# BCR6CM-12RA

## 600V - 6A - Triac

Medium Power Use

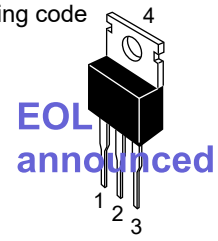
R07DS1150EJ0200
Rev.2.00
Feb. 1, 2019

## Features

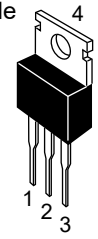
- $I_{T\,(RMS)}$ : 6 A
- $V_{DRM}$ : 600 V
- $I_{FGTI}$, $I_{RGTI}$, $I_{RGT\,III}$: 30 mA (20 mA)[Note5]
- Non-insulated Type
- Planar Passivation Type

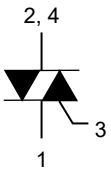
## Outline

RENESAS Package code: PRSS0004AG-A
(Package name: TO-220AB)
Ordering code
#BB0




RENESAS Package code: PRSS0004AT-A
(Package name: TO-220ABA)
Ordering code
#BH0




1. $T_1$ Terminal
2. $T_2$ Terminal
3. Gate Terminal
4. $T_2$ Terminal

## Application

Electric rice cooker, electric pot, and other resistive loads

## Maximum Ratings

| Parameter | Symbol | Voltage class | Unit |
|---|---|---|---|
| | | 12 | |
| Repetitive peak off-state voltage[Note1] | $V_{DRM}$ | 600 | V |
| Non-repetitive peak off-state voltage[Note1] | $V_{DSM}$ | 720 | V |

| Parameter | Symbol | Ratings | Unit | Conditions |
|---|---|---|---|---|
| RMS on-state current | $I_{T\,(RMS)}$ | 6 | A | Commercial frequency, sine full wave 360° conduction, Tc = 103°C[Note3] |
| Surge on-state current | $I_{TSM}$ | 60 | A | 60 Hz sinewave 1 full cycle, peak value, non-repetitive |
| $I^2t$ for fusion | $I^2t$ | 15 | $A^2s$ | 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 voltage | $V_{GM}$ | 10 | V | |
| Peak gate current | $I_{GM}$ | 2 | A | |
| Junction Temperature | Tj | –40 to +125 | °C | |
| Storage temperature | Tstg | –40 to +125 | °C | |

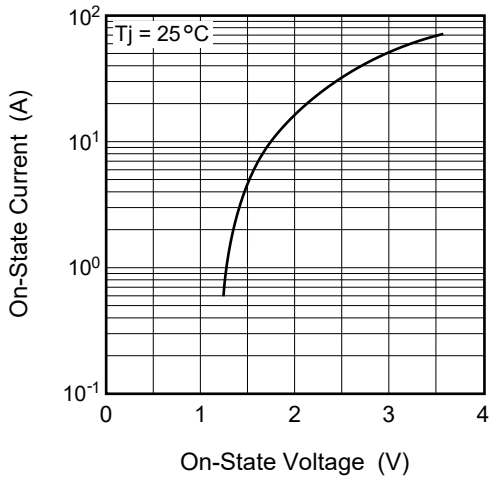
## Electrical Characteristics

| Parameter | | Symbol | Min. | Typ. | Max. | Unit | Test conditions |
|---|---|---|---|---|---|---|---|
| Repetitive peak off-state current | | $I_{DRM}$ | — | — | 2.0 | mA | Tj = 125°C, $V_{DRM}$ applied |
| On-state voltage | | $V_{TM}$ | — | — | 1.7 | V | Tc = 25°C, $I_{TM}$ = 9 A, instantaneous measurement |
| Gate trigger voltage[Note2] | I | $V_{FGTI}$ | — | — | 1.5 | V | Tj = 25°C, $V_D$ = 6 V, $R_L$ = 6 Ω, $R_G$ = 330 Ω |
| | II | $V_{RGTI}$ | — | — | 1.5 | V | |
| | III | $V_{RGTIII}$ | — | — | 1.5 | V | |
| Gate trigger current[Note2] | I | $I_{FGTI}$ | — | — | 30 [Note5] | mA | Tj = 25°C, $V_D$ = 6 V, $R_L$ = 6 Ω, $R_G$ = 330 Ω |
| | II | $I_{RGTI}$ | — | — | 30 [Note5] | mA | |
| | III | $I_{RGTIII}$ | — | — | 30 [Note5] | mA | |
| Gate non-trigger voltage | | $V_{GD}$ | 0.2 | — | — | V | Tj = 125°C, $V_D$ = 1/2 $V_{DRM}$ |
| Thermal resistance | | $R_{th\ (j-c)}$ | — | — | 2.5 | °C/W | Junction to case[Note3 Note4] |

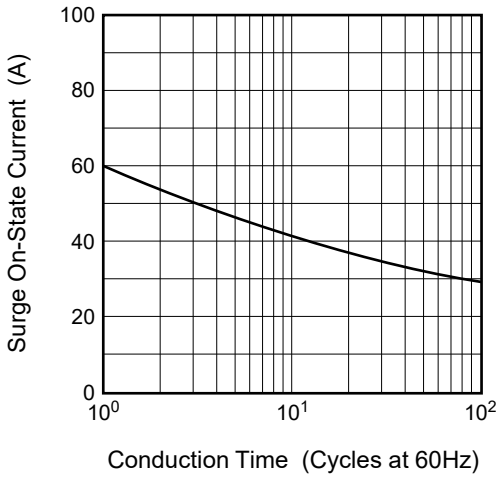
Notes: 1. Gate open.
2. Measurement using the gate trigger characteristics measurement circuit.
3. Case temperature is measured at the $T_2$ tab 1.5 mm away from the molded case.
4. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is 1.0°C /W.
5. High sensitivity ($I_{GT} \leq 20$ mA) is also available. ($I_{GT}$ item:1)

## Performance Curves

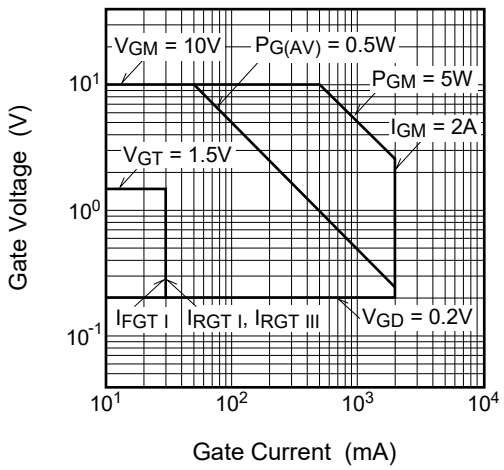
Maximum On-State Characteristics



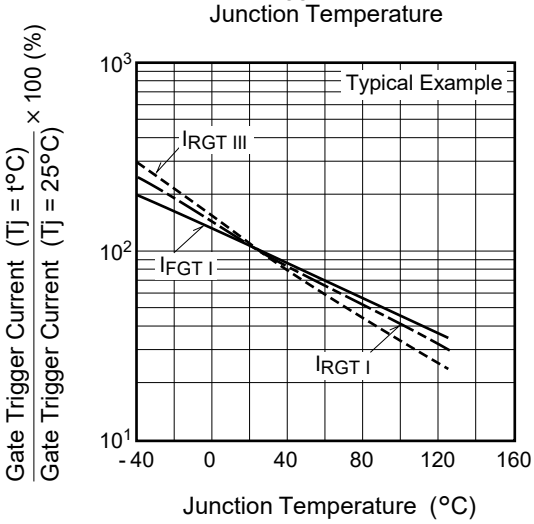

Rated Surge On-State Current



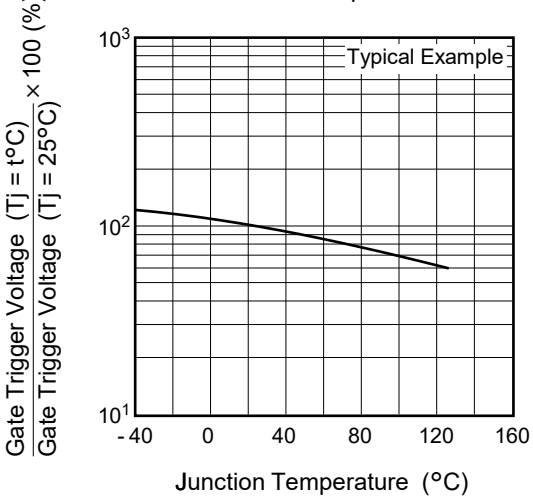

Gate Characteristics (I, II and III)



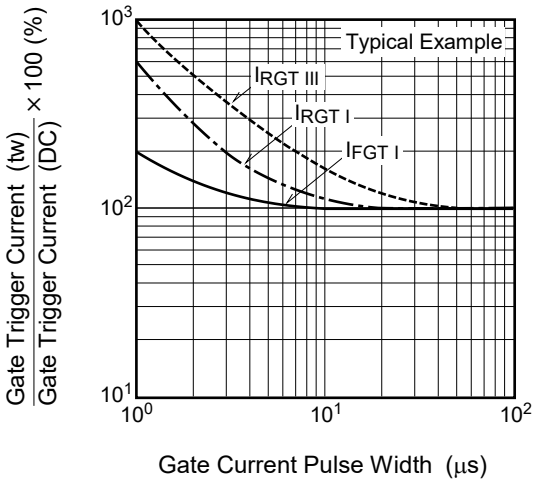

Gate Trigger Current vs. Junction Temperature



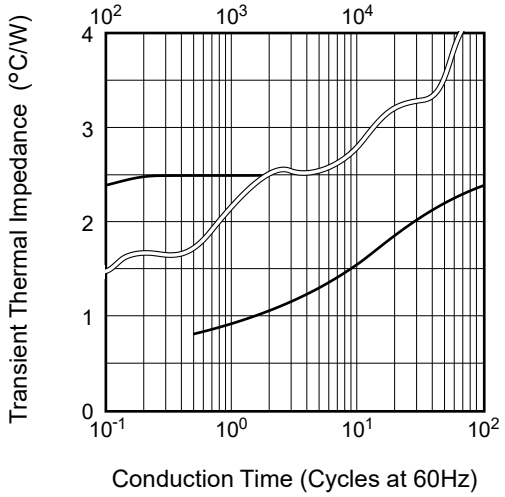

Gate Trigger Voltage vs. Junction Temperature



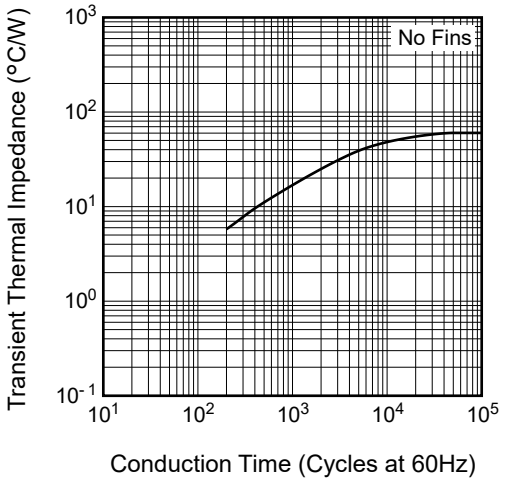

Gate Trigger Current vs. Gate Current Pulse Width



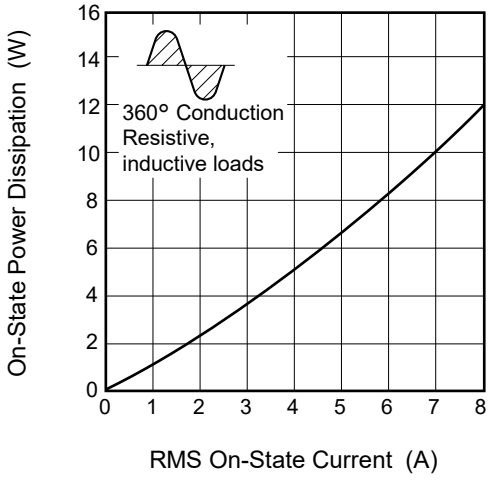
Maximum Transient Thermal Impedance Characteristics (Junction to case)



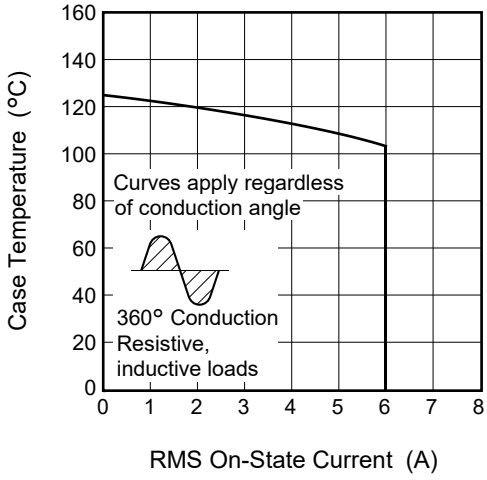

Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



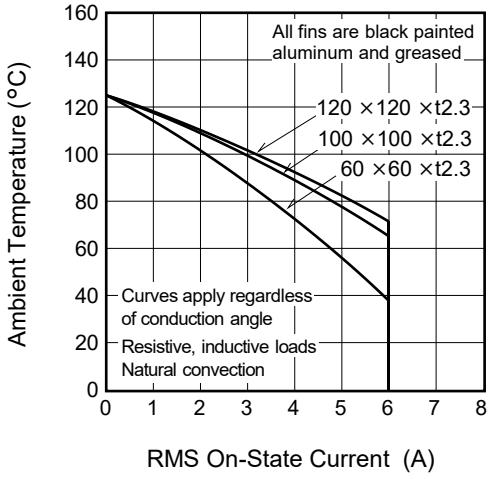

Maximum On-State Power Dissipation



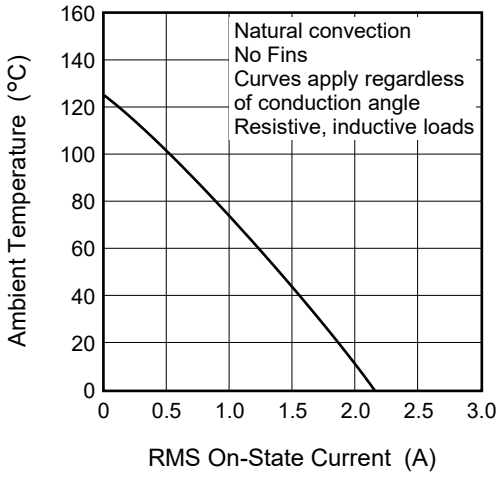

Allowable Case Temperature vs. RMS On-State Current



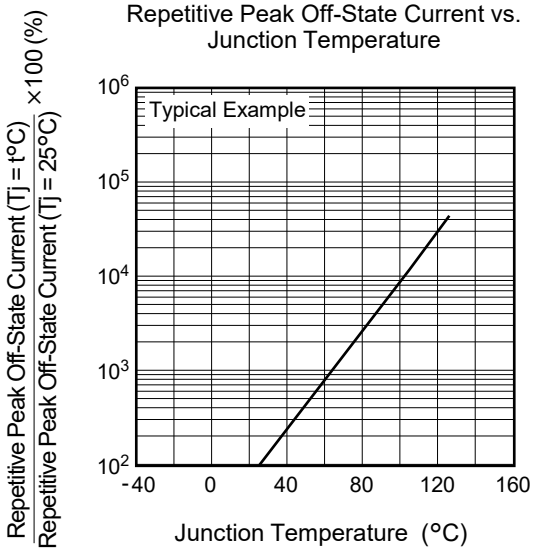

Allowable Ambient Temperature vs. RMS On-State Current



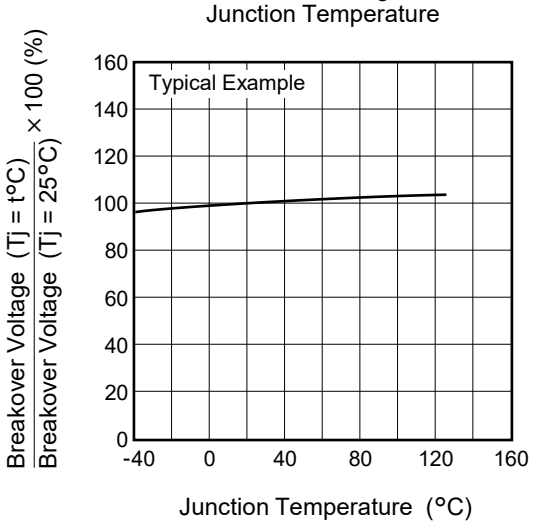

Allowable Ambient Temperature vs. RMS On-State Current



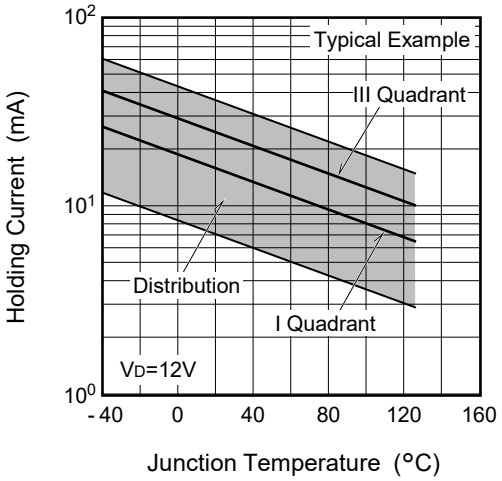
Repetitive Peak Off-State Current vs. Junction Temperature



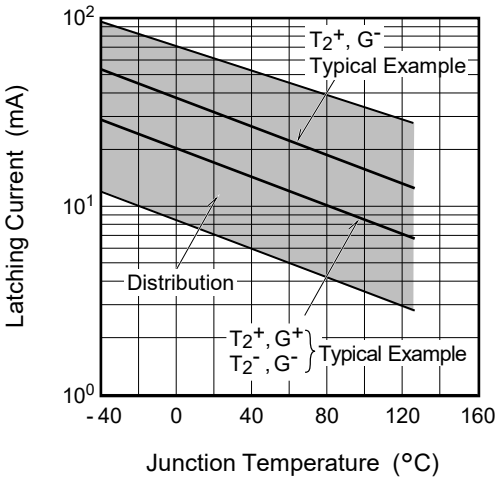

Breakover Voltage vs. Junction Temperature



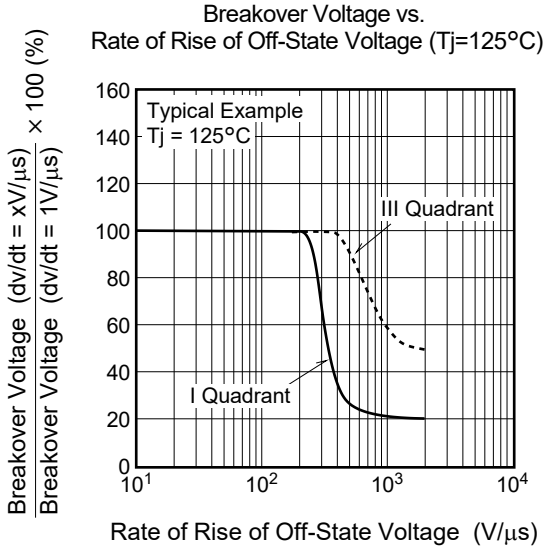

Holding Current vs. Junction Temperature



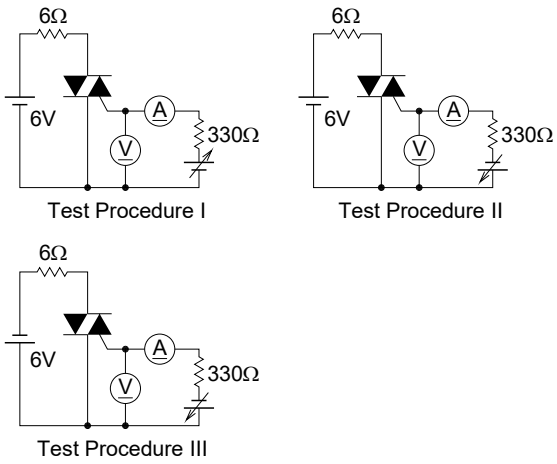

Latching Current vs. Junction Temperature




Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj=125°C)




Gate Trigger Characteristics Test Circuits

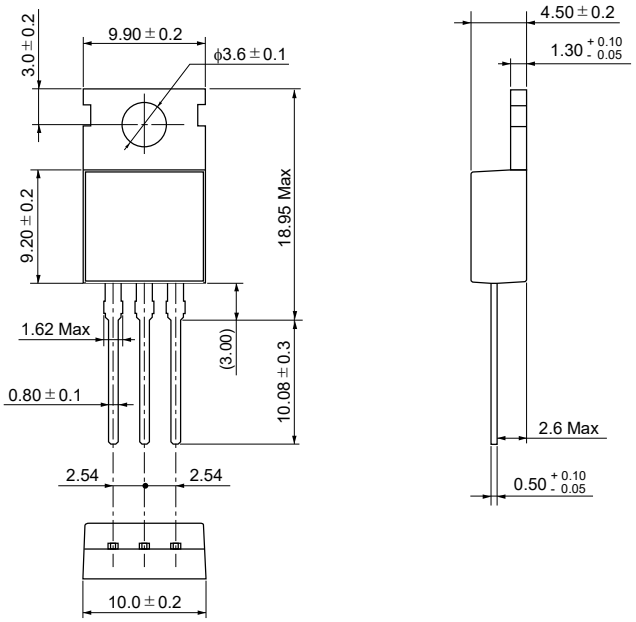


# Package Dimensions

## Ordering code: #BH0

| Package Name | JEDEC Package Code | RENESAS Code | Previous Code | MASS[Typ.] |
|---|---|---|---|---|
| TO-220ABA | TO-220AB | PRSS0004AT-A | TO-220ABA | 2.1g |

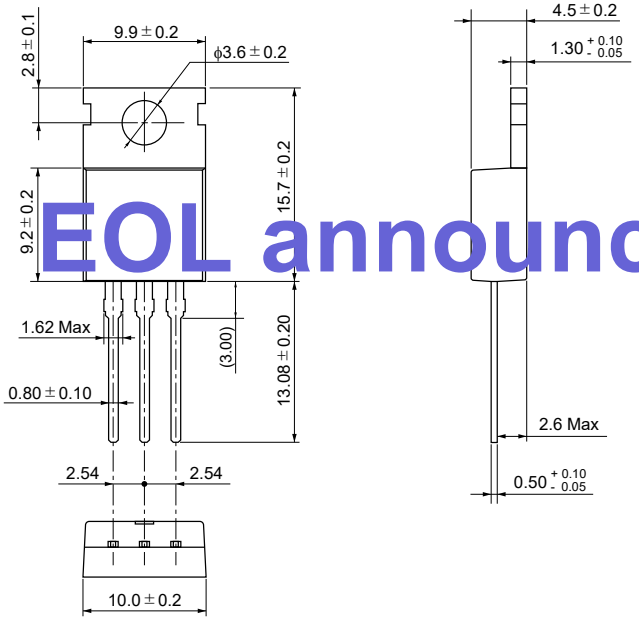
Unit: mm




## Ordering code: #BB0

| Package Name | JEITA Package Code | RENESAS Code | Previous Code | MASS[Typ.] |
|---|---|---|---|---|
| TO-220AB | SC-46 | PRSS0004AG-A | TO-220ABS | 2.1g |

Unit: mm




EOL announced

## Ordering Information

| Orderable Part Number | Package | Quantity Note6 | Remark | Status |
|---|---|---|---|---|
| BCR6CM-12RA#BH0 | TO-220ABA | 50 pcs./ tube | Straight type | Mass Production |
| BCR6CM-12RA#BB0 | TO-220ABS | 50 pcs./ tube | Straight type | EOL announced |

Notes: 6. Please confirm the specification about the shipping in detail.

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