

CR8PM-12A

Thyristor

Medium Power Use

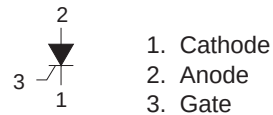
R07DS0116EJ0200
(Previous: REJ03G0359-0100)
Rev.2.00
Sep 13, 2010

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)



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, $T_c = 81^\circ\text{C}$
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	A^2s	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 +125	$^\circ\text{C}$	
Storage temperature	T_{stg}	- 40 to +125	$^\circ\text{C}$	
Mass	—	2.0	g	Typical value
Isolation voltage	Viso	2000	V	$T_a = 25^\circ\text{C}$, AC 1 minute, each terminal to case

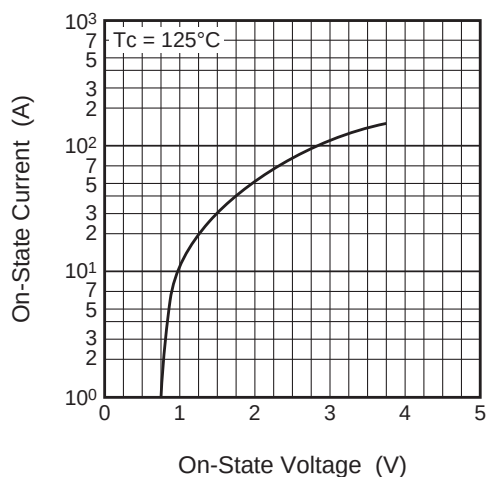
Electrical Characteristics

Parameter	Symbol	Rated value			Unit	Test conditions
		Min.	Typ.	Max.		
Repetitive peak reverse current	I_{RRM}	—	—	2.0	mA	$T_j = 125^\circ\text{C}$, V_{RRM} applied
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_j = 125^\circ\text{C}$, V_{DRM} applied
On-state voltage	V_{TM}	—	—	1.4	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	—	—	V	$T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$
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	$^\circ\text{C/W}$	Junction to case ^{Note1}

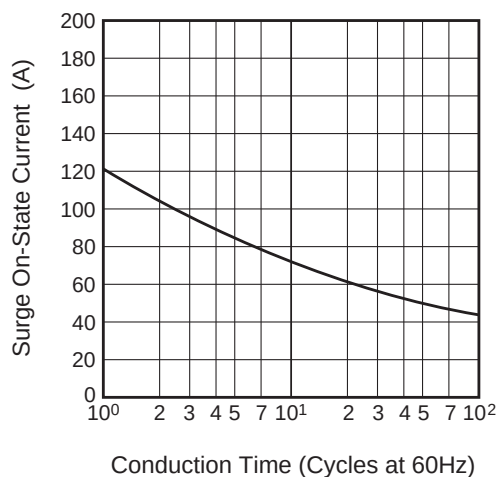
Notes: 1. The contact thermal resistance $R_{th (c-f)}$ in case of greasing is 0.5°C/W .

Performance Curves

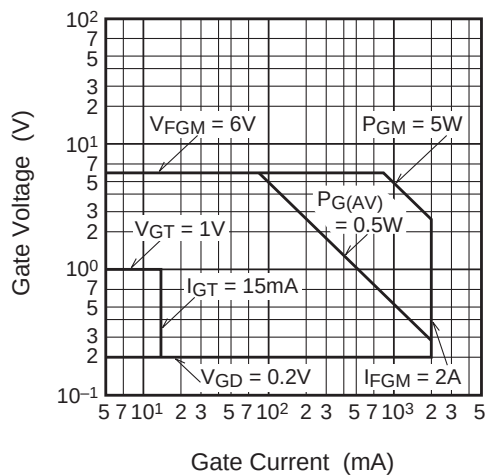
Maximum On-State Characteristics



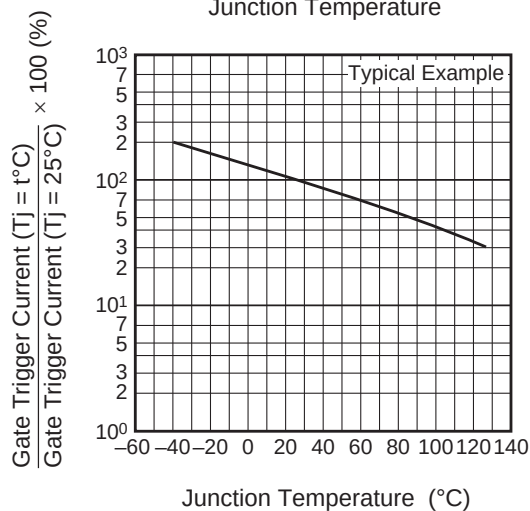
Rated Surge On-State Current



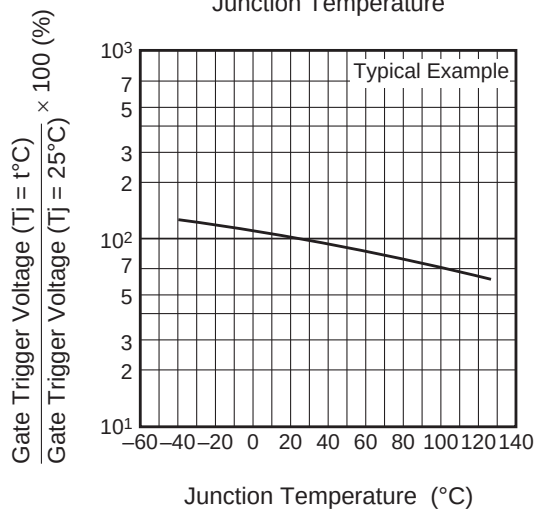
Gate Characteristics



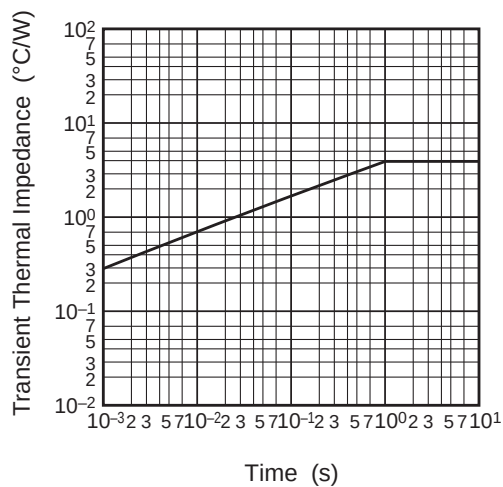
Gate Trigger Current vs. Junction Temperature



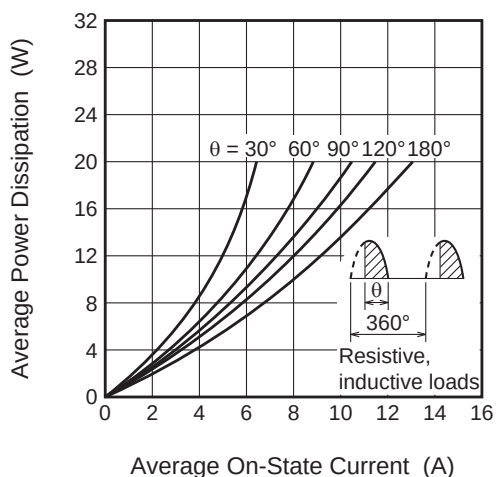
Gate Trigger Voltage vs. Junction Temperature



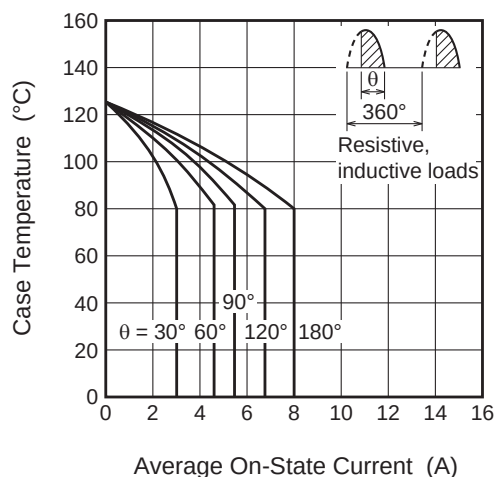
Maximum Transient Thermal Impedance Characteristics (Junction to case)



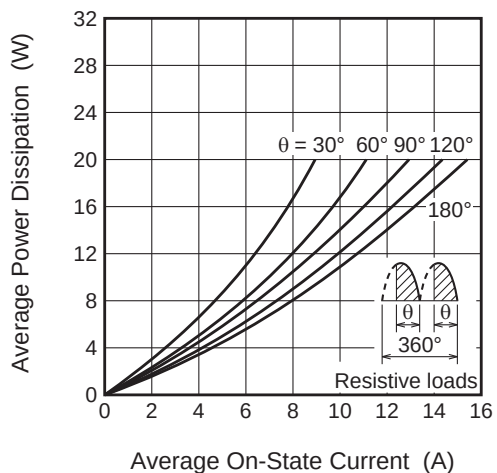
Maximum Average Power Dissipation
(Single-Phase Half Wave)



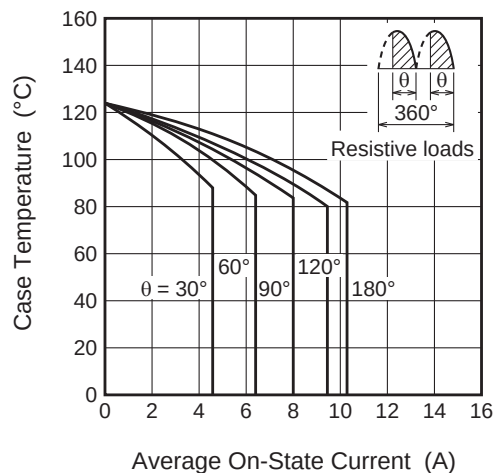
Allowable Case Temperature vs.
Average On-State Current
(Single-Phase Half Wave)



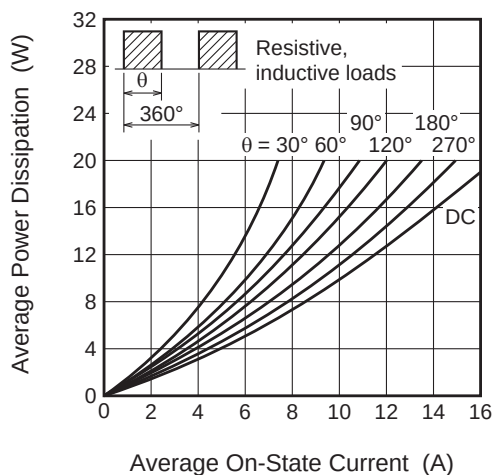
Maximum Average Power Dissipation
(Single-Phase Full Wave)



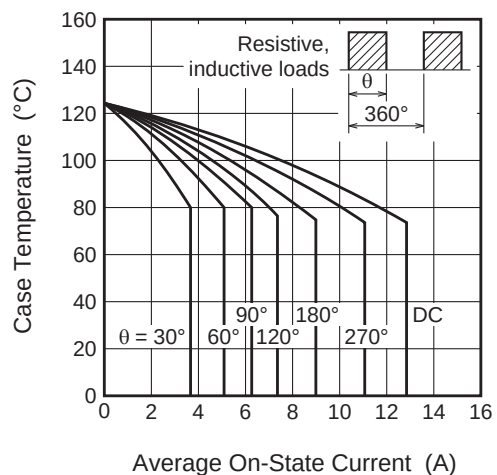
Allowable Case Temperature vs.
Average On-State Current
(Single-Phase Full Wave)

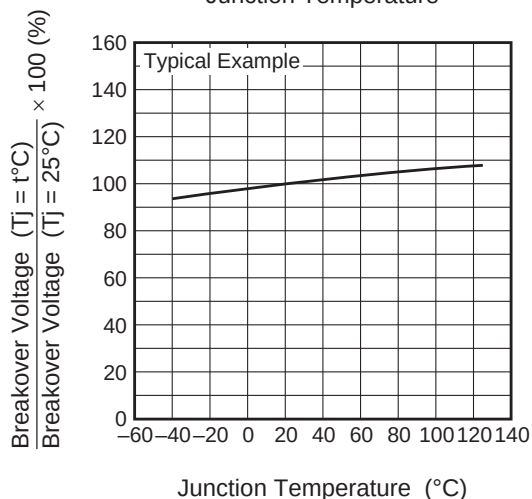
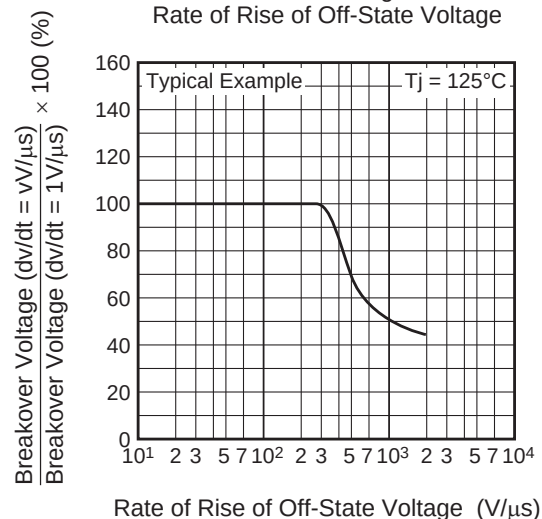
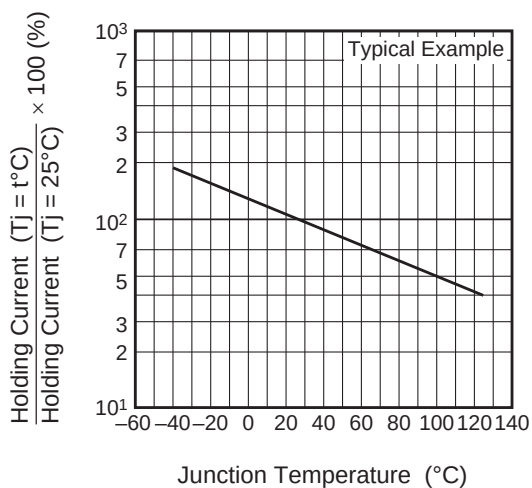
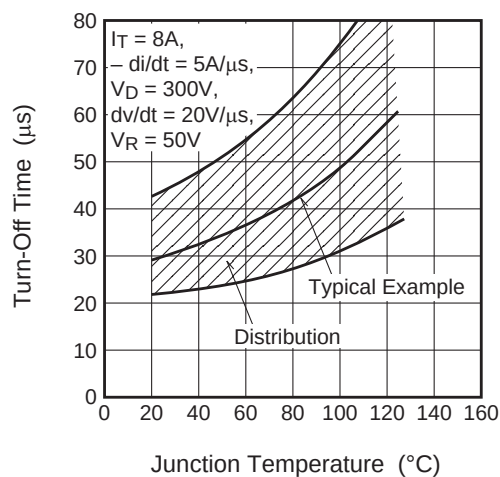
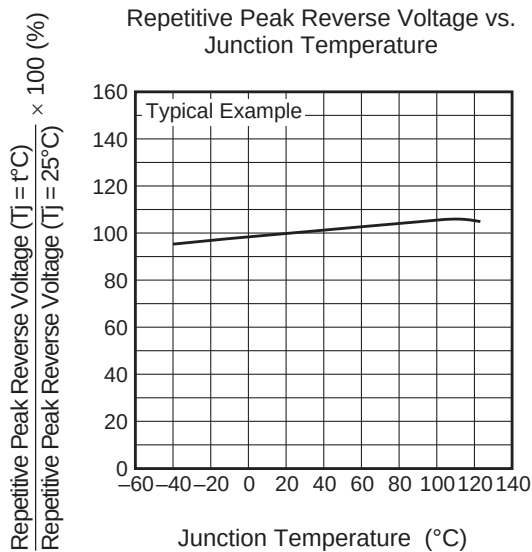
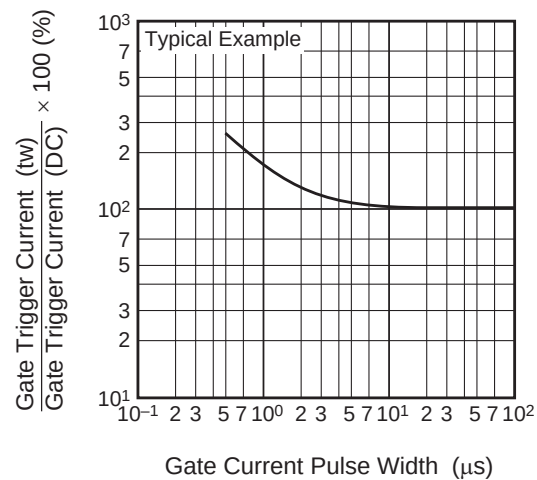


Maximum Average Power Dissipation
(Rectangular Wave)



Allowable Case Temperature vs.
Average On-State Current
(Rectangular Wave)

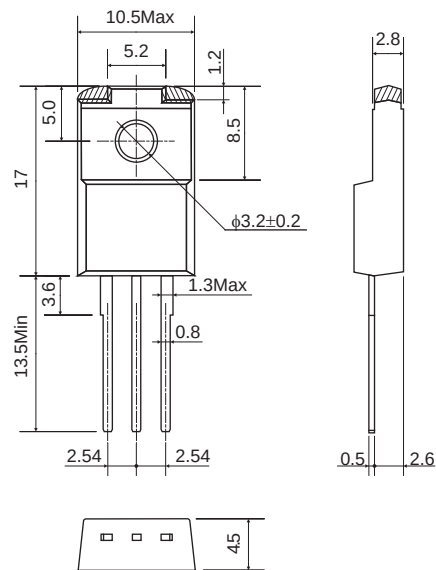


Breakover Voltage vs.
Junction TemperatureBreakover Voltage vs.
Rate of Rise of Off-State VoltageHolding Current vs.
Junction TemperatureTurn-Off Time vs.
Junction TemperatureRepetitive Peak Reverse Voltage vs.
Junction TemperatureGate Trigger Current vs.
Gate Current Pulse Width

Package Dimensions

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

Unit: mm



Order Code

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

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

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