

## CR3PM-12

Thyristor

Low Power Use

REJ03G0357-0200

Rev.2.00

Mar.01.2005

### Features

- $I_{T(AV)}$  : 3 A
- $V_{DRM}$  : 600 V
- $I_{GT}$  : 100  $\mu$ A
- $V_{iso}$  : 1500 V
- Insulated Type
- Glass Passivation Type
- UL Recognized : Yellow Card No. E223904  
File No. E80271

### Outline

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



1. Cathode
2. Anode
3. Gate

### Applications

TV sets, control of household equipment such as electric blanket, 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 <sup>Note1</sup>	$V_{DRM}$	600	V
DC off-state voltage <sup>Note1</sup>	$V_D(DC)$	480	V

勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-34970699  
 勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T$ (RMS)	4.7	A	
Average on-state current	$I_T$ (AV)	3.0	A	Commercial frequency, sine half wave 180° conduction, $T_c = 103^\circ\text{C}$
Surge on-state current	$I_{TSM}$	70	A	60Hz sine half wave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusing	$I^2t$	24.5	$\text{A}^2\text{s}$	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	$P_{GM}$	0.5	W	
Average gate power dissipation	$P_G$ (AV)	0.1	W	
Peak gate forward voltage	$V_{FGM}$	6	V	
Peak gate reverse voltage	$V_{RGM}$	6	V	
Peak gate forward current	$I_{FGM}$	0.3	A	
Junction temperature	$T_j$	- 40 to +125	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	- 40 to +125	$^\circ\text{C}$	
Mass	—	2.0	g	Typical value
Isolation voltage	$V_{iso}$	1500	V	$T_a = 25^\circ\text{C}$ , AC 1 minute, each terminal to case

Notes: 1. With gate to cathode resistance  $R_{GK} = 220 \Omega$ .

## Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	$I_{RRM}$	—	—	2.0	mA	$T_j = 125^\circ\text{C}$ , $V_{RRM}$ applied, $R_{GK} = 220 \Omega$
Repetitive peak off-state current	$I_{DRM}$	—	—	2.0	mA	$T_j = 125^\circ\text{C}$ , $V_{DRM}$ applied, $R_{GK} = 220 \Omega$
On-state voltage	$V_{TM}$	—	—	1.6	V	$T_c = 25^\circ\text{C}$ , $I_{TM} = 10 \text{ A}$ , instantaneous value
Gate trigger voltage	$V_{GT}$	—	—	0.8	V	$T_j = 25^\circ\text{C}$ , $V_D = 6 \text{ V}$ , $I_T = 0.1 \text{ A}$
Gate non-trigger voltage	$V_{GD}$	0.1	—	—	V	$T_j = 125^\circ\text{C}$ , $V_D = 1/2 V_{DRM}$ , $R_{GK} = 220 \Omega$
Gate trigger current	$I_{GT}$	1	—	100 <sup>Note3</sup>	$\mu\text{A}$	$T_j = 25^\circ\text{C}$ , $V_D = 6 \text{ V}$ , $I_T = 0.1 \text{ A}$
Thermal resistance	$R_{th(j-c)}$	—	—	4.1	$^\circ\text{C/W}$	Junction to case <sup>Note2</sup>

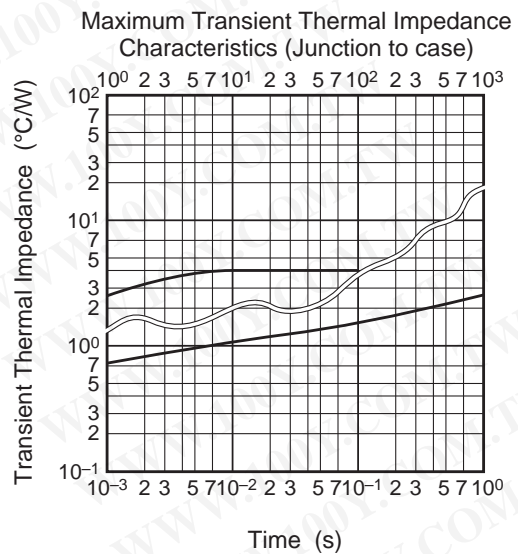
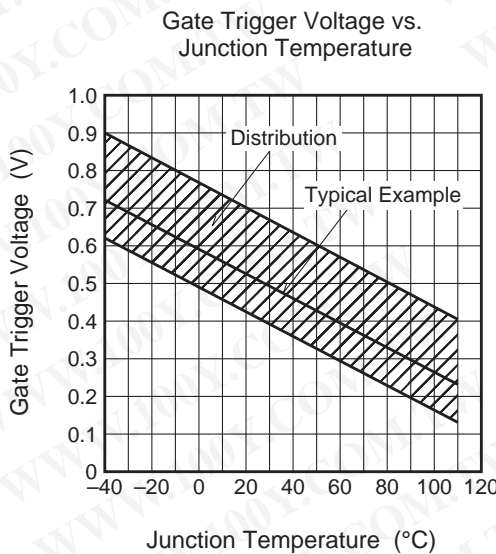
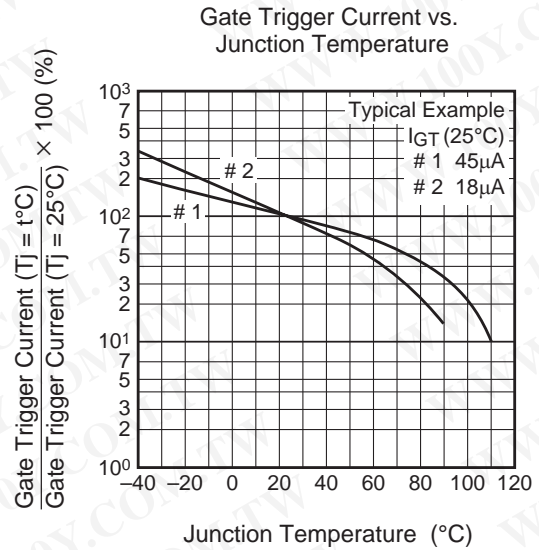
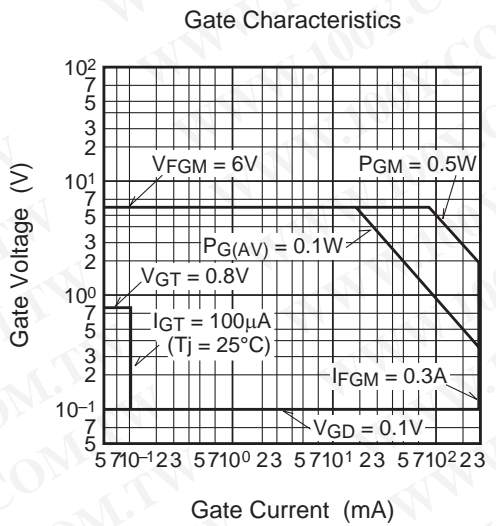
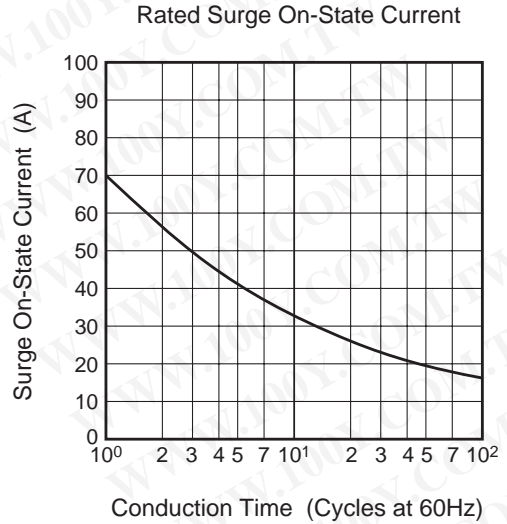
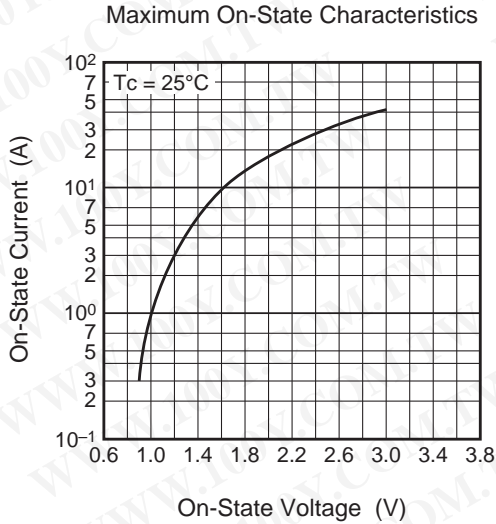
Notes: 2. The contact thermal resistance  $R_{th(c-f)}$  in case of greasing is  $0.5^\circ\text{C/W}$ .

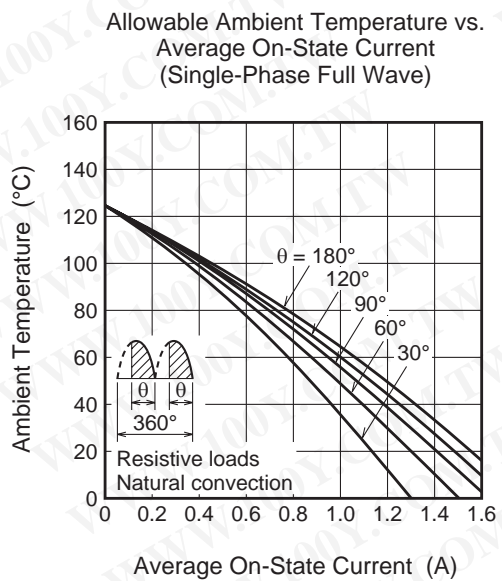
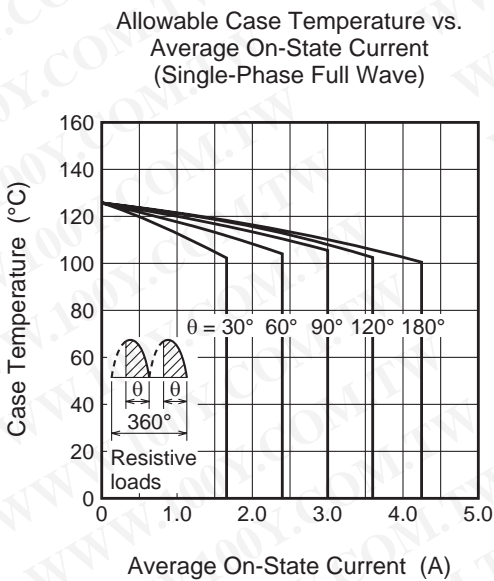
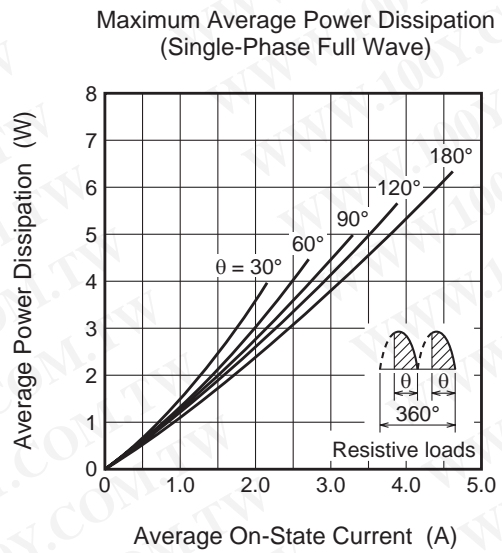
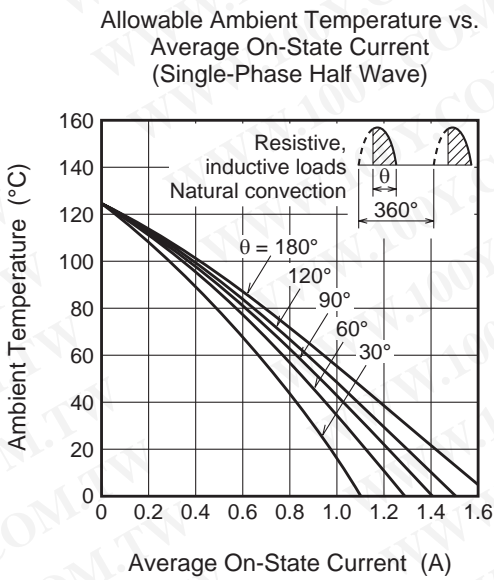
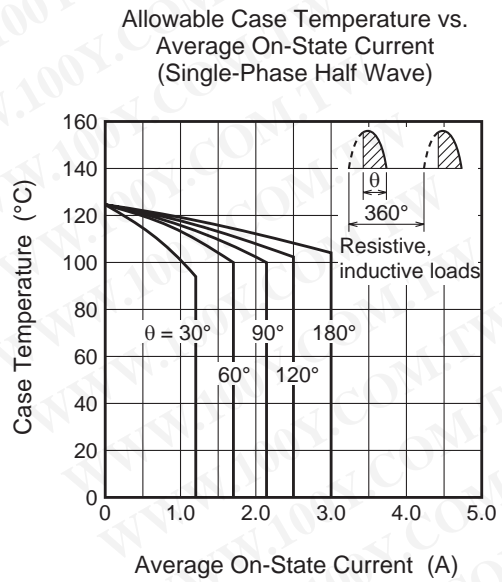
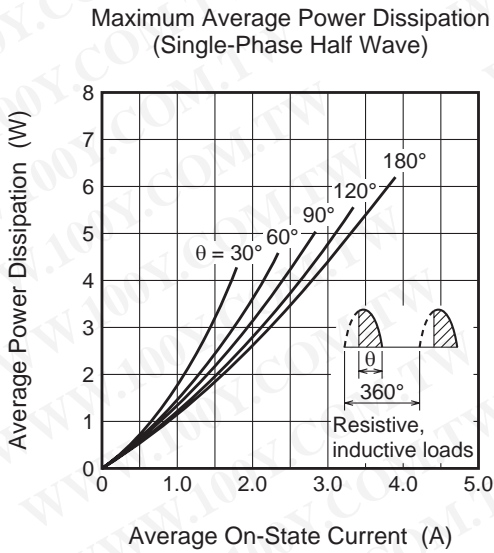
3. If special values of  $I_{GT}$  are required, choose item D or E from those listed in the table below if possible.

Item	A	B	C	D	E
$I_{GT}$ ( $\mu\text{A}$ )	1 to 30	20 to 50	40 to 100	1 to 50	20 to 100

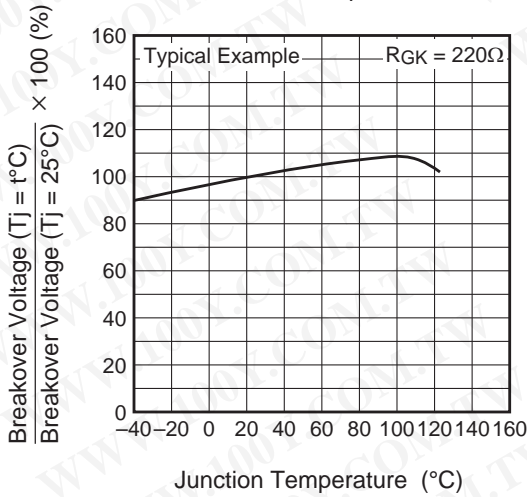
The above values do not include the current flowing through the  $220 \Omega$  resistance between the gate and cathode.

Performance Curves

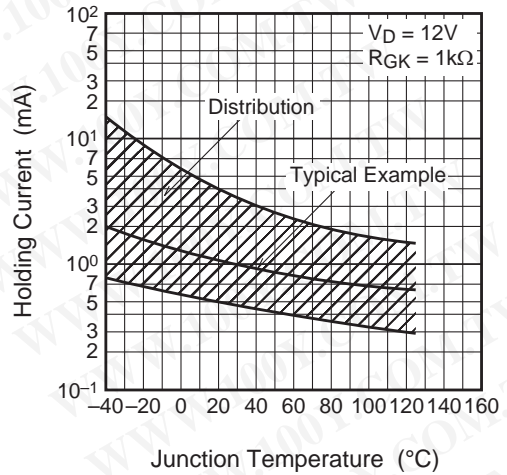




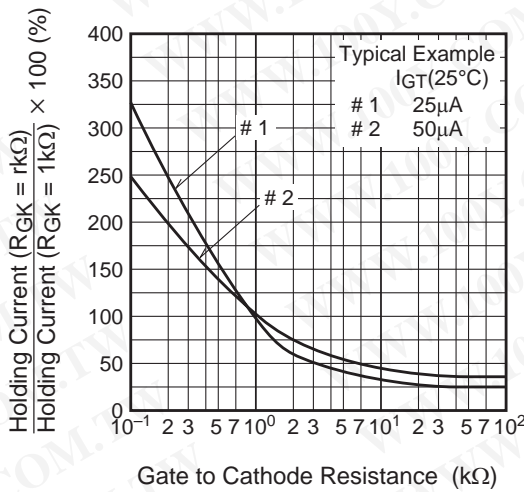
Breakover Voltage vs. Junction Temperature



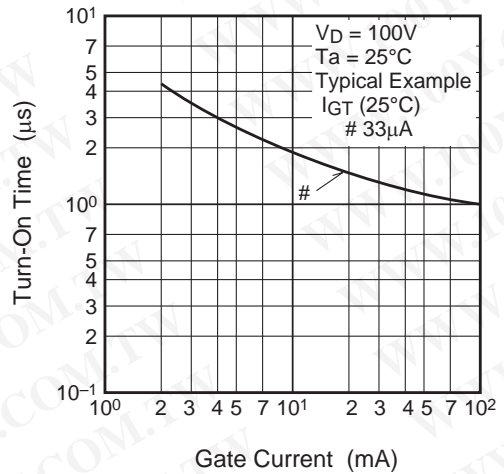
Holding Current vs. Junction Temperature



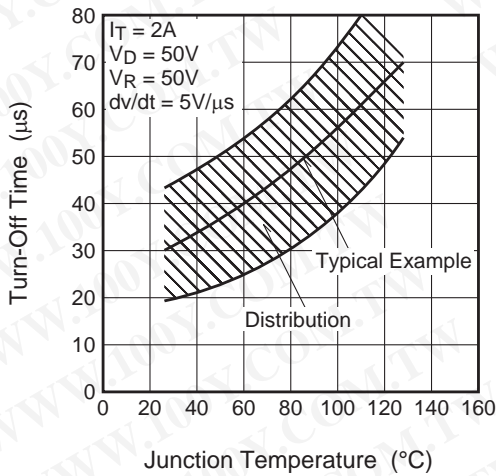
Holding Current vs. Gate to Cathode Resistance



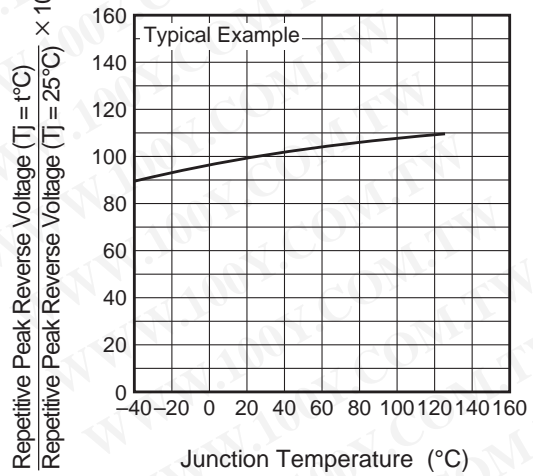
Turn-On Time vs. Gate Current

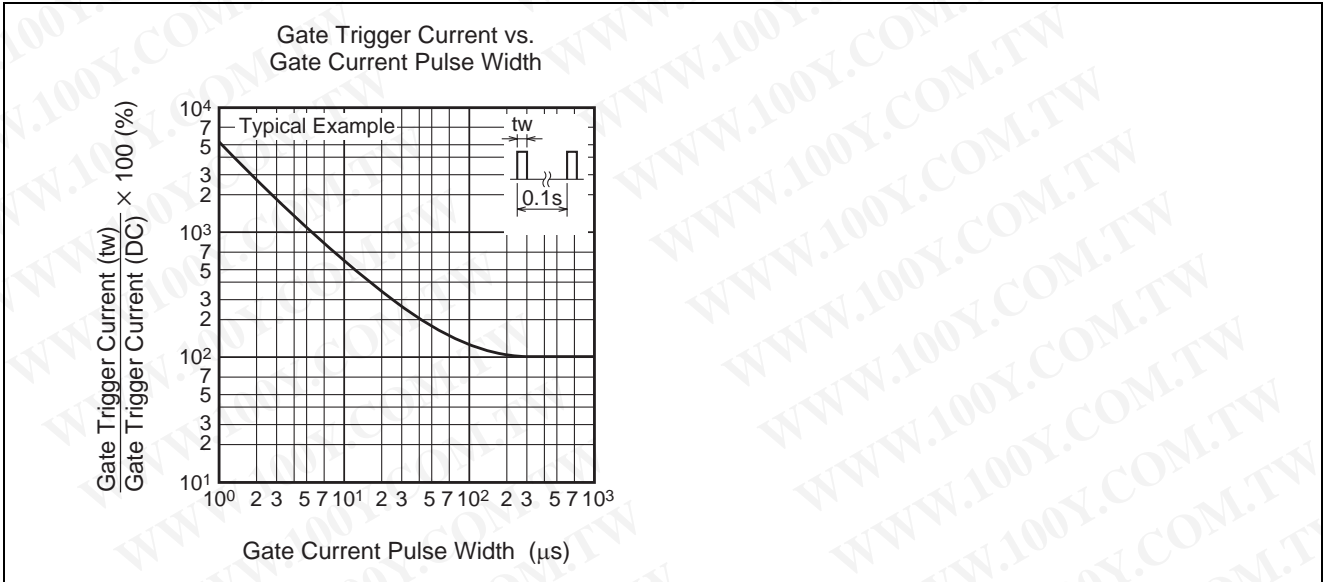


Turn-Off Time vs. Junction Temperature

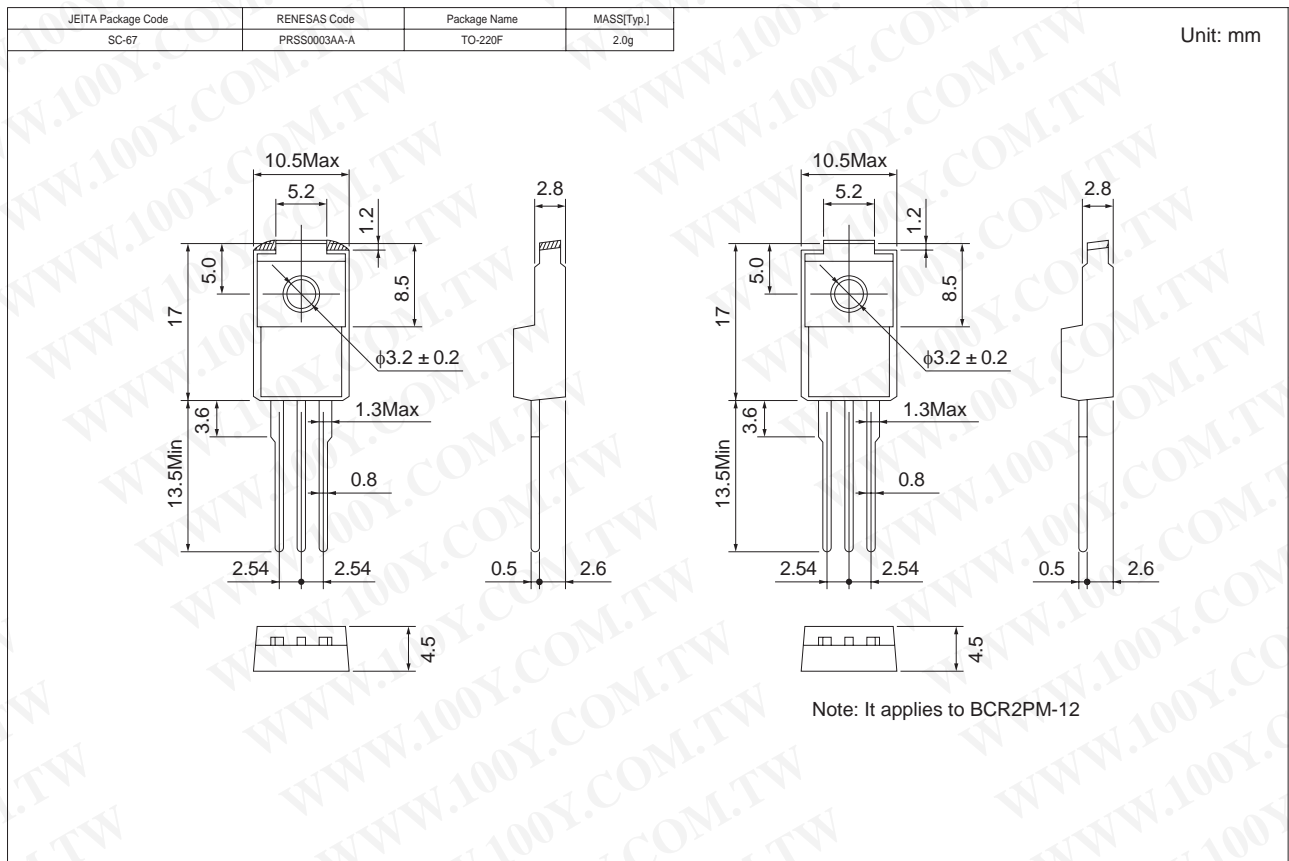


Repetitive Peak Reverse Voltage vs. Junction Temperature





Package Dimensions



Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Vinyl sack	100	Type name	CR3PM-12
Lead form	Tube	50	Type name – Lead forming code	CR3PM-12-A8

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