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BCR8FM-20LA

1000V - 8A - Triac

Medium Power Use

R07DS1326EJ0200

Rev.2.00

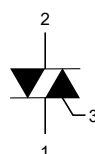
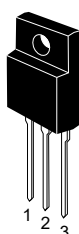
Apr 1, 2017

Features

- $I_T(RMS)$: 8 A
- V_{DRM} : 1000 V
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 30 mA
- V_{ISO} : 2000 V
- Insulated Type
- Planar Type

Outline

RENESAS Package code: PRSS0003AP-A
(Package name: TO-220FPA)



1. T1 Terminal
2. T2 Terminal
3. Gate Terminal

Applications

Power supply, Solid state relay, Motor control, and other general purpose AC control applications.

Maximum Ratings

| Parameter | Symbol | Voltage class | Unit |
|--|-----------|---------------|------|
| | | 20 | |
| Repetitive peak off-state voltage ^{Note1} | V_{DRM} | 1000 | V |
| Non-repetitive peak off-state voltage ^{Note1} | V_{DSM} | 1200 | V |

| Parameter | Symbol | Ratings | Unit | Conditions |
|--------------------------------|-------------|--------------|----------------------|--|
| RMS on-state current | $I_T(RMS)$ | 8 | A | Commercial frequency, sine full wave 360° conduction, $T_c = 82^\circ\text{C}$ |
| Surge on-state current | I_{TSM} | 80 | A | 60Hz sinewave 1 full cycle, peak value, non-repetitive |
| I^2t for fusing | I^2t | 26 | 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 voltage | V_{GM} | 10 | V | |
| Peak gate current | I_{GM} | 2 | A | |
| Junction temperature | T_j | - 40 to +125 | $^\circ\text{C}$ | |
| Storage temperature | T_{stg} | - 40 to +125 | $^\circ\text{C}$ | |
| Mass | — | 1.65 | g | Typical value |
| Isolation voltage | V_{ISO} | 2000 | V | $T_a = 25^\circ\text{C}$, AC 1 minute, $T_1 \bullet T_2 \bullet G$ terminal to case |

Notes: 1. Gate open.

Electrical Characteristics

| Parameter | | Symbol | Min. | Typ. | Max. | Unit | Test conditions |
|---|-----|-----------------------|------|------|------|------------------------|--|
| Repetitive peak off-state current | | I_{DRM} | — | — | 2.0 | mA | $T_j = 125^\circ\text{C}$, V_{DRM} applied |
| On-state voltage | | V_{TM} | — | — | 1.6 | V | $T_c = 25^\circ\text{C}$, $I_{\text{TM}} = 12\text{ A}$, Instantaneous measurement |
| Gate trigger voltage ^{Note2} | I | V_{FGTI} | — | — | 1.5 | V | $T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$ |
| | II | V_{RGTI} | — | — | 1.5 | V | |
| | III | V_{RGTIII} | — | — | 1.5 | V | |
| Gate trigger current ^{Note2} | I | I_{FGTI} | — | — | 30 | mA | $T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$ |
| | II | I_{RGTI} | — | — | 30 | mA | |
| | III | I_{RGTIII} | — | — | 30 | mA | |
| Gate non-trigger voltage | | V_{GD} | 0.2 | — | — | V | $T_j = 125^\circ\text{C}$, $V_D = 1/2\ V_{\text{DRM}}$ |
| Thermal resistance | | $R_{\text{th (j-c)}}$ | — | — | 4.3 | $^\circ\text{C/W}$ | Junction to case ^{Note3} |
| Critical-rate of rise of off-state commutating voltage ^{Note4} | | $(dv/dt)_c$ | 10 | — | — | $\text{V}/\mu\text{s}$ | $T_j = 125^\circ\text{C}$ |

Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

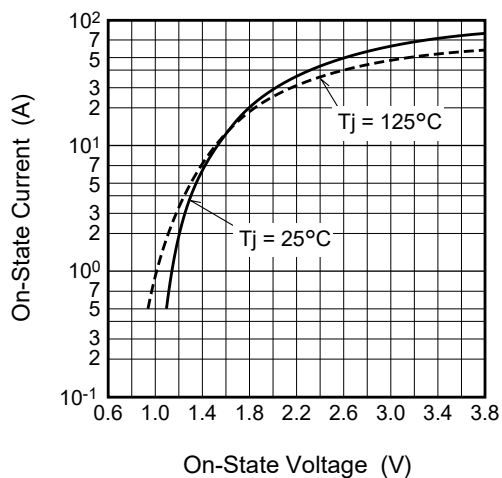
3. The contact thermal resistance $R_{\text{th (c-f)}}$ in case of greasing is 0.5°C/W .

4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

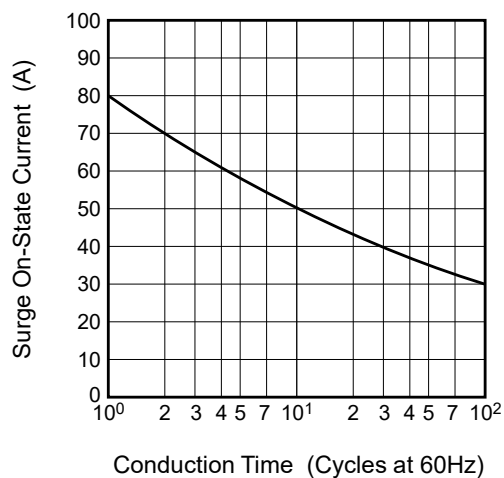
| Test conditions | Commutating voltage and current waveforms (inductive load) |
|---|--|
| 1. Junction temperature $T_j = 125^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c = -4.0\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$ | |

Performance Curves

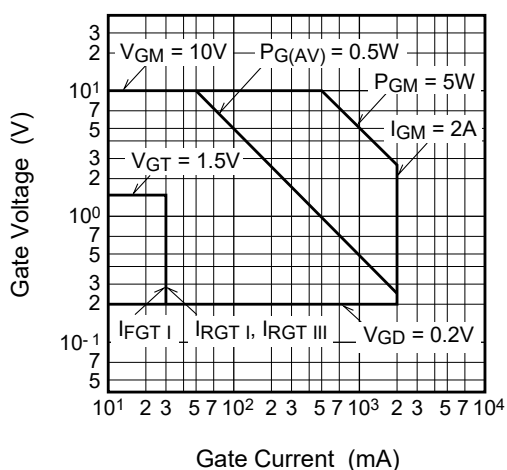
Maximum On-State Characteristics



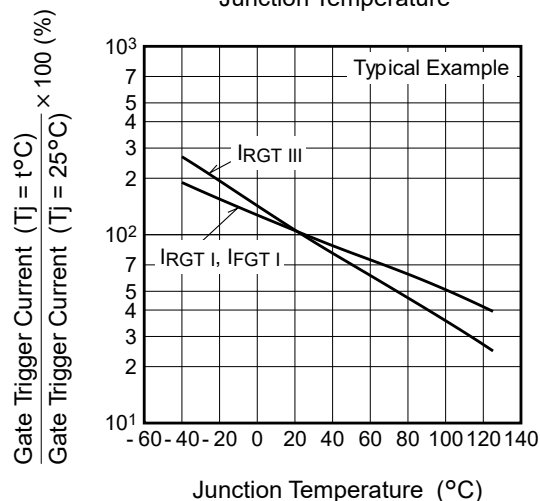
Rated Surge On-State Current



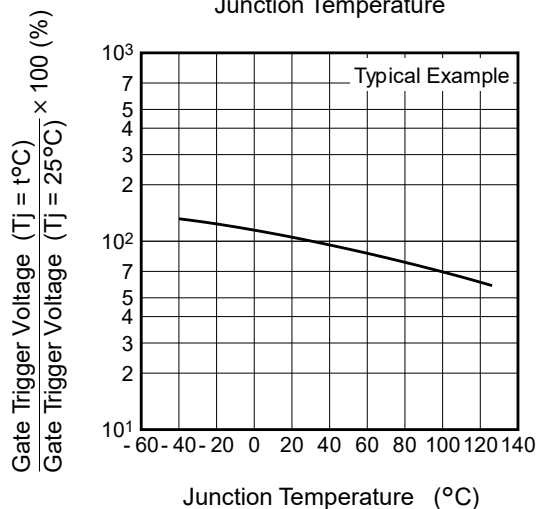
Gate Characteristics (I, II and III)



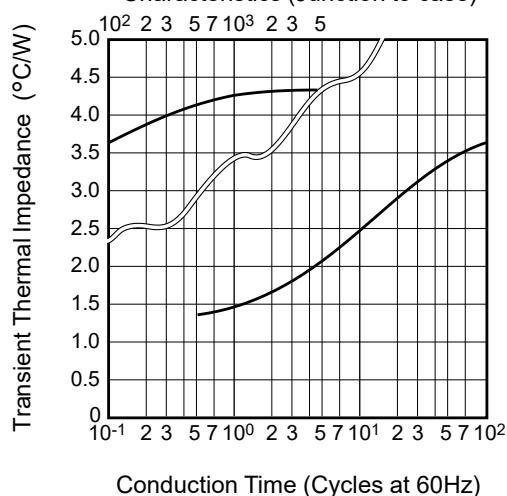
Gate Trigger Current vs. Junction Temperature



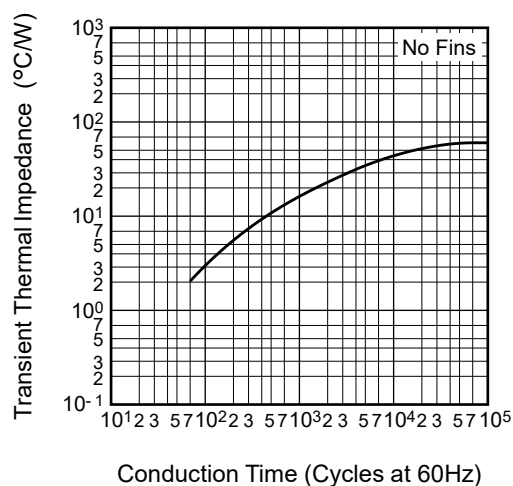
Gate Trigger Voltage vs. Junction Temperature



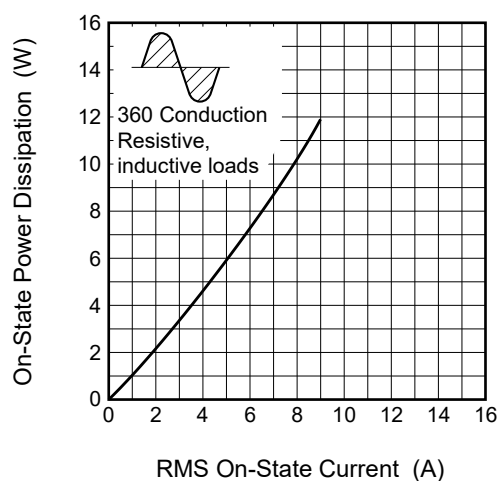
Maximum Transient Thermal Impedance Characteristics (Junction to case)



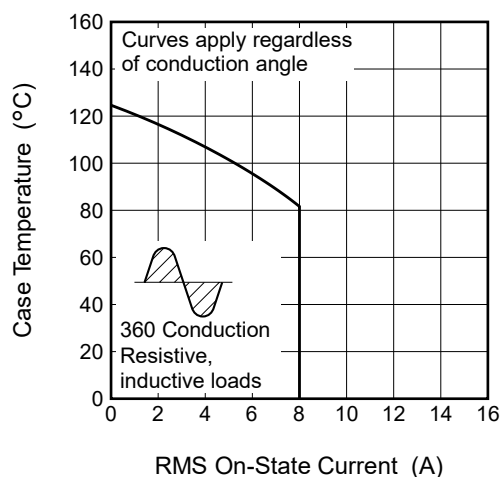
Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



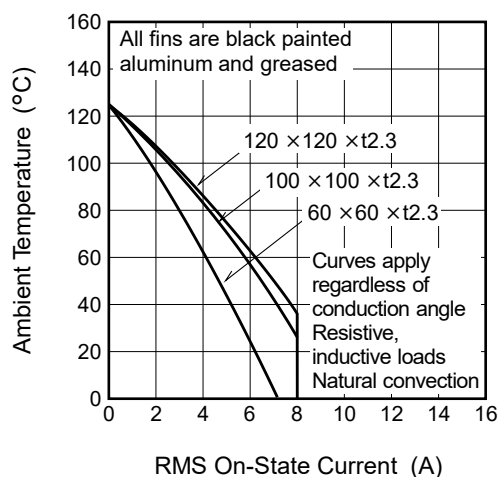
Maximum On-State Power Dissipation



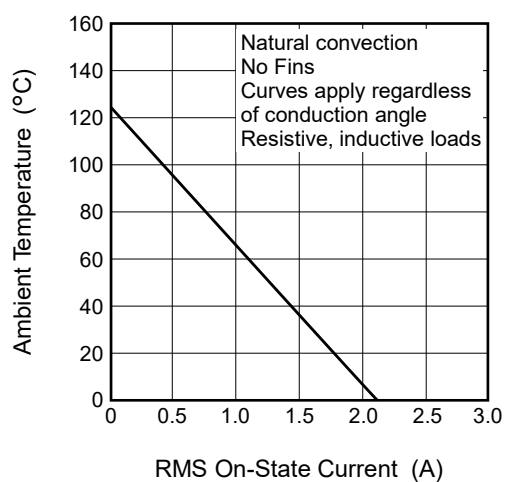
Allowable Case Temperature vs. RMS On-State Current



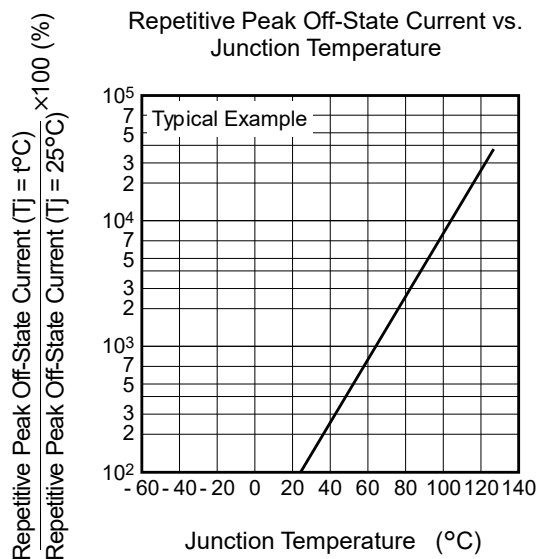
Allowable Ambient Temperature vs. RMS On-State Current

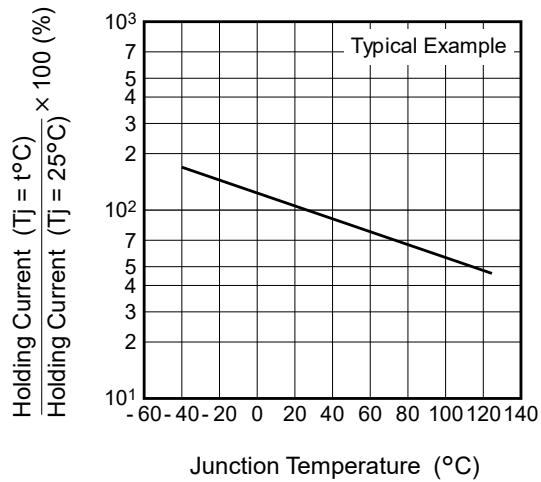
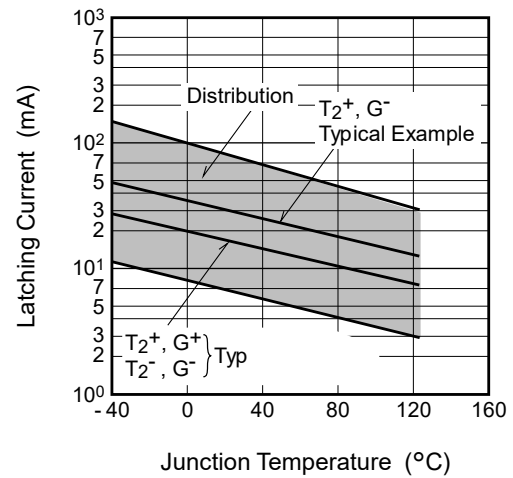
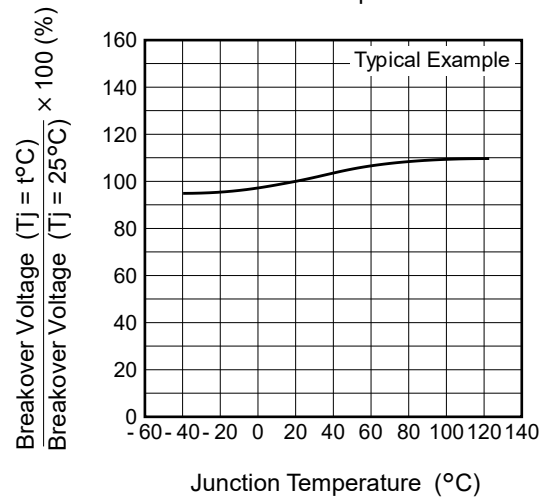
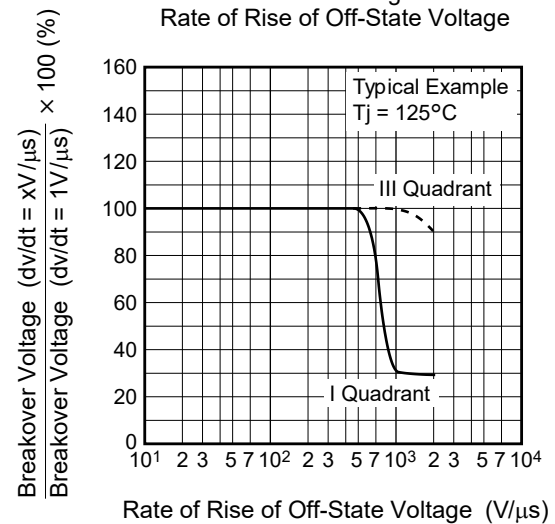


Allowable Ambient Temperature vs. RMS On-State Current

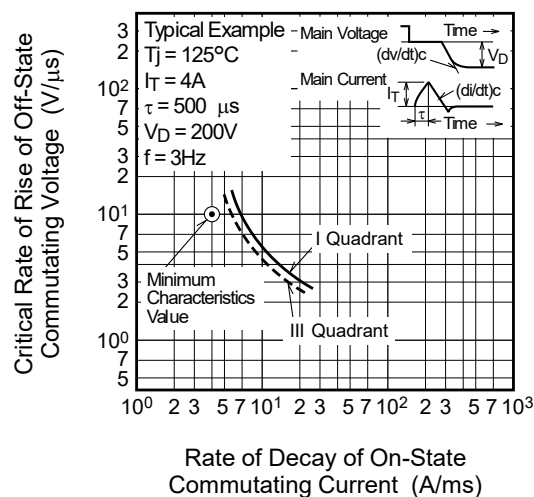
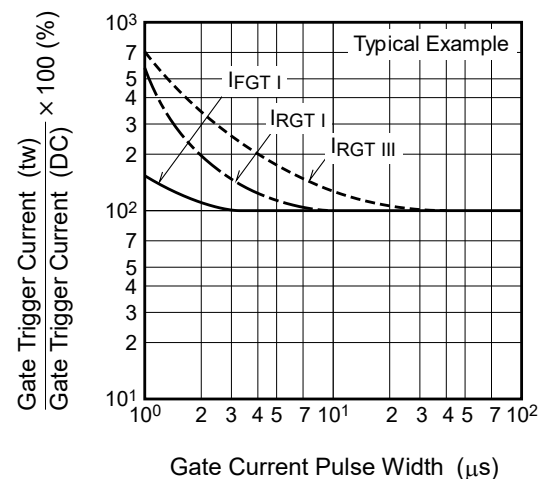


Repetitive Peak Off-State Current vs. Junction Temperature

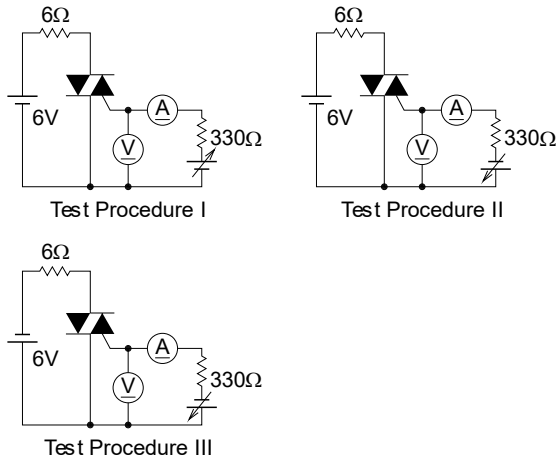


Holding Current vs.
Junction TemperatureLatching Current vs.
Junction TemperatureBreakover Voltage vs.
Junction TemperatureBreakover Voltage vs.
Rate of Rise of Off-State Voltage

Commutation Characteristics

Gate Trigger Current vs.
Gate Current Pulse Width

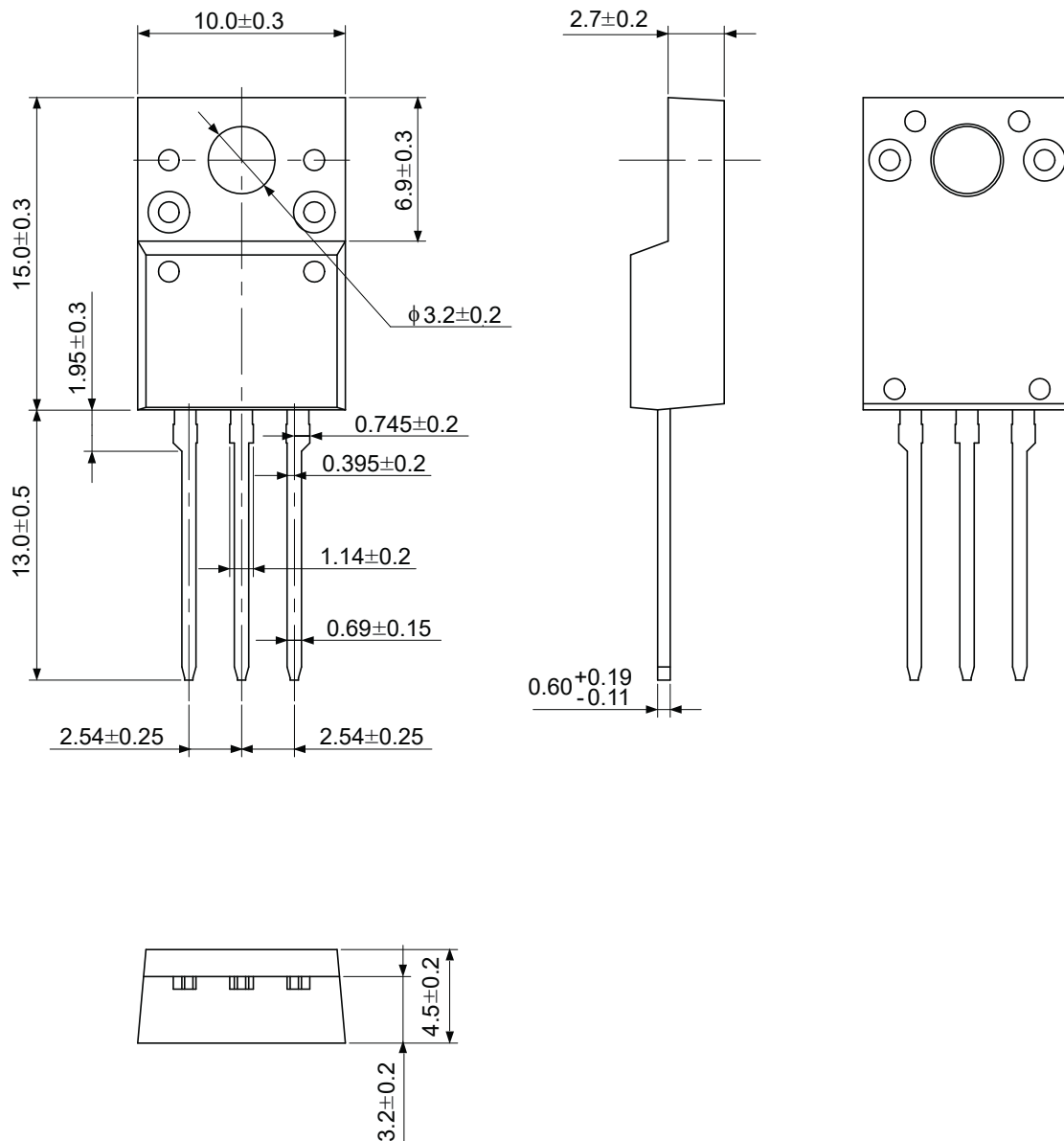
Gate Trigger Characteristics Test Circuits



Package Dimensions

| JEITA Package Code | RENESAS Code | Previous Code | MASS (Typ) [g] |
|--------------------|--------------|---------------|----------------|
| - | PRSS0003AP-A | TO-220FPA | 1.65 |

Unit: mm



Ordering Information

| Orderable Part Number | Packing ^{Note} | Quantity | Remark |
|-----------------------|-------------------------|----------|----------------------|
| BCR8FM-20LA#BG0 | Tube | 50 pcs. | Straight type |
| BCR8FM-20LA-□□#BG0 | Tube | 50 pcs. | □□:Lead forming type |

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

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