

CR6PM-12G

Thyristor

R07DS0670EJ0100

Medium Power Use

Rev.1.00

Jul 23, 2012

Features

- $I_{T(AV)}$: 6 A
- V_{DRM} : 600 V
- I_{GT} : 10mA
- V_{iso} : 2000 V
- Insulated Type
- Planar Type
- UL Recognized: File 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 |

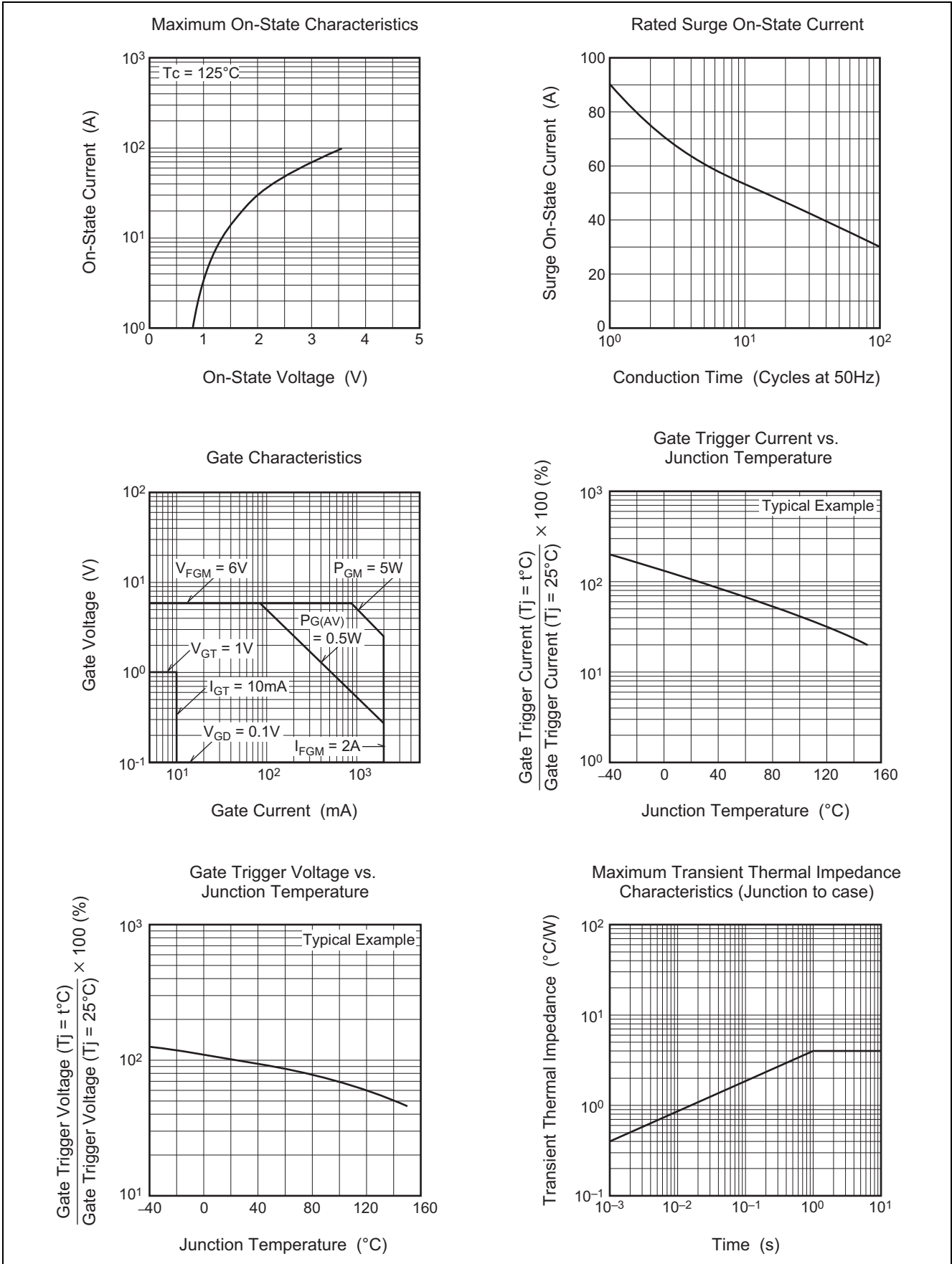
| Parameter | Symbol | Ratings | Unit | Conditions |
|--------------------------------|--------------|--------------|----------------------|--|
| RMS on-state current | $I_{T(RMS)}$ | 9.4 | A | |
| Average on-state current | $I_{T(AV)}$ | 6 | A | Commercial frequency, sine half wave 180° conduction, $T_c = 110^\circ\text{C}$ |
| Surge on-state current | I_{TSM} | 90 | A | 60 Hz 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 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 | $^\circ\text{C}$ | |
| Storage temperature | T_{stg} | - 40 to +150 | $^\circ\text{C}$ | |
| Mass | — | 2.0 | g | Typical value |
| Isolation voltage | V_{iso} | 2000 | V | $T_a = 25^\circ\text{C}$, AC 1 minute, each terminal to case |

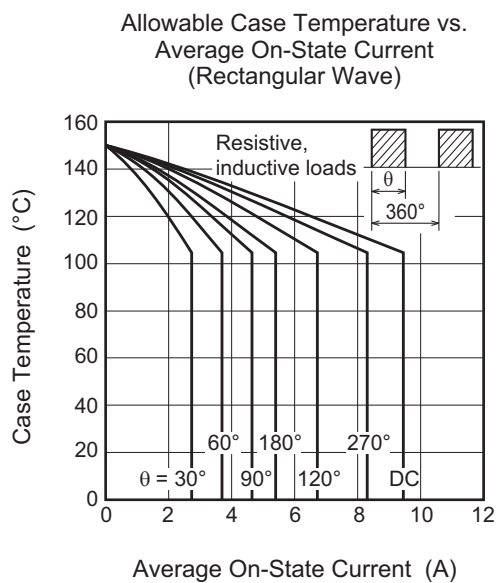
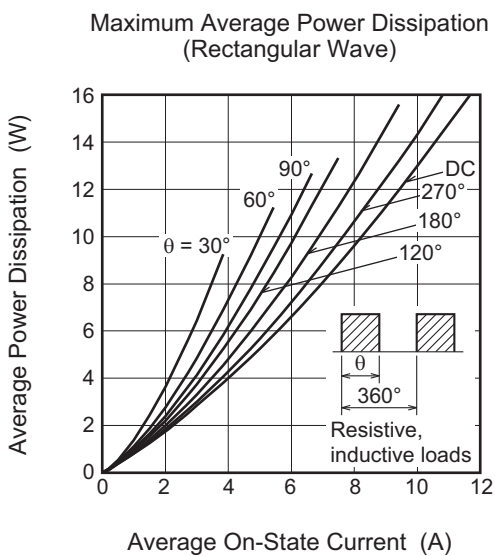
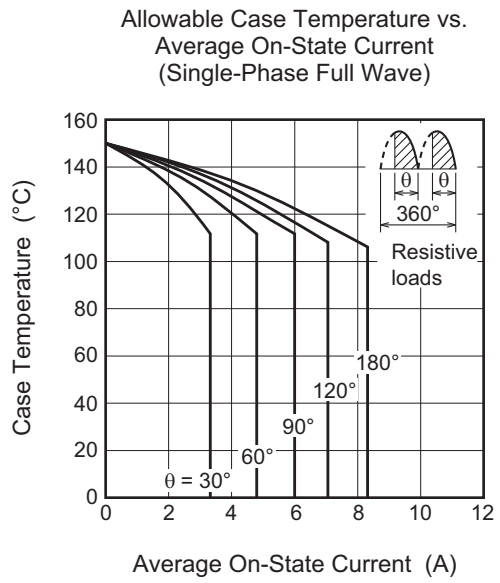
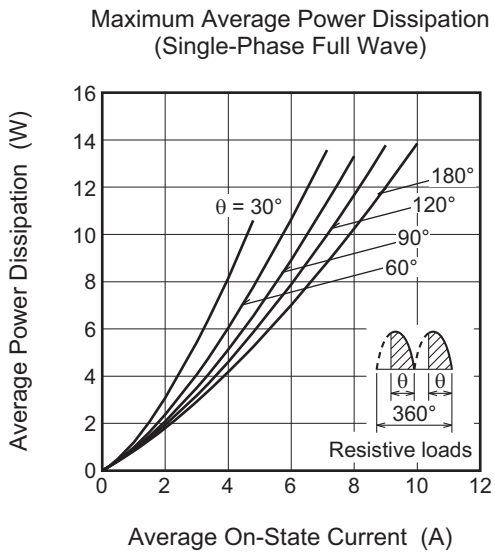
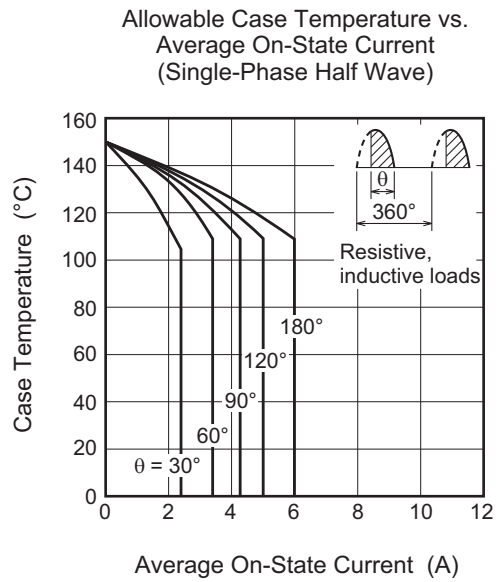
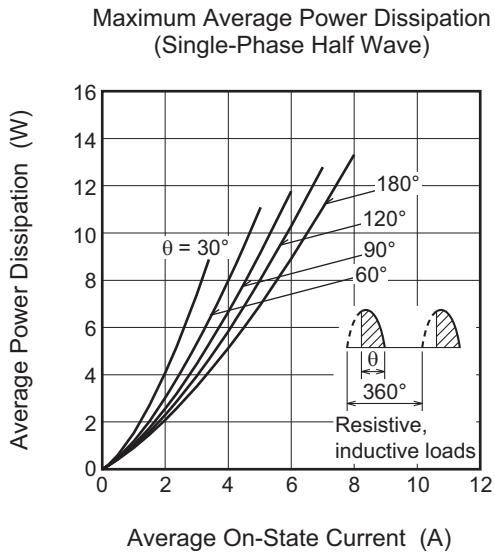
Electrical Characteristics

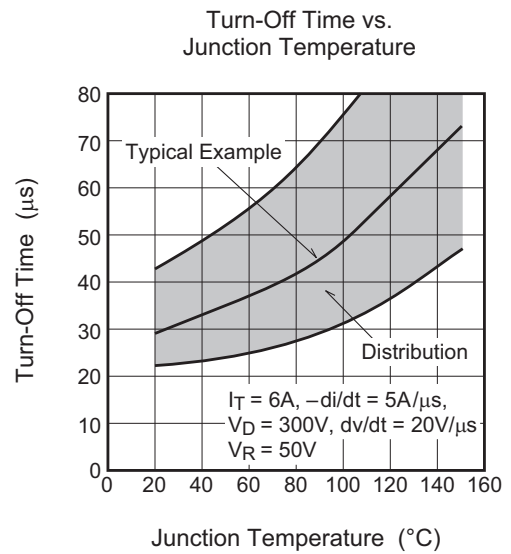
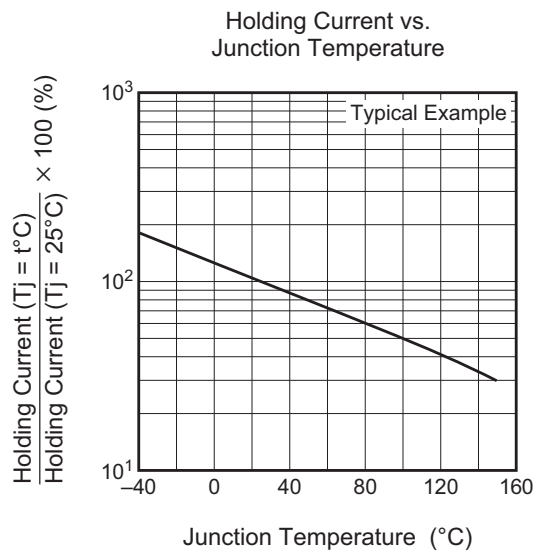
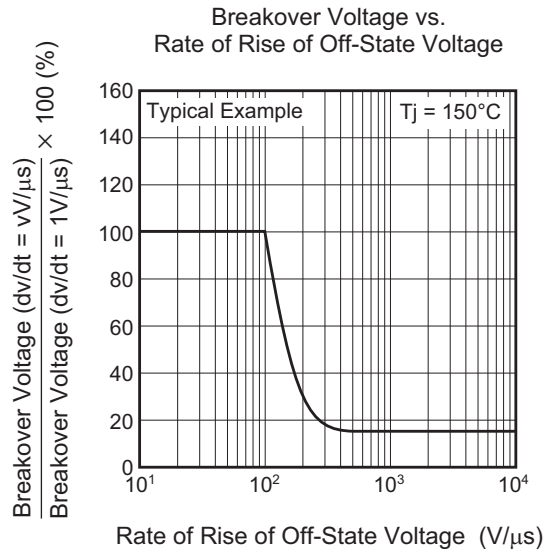
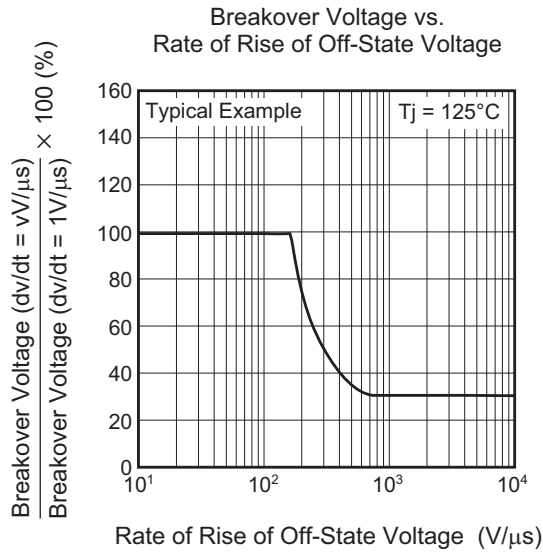
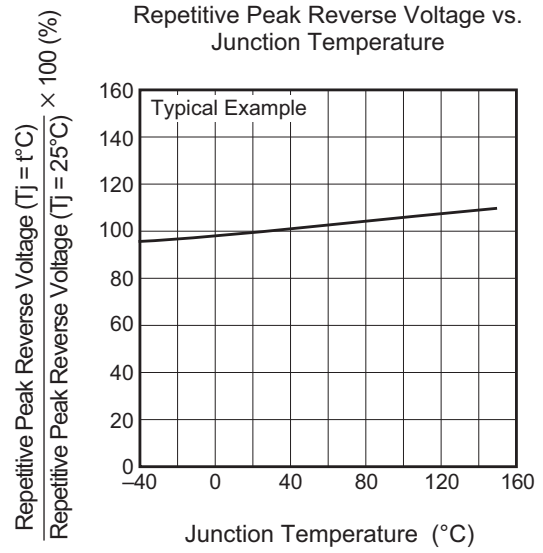
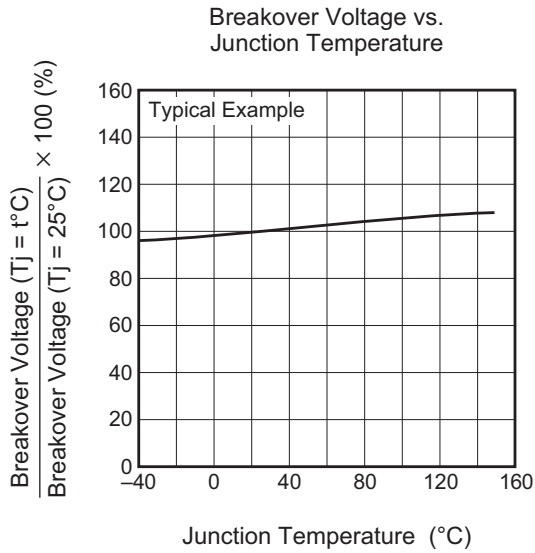
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test conditions |
|-----------------------------------|---------------|------|------|------|--------------------|---|
| Repetitive peak reverse current | I_{RRM} | — | — | 2.0 | mA | $T_j = 125^\circ\text{C}$, V_{RRM} applied |
| | | — | — | 5.0 | mA | $T_j = 150^\circ\text{C}$, V_{RRM} applied |
| Repetitive peak off-state current | I_{DRM} | — | — | 2.0 | mA | $T_j = 125^\circ\text{C}$, V_{DRM} applied |
| | | — | — | 5.0 | mA | $T_j = 150^\circ\text{C}$, V_{DRM} applied |
| On-state voltage | V_{TM} | — | — | 1.7 | V | $T_j = 25^\circ\text{C}$, $I_{TM} = 20$ A instantaneous value |
| Gate trigger voltage | V_{GT} | — | — | 1.0 | V | $T_j = 25^\circ\text{C}$, $V_D = 6$ V, $I_T = 1$ A |
| Gate non-trigger voltage | V_{GD} | 0.2 | — | — | V | $T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$ |
| | | 0.1 | — | — | V | $T_j = 150^\circ\text{C}$, $V_D = 1/2 V_{DRM}$ |
| Gate trigger current | I_{GT} | — | — | 10 | mA | $T_j = 25^\circ\text{C}$, $V_D = 6$ V, $I_T = 1$ A |
| Holding current | I_H | — | 15 | — | mA | $T_j = 25^\circ\text{C}$, $V_D = 12$ V |
| Thermal resistance | $R_{th(j-c)}$ | — | — | 4.0 | $^\circ\text{C/W}$ | Junction to case ^{Note1} |

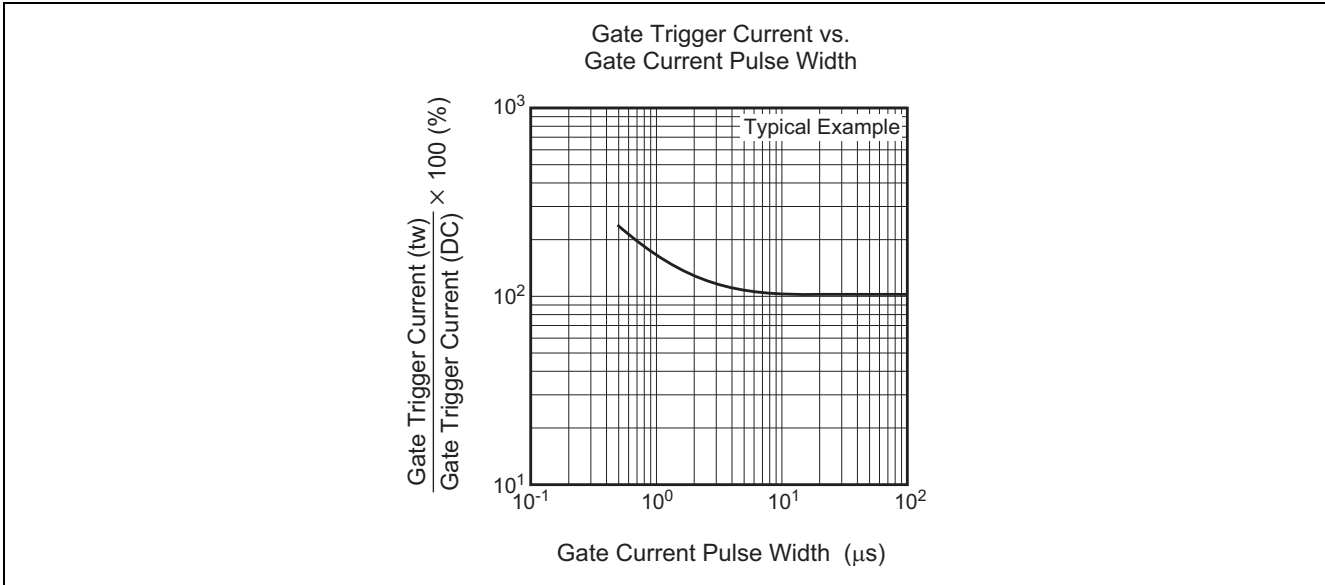
Notes: 1. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is 0.5°C/W .

Performance Curves









Package dimensions

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

Unit: mm

The technical drawing illustrates the CR6PM-12G package in three views: top, side, and front. The top view shows a square body with a diameter of 10.5 mm (maximum) and a central hole with a diameter of 5.2 mm. The height of the body is 17 mm. The side view shows a total height of 13.5 mm (minimum) and a lead length of 2.6 mm. The front view shows a width of 4.5 mm. Other dimensions include a lead thickness of 0.5 mm, a lead width of 2.54 mm, and a lead diameter of 0.8 mm. A hole diameter of 3.2 mm (±0.2) is also indicated.

Ordering Information

| Orderable Part Number | Packing | Quantity | Remark |
|-----------------------|---------|----------|---------------|
| CR6PM-12G#B00 | Bag | 100 pcs. | Straight type |
| CR6PM-12G-A8#B00 | Tube | 50 pcs. | A8 Lead form |

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

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