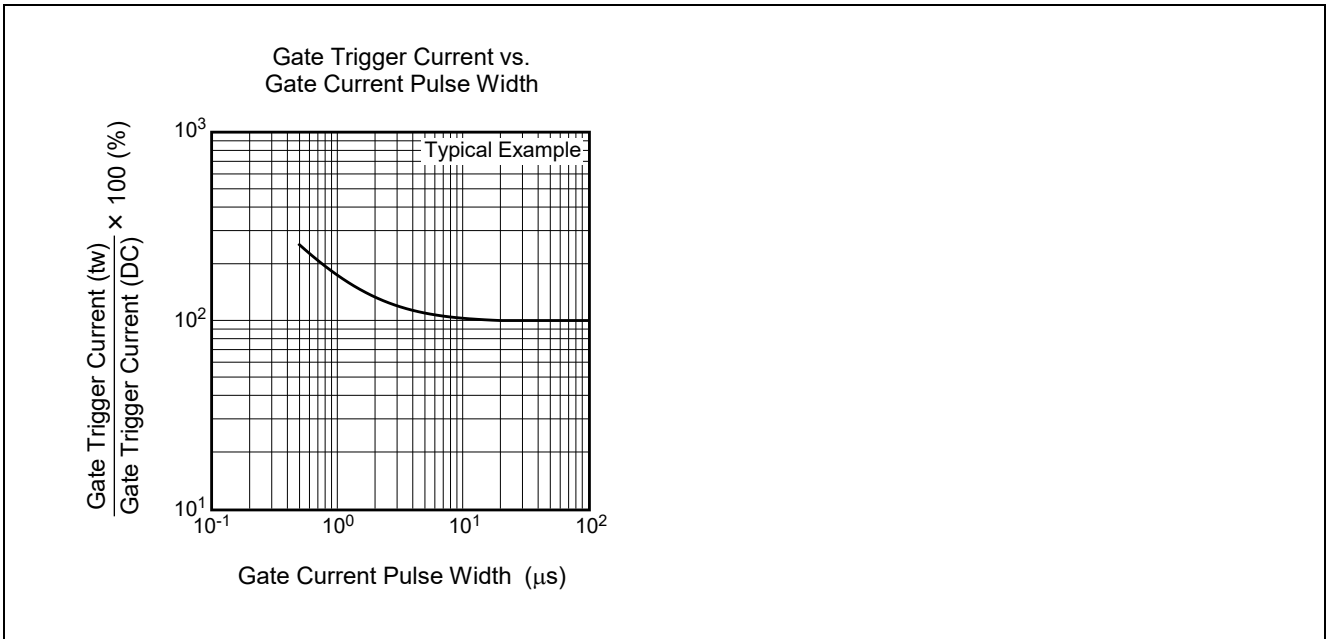


Maximum Transient Thermal Impedance Characteristics (Junction to case)







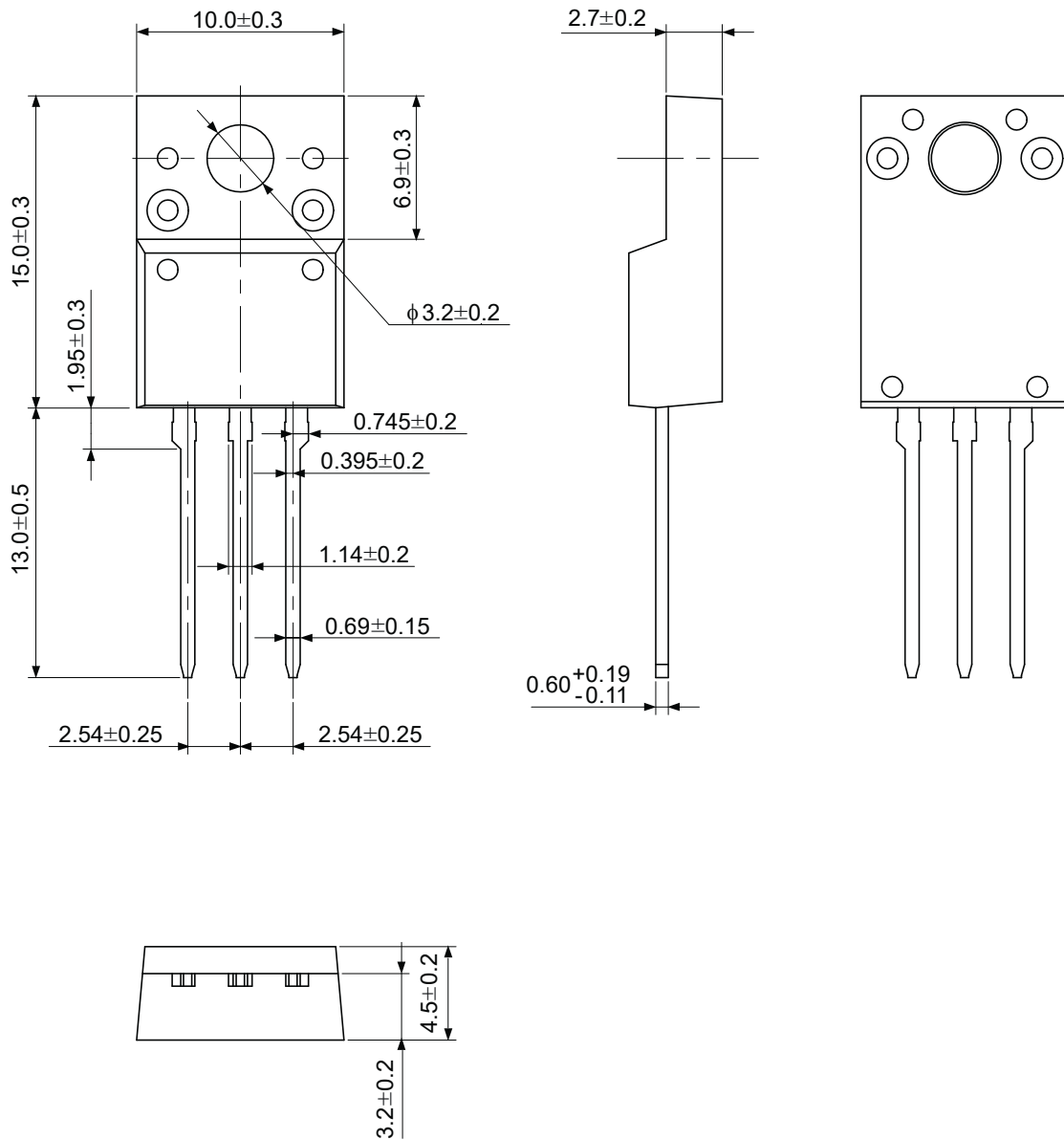


Package Dimensions

Ordering code: #BG0, #BH0

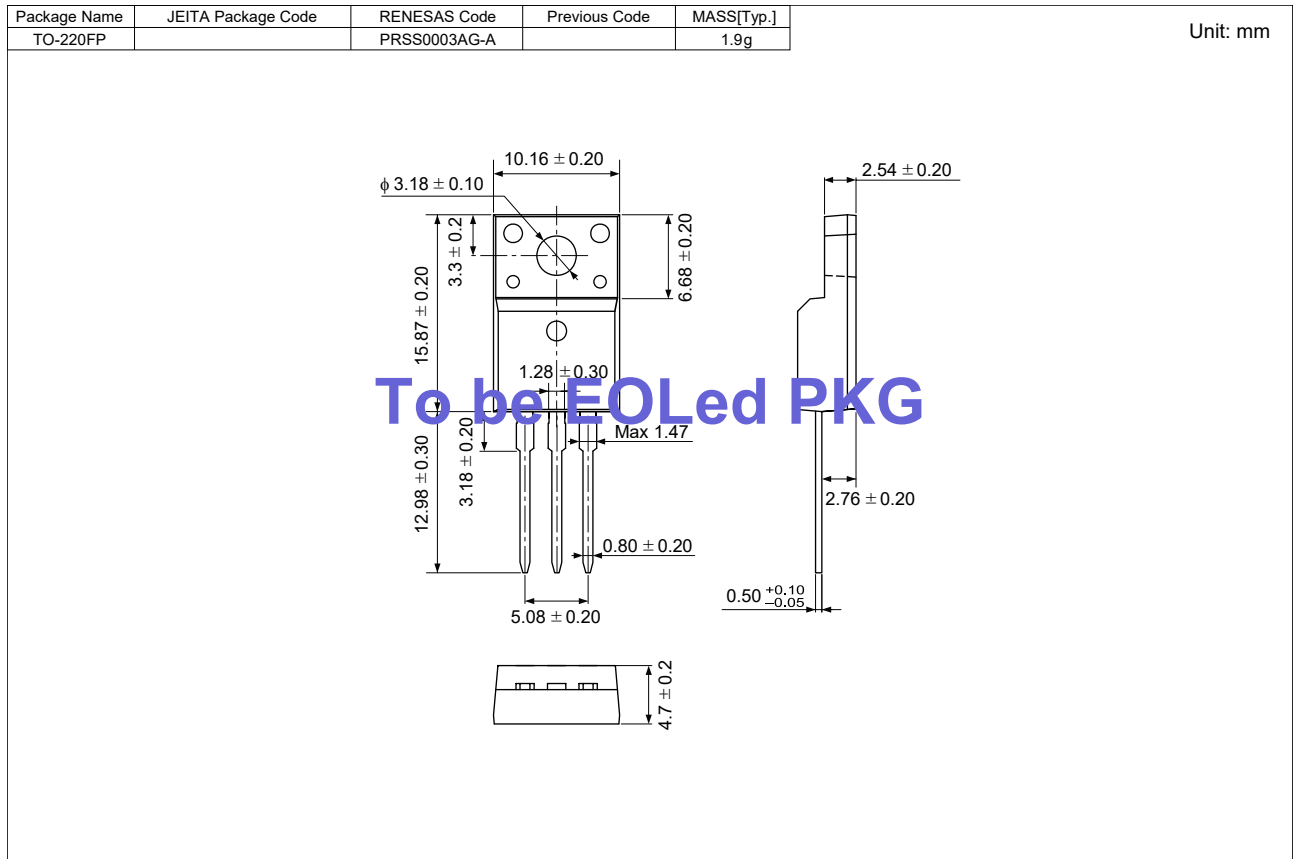
JEITA Package Code	RENESAS Code	Previous Code	MASS (Typ) [g]
-	PRSS0003AP-A	TO-220FPA	1.65

Unit: mm



Package Dimensions

Ordering code: #BB0 <To be EOLed>



Ordering Information

Orderable Part Number	Package	Quantity ^{Note3}	Remark	Status
CR8FM-12B#BG0	TO-220FPA	50 pcs./ tube	Straight type	Mass Production
CR8FM-12B-□□#BG0	TO-220FPA	50 pcs./ tube	□□:Lead form type	
CR8FM-12B#BH0	TO-220FPA	50 pcs./ tube	Straight type	Mass Production
CR8FM-12B-□□#BH0	TO-220FPA	50 pcs./ tube	□□:Lead form type	
CR8FM-12B#BB0	TO-220FP	50 pcs./ tube	Straight type	EOL Candidate

Notes: 3. Please confirm the specification about the shipping in detail.

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Renesas Electronics America Inc.

2801 Scott Boulevard Santa Clara, CA 95050-2549, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited

9251 Yonge Street, Suite 8309 Richmond Hill, Ontario Canada L4C 9T3
Tel: +1-905-237-2004

Renesas Electronics Europe Limited

Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: +44-1628-585-100, Fax: +44-1628-585-900

Renesas Electronics Europe GmbH

Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-6503-0, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.

Room 1709, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100191, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.

Unit 301, Tower A, Central Towers, 555 Langao Road, Putuo District, Shanghai, P. R. China 200333
Tel: +86-21-2226-0888, Fax: +86-21-2226-0999

Renesas Electronics Hong Kong Limited

Unit 1601-1611, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2265-6688, Fax: +852-2886-9022

Renesas Electronics Taiwan Co., Ltd.

13F, No. 363, Fu Shing North Road, Taipei 10543, Taiwan
Tel: +886-2-8175-9600, Fax: +886-2-8175-9670

Renesas Electronics Singapore Pte. Ltd.

80 Bendemeer Road, Unit #06-02 Hyflux Innovation Centre, Singapore 339949
Tel: +65-6213-0200, Fax: +65-6213-0300

Renesas Electronics Malaysia Sdn.Bhd.

Unit 1207, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics India Pvt. Ltd.

No.777C, 100 Feet Road, HAL II Stage, Indiranagar, Bangalore, India
Tel: +91-80-67208700, Fax: +91-80-67208777

Renesas Electronics Korea Co., Ltd.

12F., 234 Teheran-ro, Gangnam-Gu, Seoul, 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141