

CR6LM-12B

Thyristor

Medium Power Use

R07DS0210EJ0100

Rev.1.00

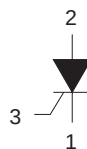
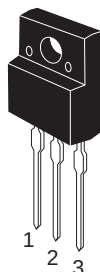
Dec 03, 2010

Features

- $I_{T(AV)}$: 6 A
- V_{DRM} : 600 V
- I_{GT} : 10 mA
- V_{iso} : 1800V
- Insulated Type
- Planar Passivation Type
- UL Recognized : Yellow Card No. E223904

Outline

RENESAS Package code: PRSS0003AF-A)
(Package name: TO-220FL)



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)	9.4	A	
Average on-state current	I_T (AV)	6	A	Commercial frequency, sine half wave 180° conduction, $T_c = 110^\circ\text{C}$
Surge on-state current	I_{TSM}	90	A	60Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	34	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 +150	$^\circ\text{C}$	
Storage temperature	T_{stg}	– 40 to +150	$^\circ\text{C}$	
Mass	—	1.5	g	Typical value
Isolation voltage	Viso	1800	V	$T_a = 25^\circ\text{C}$, AC 1 minute, each terminal to case

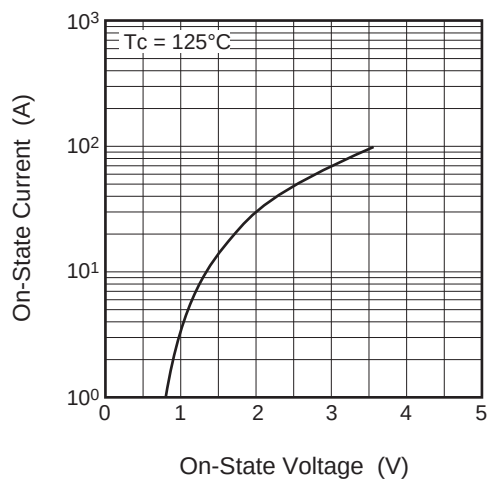
Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	2.0/5.0	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}	—	—	1.7	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 20\text{ A}$, 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}	—	—	10	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	$R_{th(j-c)}$	—	—	4.0	$^\circ\text{C/W}$	Junction to case ^{Note1}

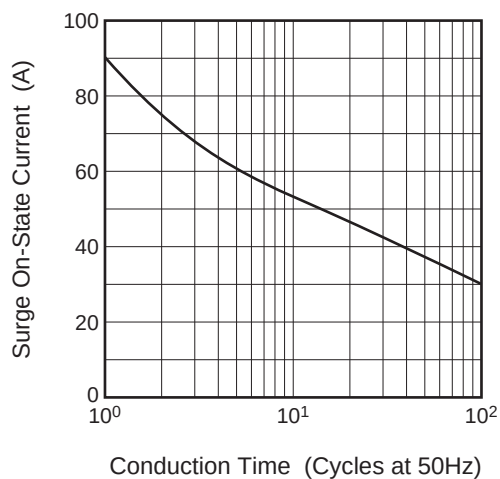
Notes: 1. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is 0.5°C/W .

Performance Curves

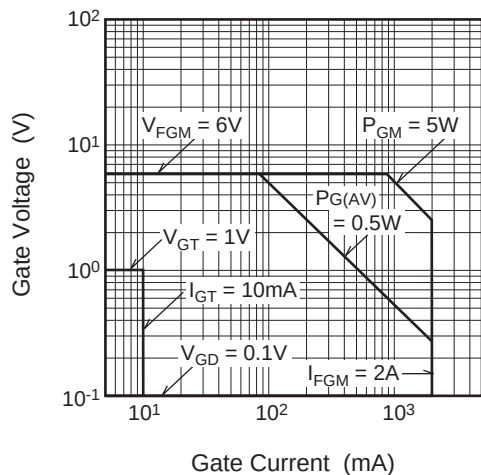
Maximum On-State Characteristics



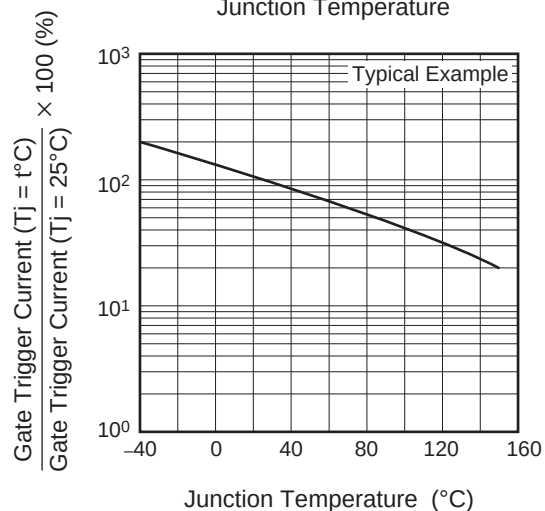
Rated Surge On-State Current



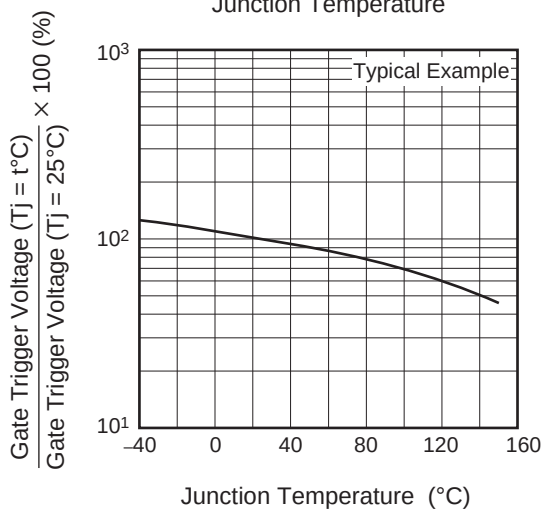
Gate Characteristics



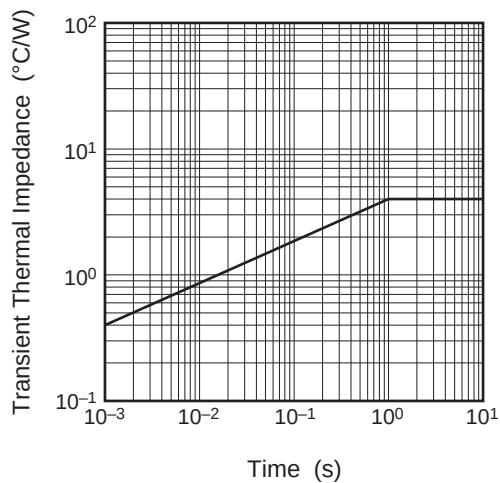
Gate Trigger Current vs. Junction Temperature



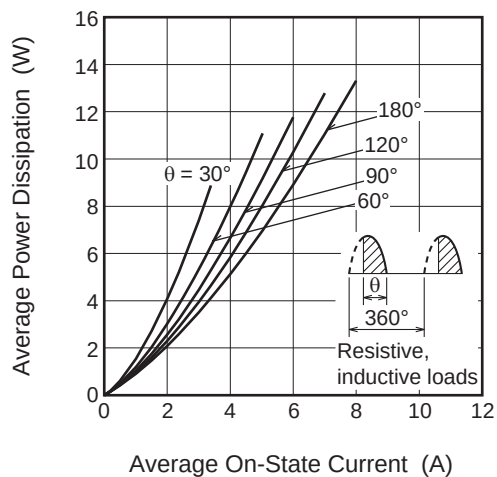
Gate Trigger Voltage vs. Junction Temperature



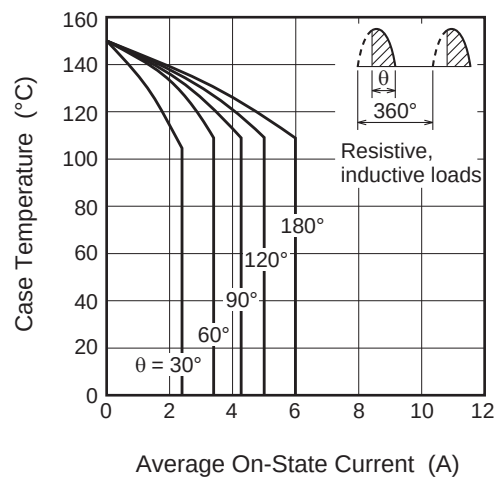
Maximum Transient Thermal Impedance Characteristics (Junction to case)



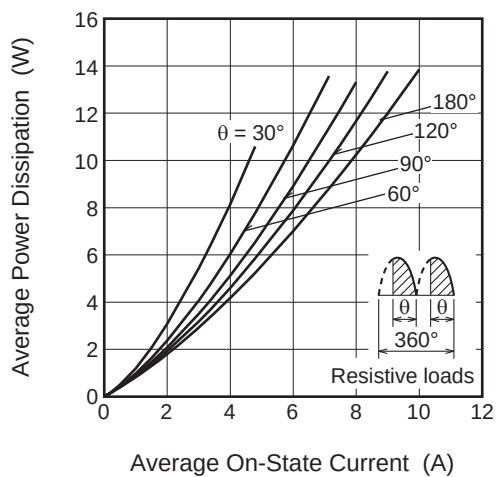
Maximum Average Power Dissipation
(Single-Phase Half Wave)



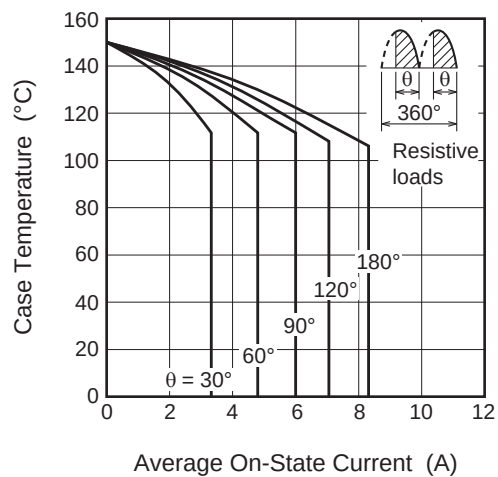
Allowable Case Temperature vs.
Average On-State Current
(Single-Phase Half Wave)



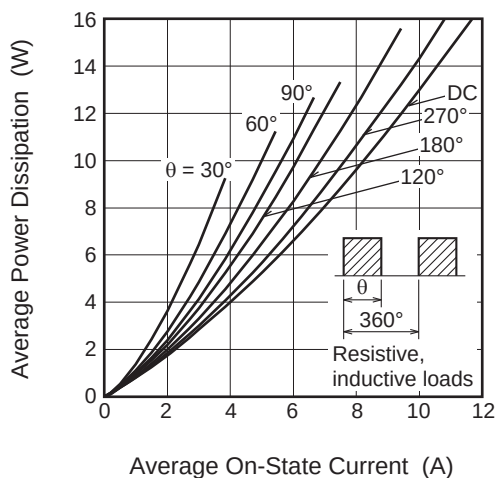
Maximum Average Power Dissipation
(Single-Phase Full Wave)



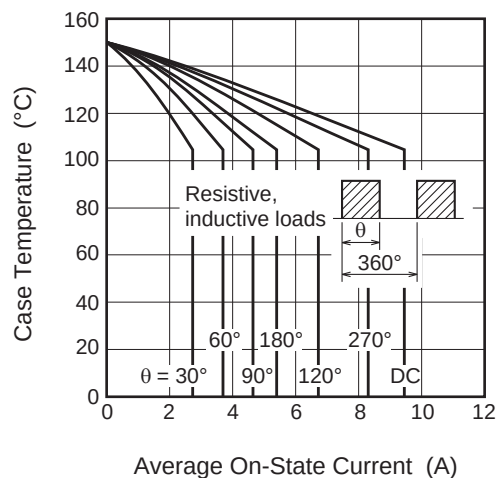
Allowable Case Temperature vs.
Average On-State Current
(Single-Phase Full Wave)

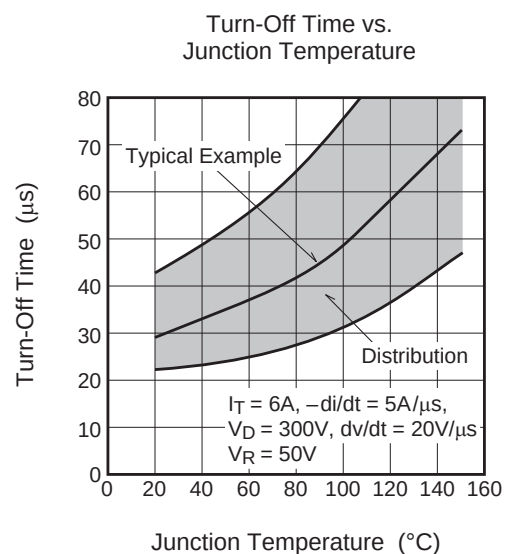
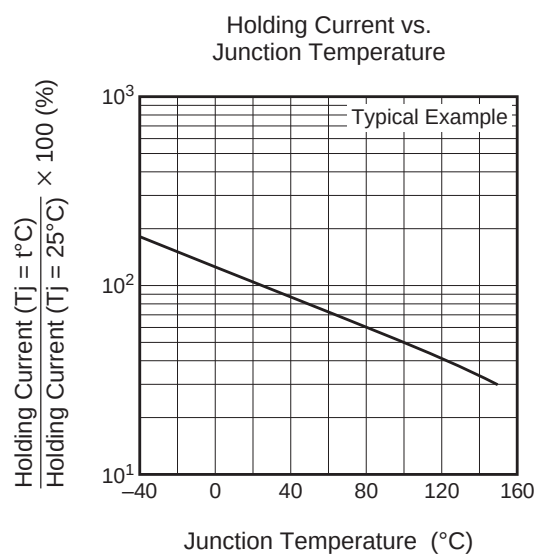
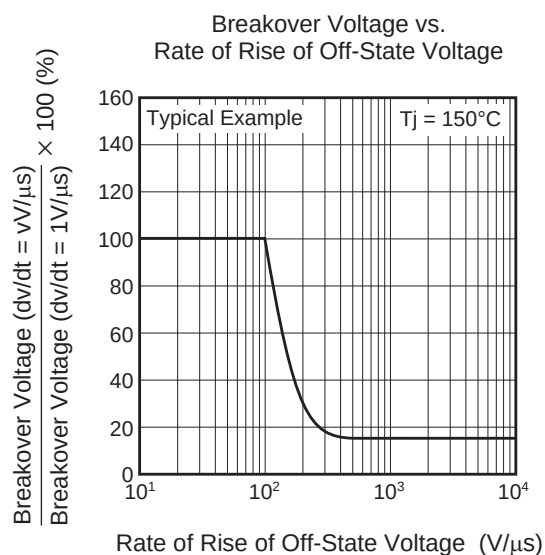
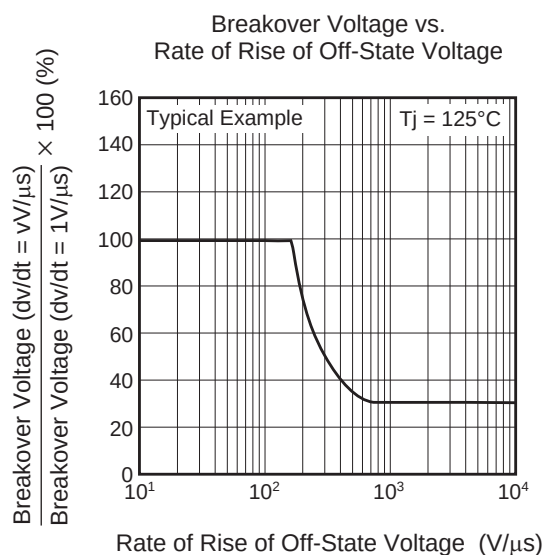
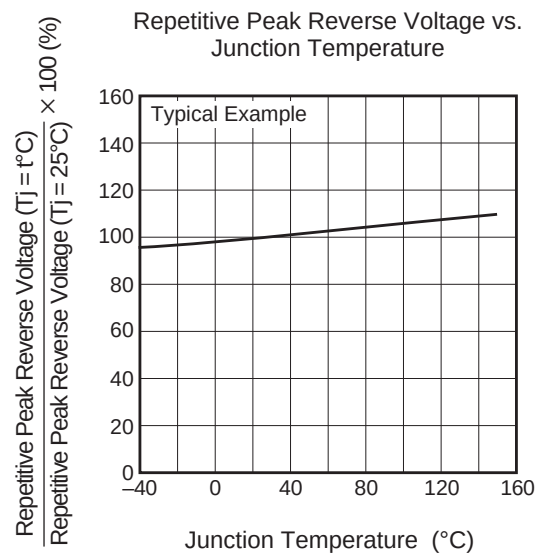
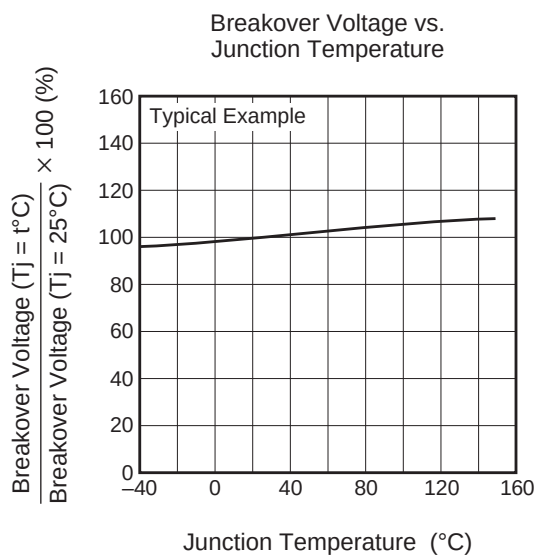


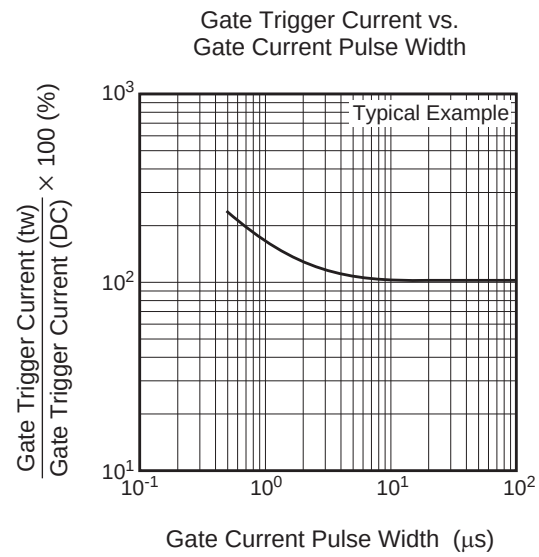
Maximum Average Power Dissipation
(Rectangular Wave)



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



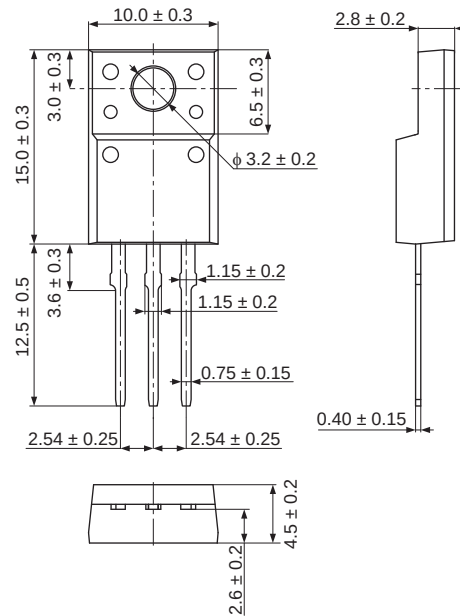




Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-220FL	—	PRSS0003AF-A	TO-220FL	1.5g

Unit: mm



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
CR6LM-12B#B00	Tube	50 pcs.	Straight type
CR6LM-12B-A8#B00	Tube	50 pcs.	A8 Lead form

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

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