

# CR8PM-12B

Thyristor  
Medium Power Use

R07DS0117EJ0100  
Rev.1.00  
Sep 03, 2010

## Features

- $I_{T(AV)}$  : 8 A
- $V_{DRM}$  : 600 V
- $I_{GT}$  : 15 mA
- $V_{iso}$  : 2000 V
- Insulated Type
- Planar Passivation Type
- UL Recognized : Yellow Card No. E223904

## Outline

RENESAS Package code: PRSS0003AA-A  
(Package name: TO-220F)



1. Cathode
2. Anode
3. Gate

## Applications

Switching mode power supply, regulator for autcycle, motor control, heater control, and other general purpose control 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

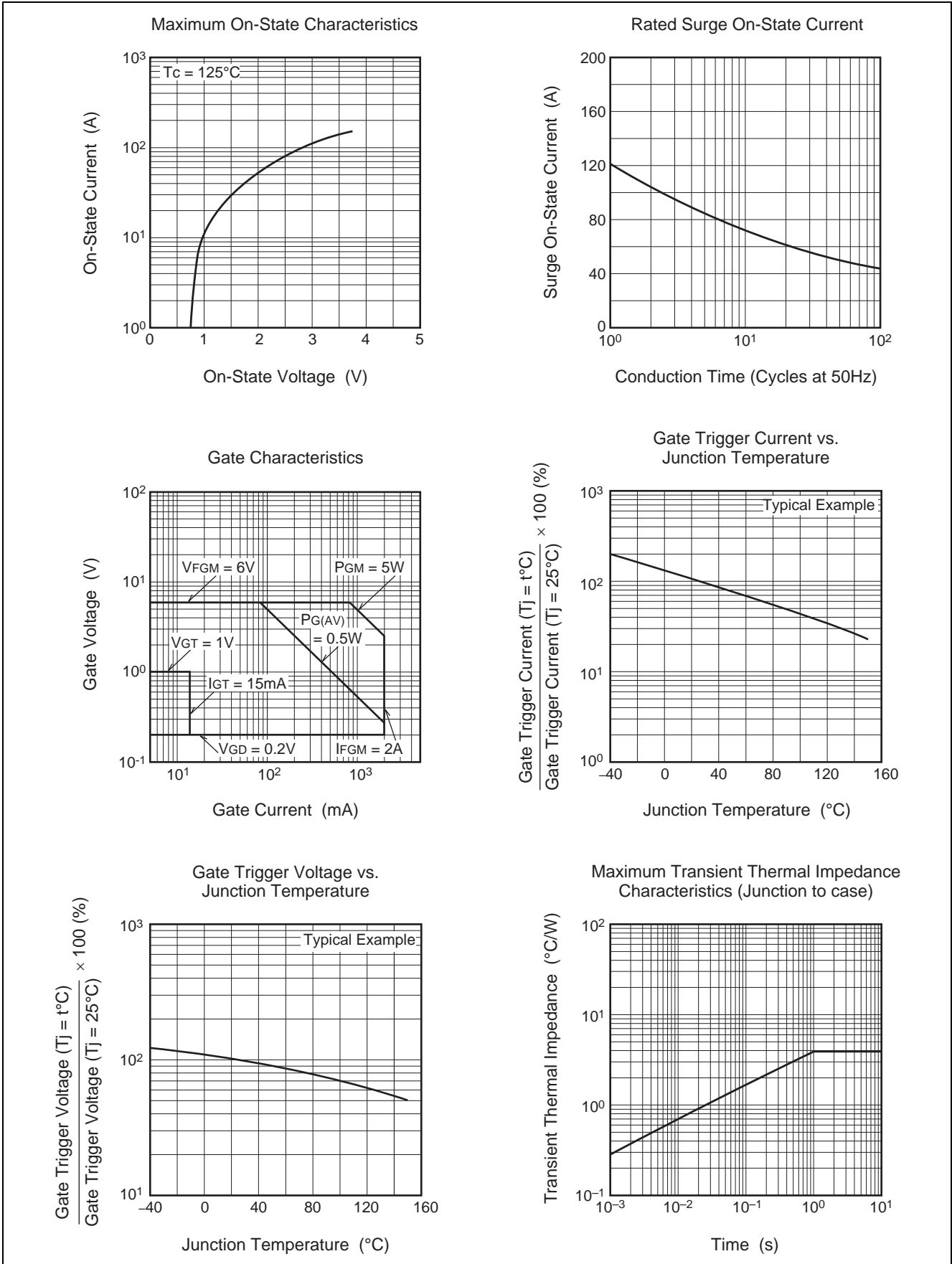
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T (RMS)$	12.6	A	
Average on-state current	$I_T (AV)$	8	A	Commercial frequency, sine half wave 180° conduction, $T_c = 106^\circ\text{C}$
Surge on-state current	$I_{TSM}$	120	A	60Hz sine half wave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusing	$I^2t$	60	$\text{A}^2\text{s}$	Value corresponding to 1 cycle of half wave 60Hz, 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	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	- 40 to +150	$^\circ\text{C}$	
Mass	—	2.0	g	Typical value
Isolation voltage	Viso	2000	V	$T_a = 25^\circ\text{C}$ , AC 1 minute, each terminal to case

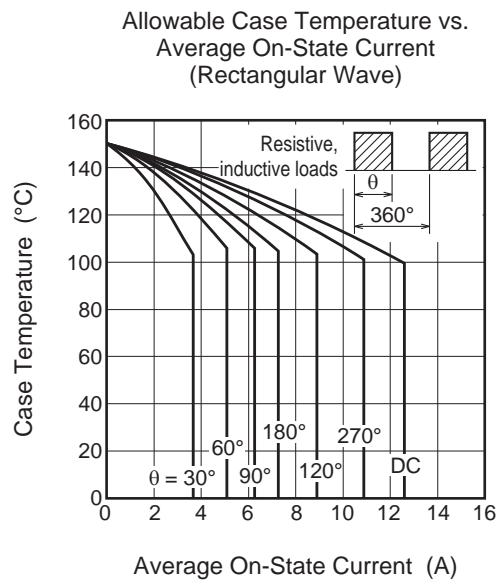
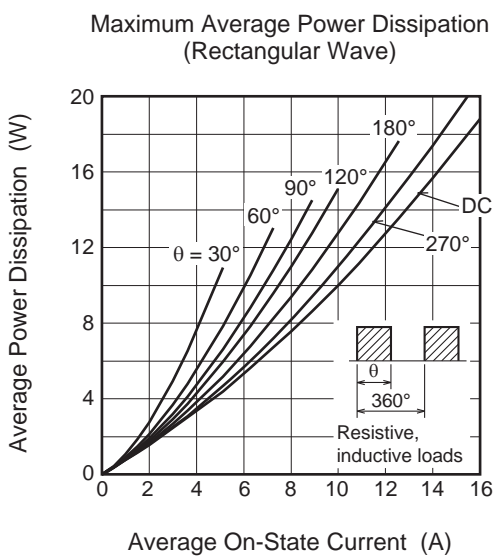
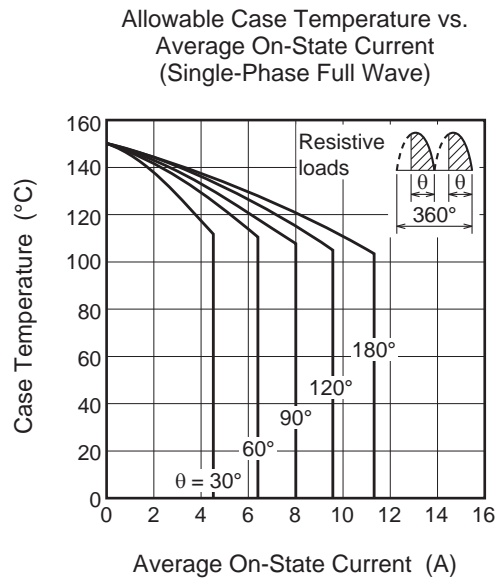
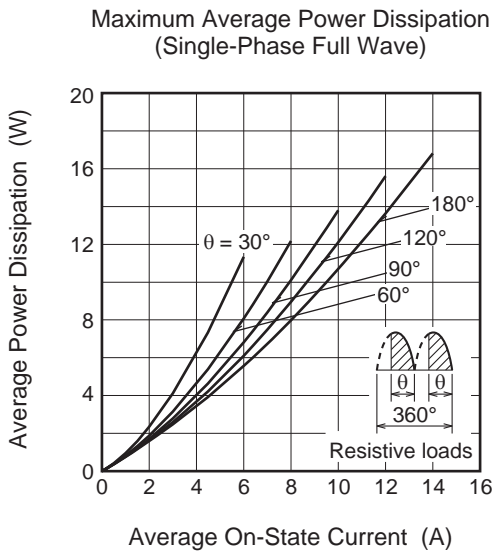
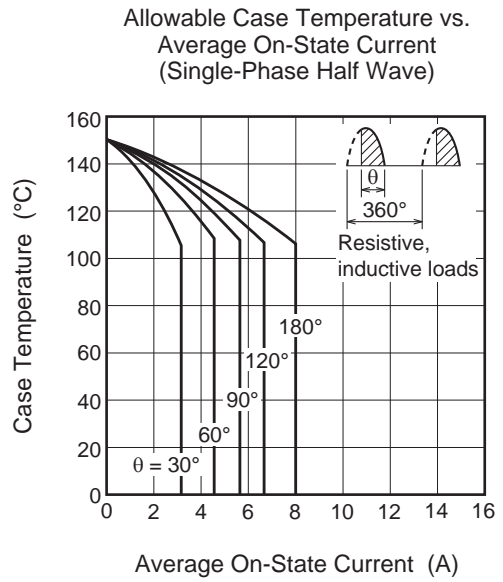
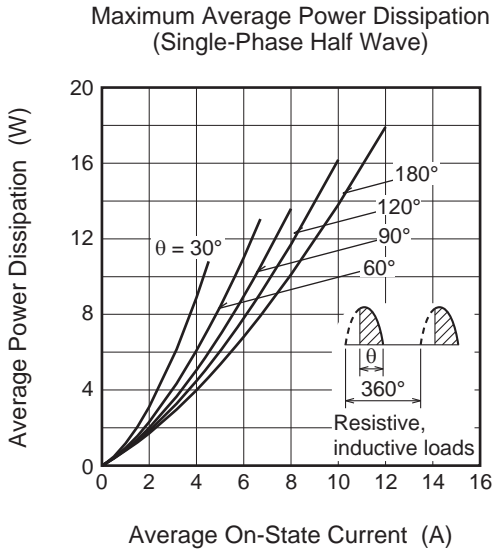
## Electrical Characteristics

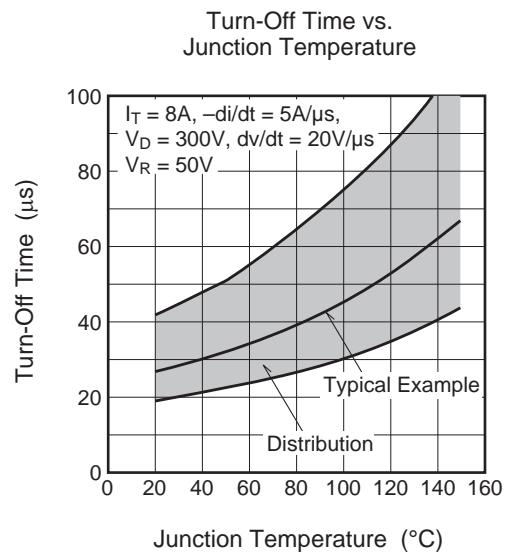
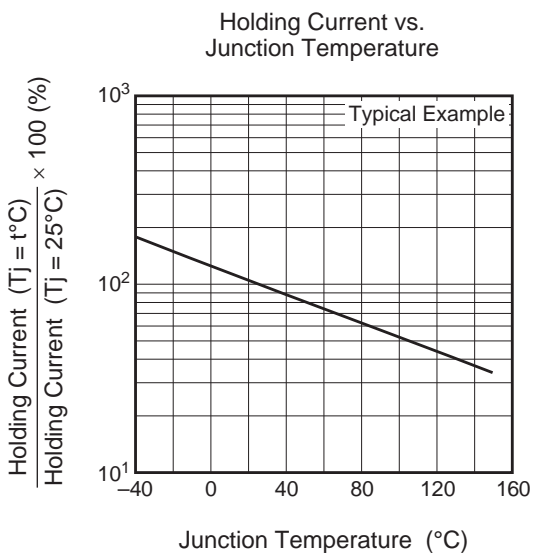
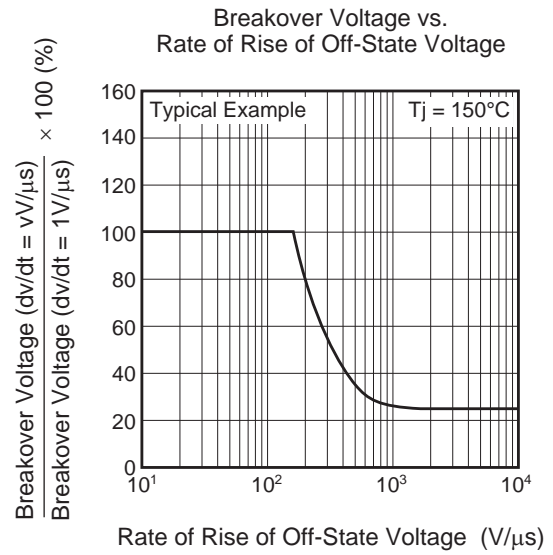
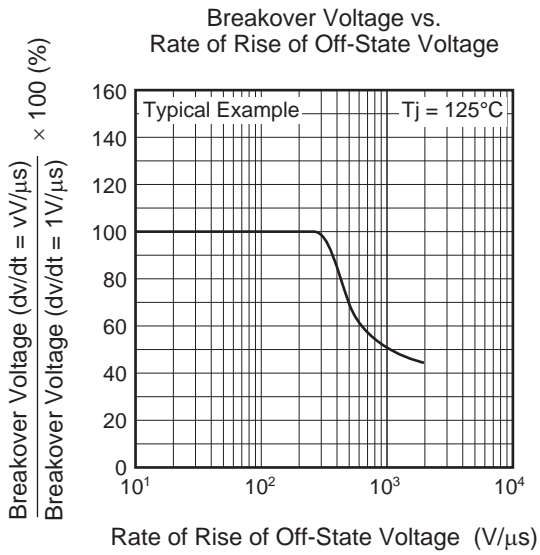
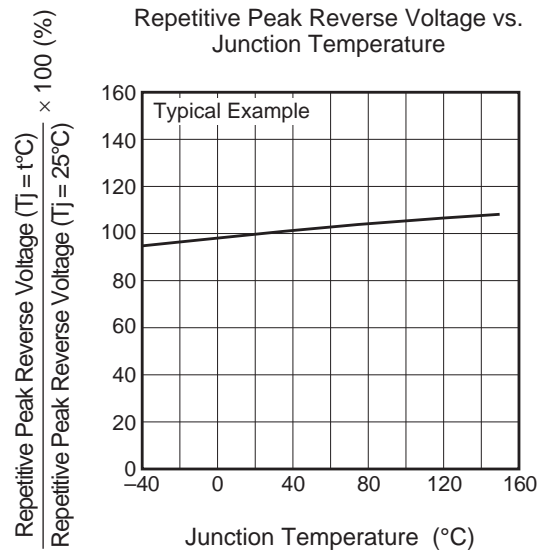
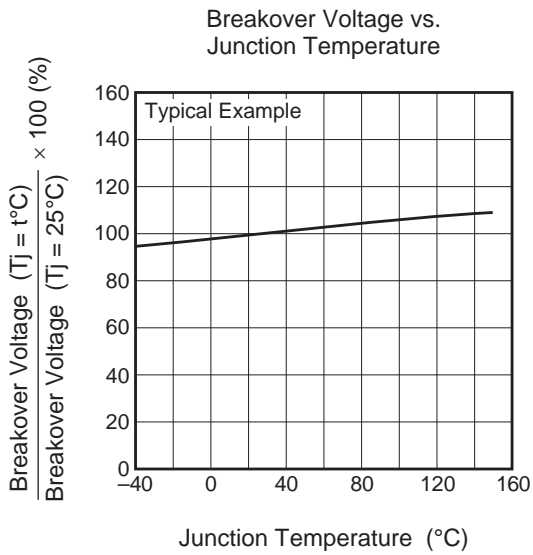
Parameter	Symbol	Rated value			Unit	Test conditions
		Min.	Typ.	Max.		
Repetitive peak reverse current	$I_{RRM}$	—	—	2.0/5.0	mA	$T_j = 125^\circ\text{C}/150^\circ\text{C}$ , $V_{RRM}$ applied
Repetitive peak off-state current	$I_{DRM}$	—	—	2.0/5.0	mA	$T_j = 125^\circ\text{C}/150^\circ\text{C}$ , $V_{DRM}$ applied
On-state voltage	$V_{TM}$	—	—	1.4	V	$T_c = 25^\circ\text{C}$ , $I_{TM} = 25\text{ A}$ , instantaneous value
Gate trigger voltage	$V_{GT}$	—	—	1.0	V	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $I_T = 1\text{ A}$
Gate non-trigger voltage	$V_{GD}$	0.2/0.1	—	—	V	$T_j = 125^\circ\text{C}/150^\circ\text{C}$ , $V_D = 1/2 V_{DRM}$
Gate trigger current	$I_{GT}$	—	—	15	mA	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $I_T = 1\text{ A}$
Holding current	$I_H$	—	15	—	mA	$T_j = 25^\circ\text{C}$ , $V_D = 12\text{ V}$
Thermal resistance	$R_{th (j-c)}$	—	—	3.7	$^\circ\text{C}/\text{W}$	Junction to case <sup>Note1</sup>

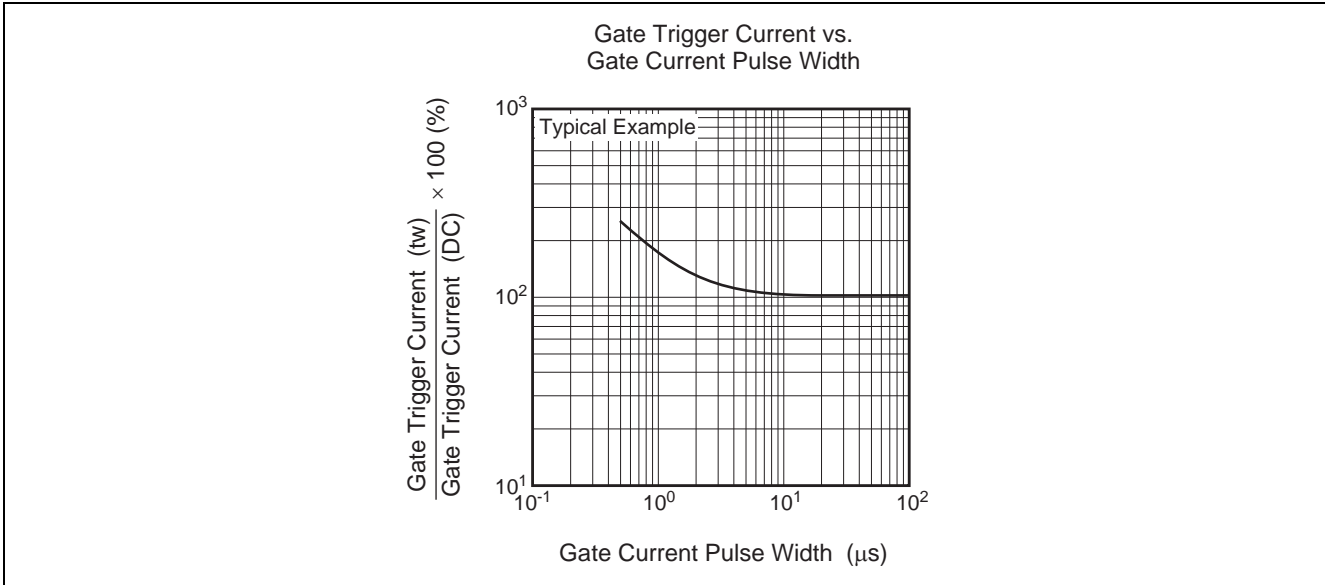
Notes: 1. The contact thermal resistance  $R_{th (c-f)}$  in case of greasing is  $0.5^\circ\text{C}/\text{W}$ .

Performance Curves









## Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-220F	SC-67	PRSS0003AA-A	—	2.0g

Unit: mm

The drawing shows the following dimensions for the CR8PM-12B package:

- Top View:** Overall width is 10.5Max. The central hole diameter is  $\phi 3.2 \pm 0.2$ . The distance from the center to the edge is 5.2. The lead spacing is 2.54.
- Side View:** Total height is 17. The lead length is 13.5Min. The lead thickness is 0.8. The lead diameter is 1.3Max. The distance from the top of the package to the start of the lead is 5.0. The distance from the top of the package to the center of the hole is 8.5. The distance from the top of the package to the bottom of the lead is 3.6.
- Bottom View:** The package width is 4.5.
- Lead Detail:** The lead diameter is 2.8. The lead length is 2.6.

## Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Vinyl sack	100	Type name	CR8PM-12B
Lead form	Plastic Magazine (Tube)	50	Type name – Lead forming code	CR8PM-12B-A8

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

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