

BCR16CM-16LH

800V - 16A - Triac
Medium Power Use

R07DS0420EJ0200
Rev.2.00
Feb 25, 2013

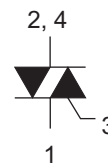
Features

- $I_{T(RMS)}$: 16 A
- V_{DRM} : 800 V
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 50 mA or 35mA(I_{GT} item:1)
- High Commutation
- The Product guaranteed maximum junction temperature 150°C
- Planar Type

Outline

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

RENESAS Package code: PRSS0004AA-A
(Package name: TO-220)



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

Applications

Switching mode power supply, washing machine, motor control, heater control, and other general purpose control applications

Maximum Ratings

| Parameter | Symbol | Voltage class | | Unit |
|--|-----------|---------------|--|------|
| | | 16 | | |
| Repetitive peak off-state voltage ^{Note1} | V_{DRM} | 800 | | V |
| Non-repetitive peak off-state voltage ^{Note1} | V_{DSM} | 960 | | V |

| Parameter | Symbol | Ratings | Unit | Conditions |
|--------------------------------|--------------|-------------|----------------------|---|
| RMS on-state current | $I_{T(RMS)}$ | 16 | A | Commercial frequency, sine full wave 360°conduction, $T_c = 125^\circ\text{C}$ ^{Note3} |
| Surge on-state current | I_{TSM} | 160 | A | 60 Hz sinewave 1 full cycle, peak value, non-repetitive |
| I^2t for fusion | I^2t | 106.5 | 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 | T_j | -40 to +150 | °C | |
| Storage temperature | T_{stg} | -40 to +150 | °C | |
| Mass | — | 2.1 | g | Typical value |

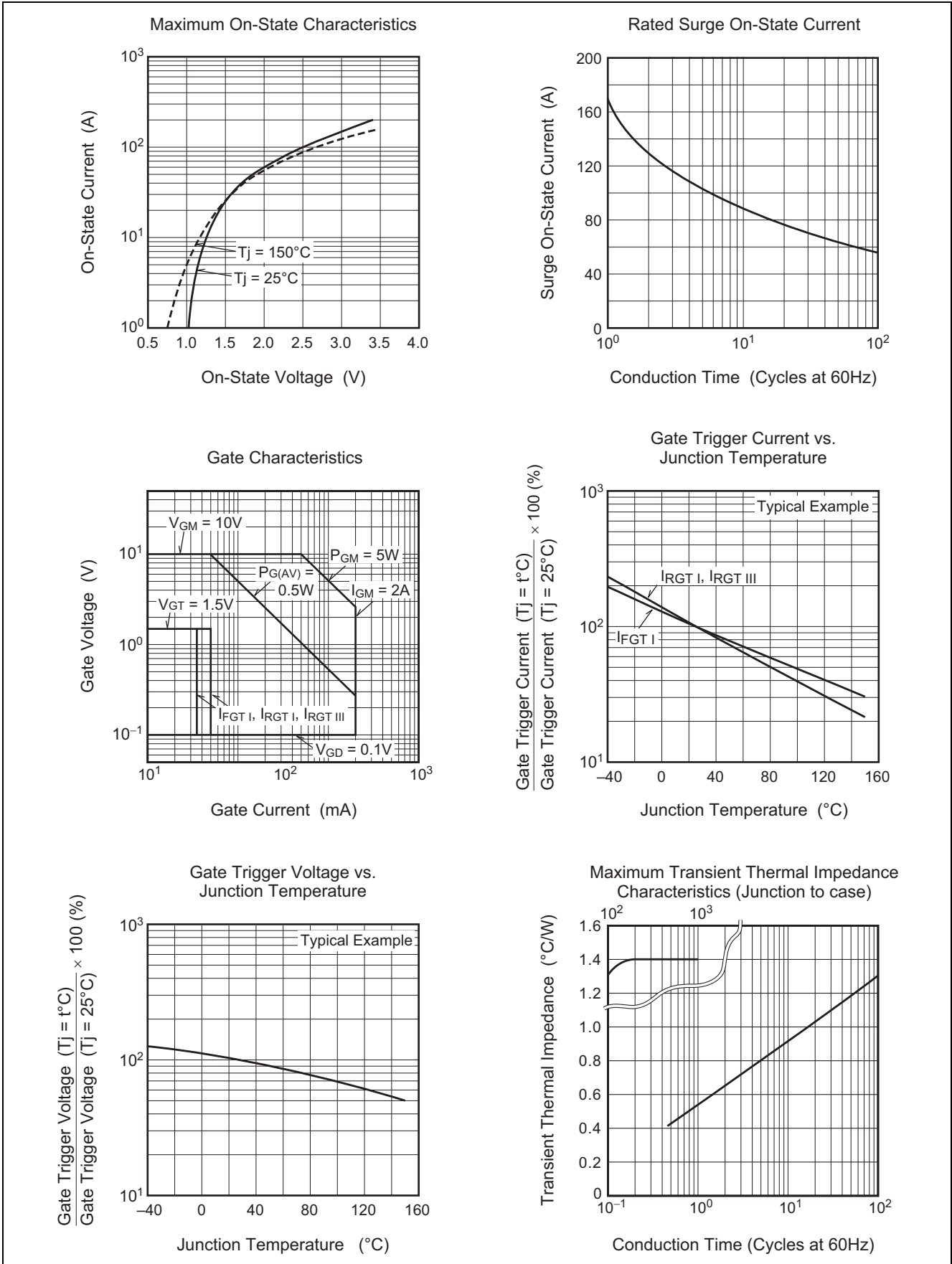
Electrical Characteristics

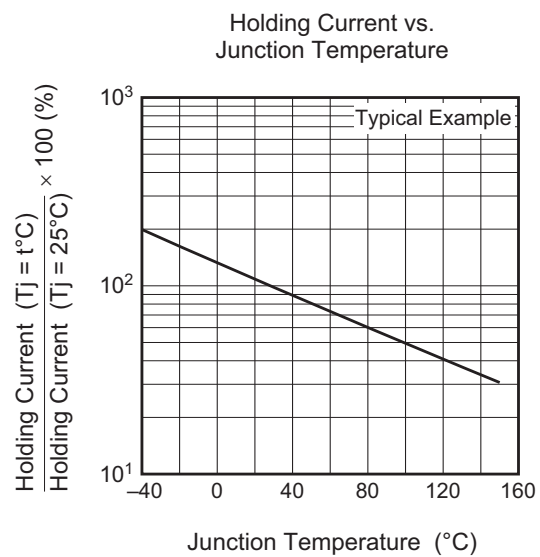
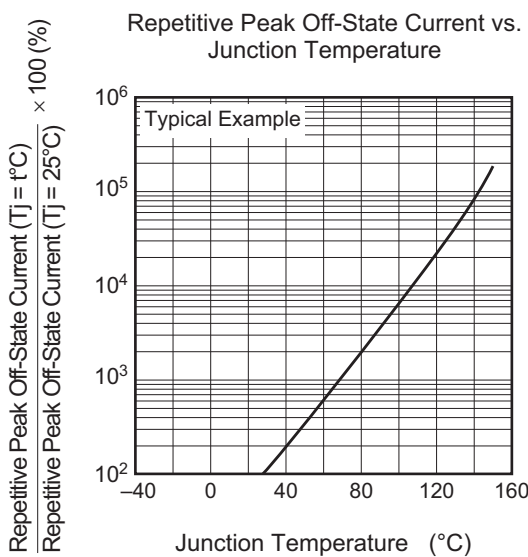
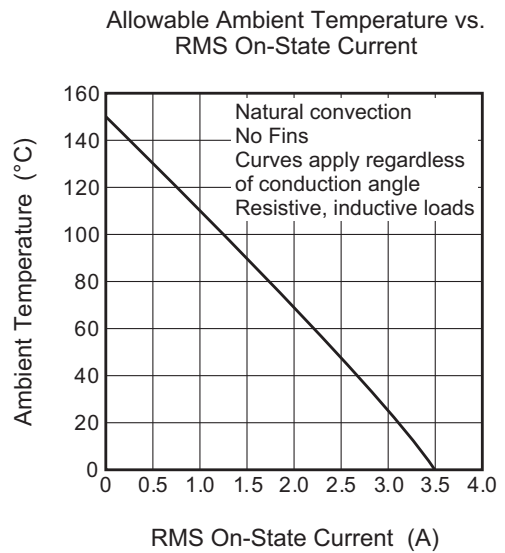
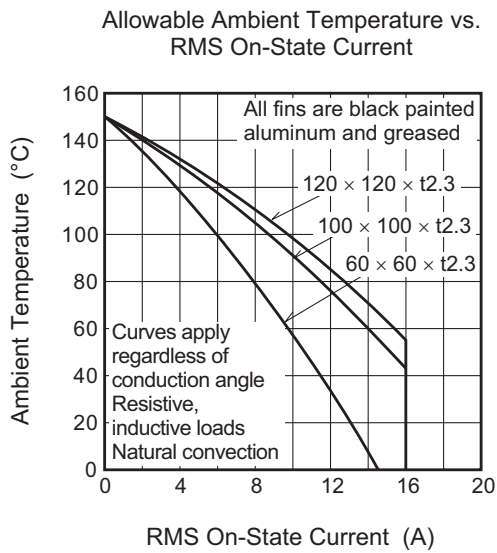
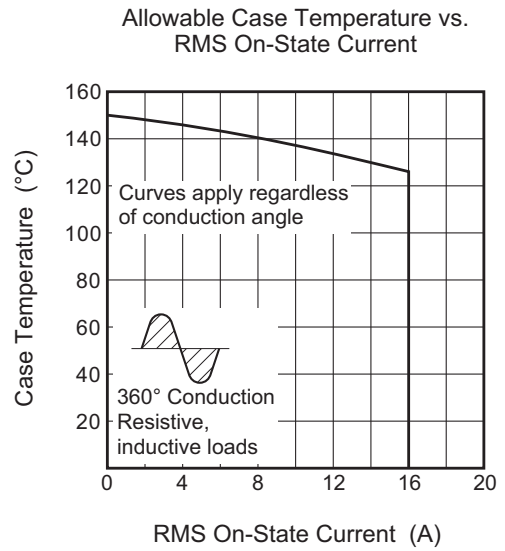
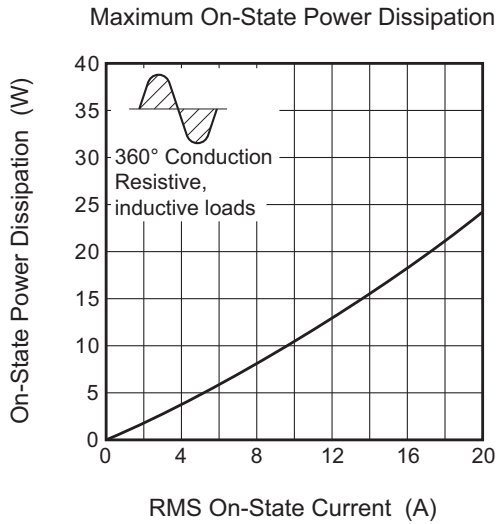
| Parameter | Symbol | BCR16CM-16LH-1 (I _{GT} item : 1) | | | BCR16CM-16LH | | | Unit | Test conditions | |
|---|----------------------|--|------|------|--------------|------|------|------|---|---|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | | | |
| Repetitive peak off-state current | I _{DRM} | — | — | 5.0 | — | — | 5.0 | mA | T _j = 150°C V _{DRM} applied | |
| On-state voltage | V _{TM} | — | — | 1.5 | — | — | 1.5 | V | T _c = 25°C, I _{TM} = 25 A instantaneous measurement | |
| Gate trigger voltage ^{Note2} | I | V _{FGTI} | — | — | 1.5 | — | — | 1.5 | V | T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω |
| | II | V _{RGTI} | — | — | 1.5 | — | — | 1.5 | V | |
| | III | V _{RGTIII} | — | — | 1.5 | — | — | 1.5 | V | |
| Gate trigger current ^{Note2} | I | I _{FGTI} | — | — | 35 | — | — | 50 | mA | T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω |
| | II | I _{RGTI} | — | — | 35 | — | — | 50 | mA | |
| | III | I _{RGTIII} | — | — | 35 | — | — | 50 | mA | |
| Gate non-trigger voltage | V _{GD} | 0.2 | — | — | 0.2 | — | — | V | T _j = 125°C V _D = 1/2 V _{DRM} | |
| | | 0.1 | — | — | 0.1 | — | — | V | T _j = 150°C V _D = 1/2 V _{DRM} | |
| Thermal resistance | R _{th(j-c)} | — | — | 1.4 | — | — | 1.4 | °C/W | Junction to case ^{Note3,4} | |
| Critical-rate of decay of on-state commutating current ^{Note5} | (di/dt) _c | 9 | — | — | 15 | — | — | A/ms | T _j = 125°C (dv/dt) _c < 100 V/μs | |

- Notes: 1. Gate open.
2. Measurement using the gate trigger characteristics measurement circuit.
3. Case temperature is measured at the T₂ tab 1.5 mm apart from the molded case.
4. The contact thermal resistance R_{th(c-f)} in case of greasing is 1.0°C/W.
5. Test conditions of the critical-rate of decay of on-state commutation current are shown in the table below.

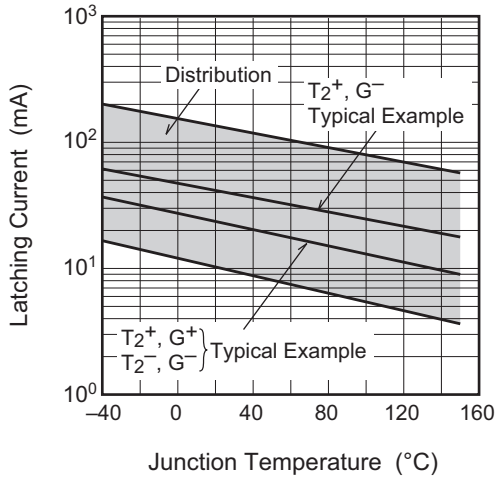
| Test conditions | Commutating voltage and current waveforms (inductive load) |
|---|---|
| 1. Junction temperature T _j = 125°C 2. Peak off-state voltage V _D = 400 V 3. Rate of rise of off-state commutating voltage (dv/dt) _c < 100 V/μs | |

Performance Curves

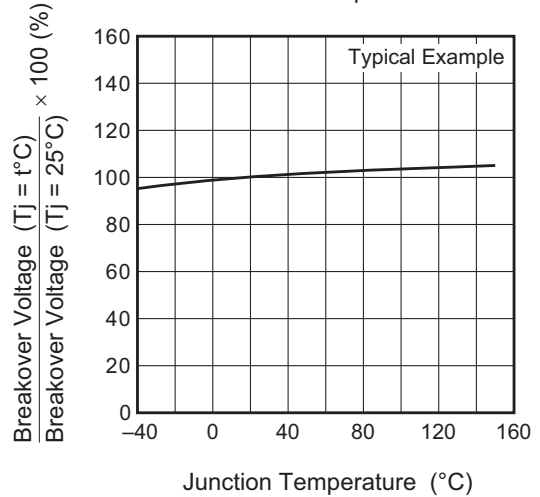




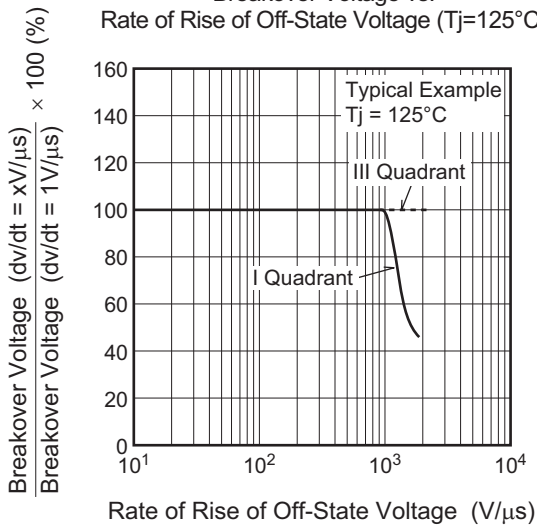
Latching Current vs. Junction Temperature



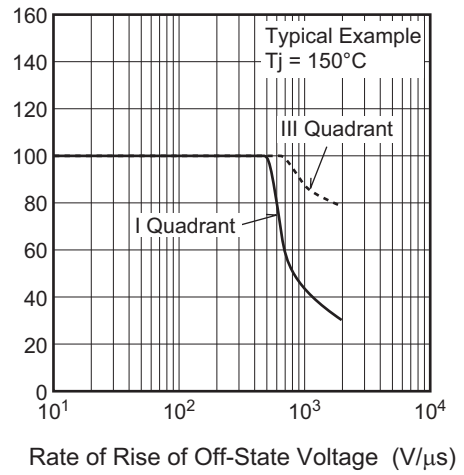
Breakover Voltage vs. Junction Temperature



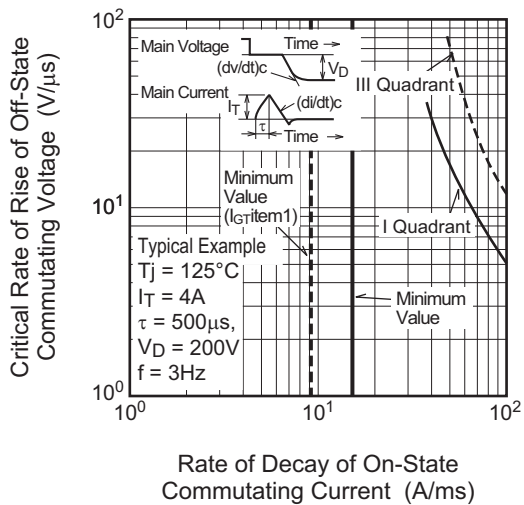
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj=125°C)



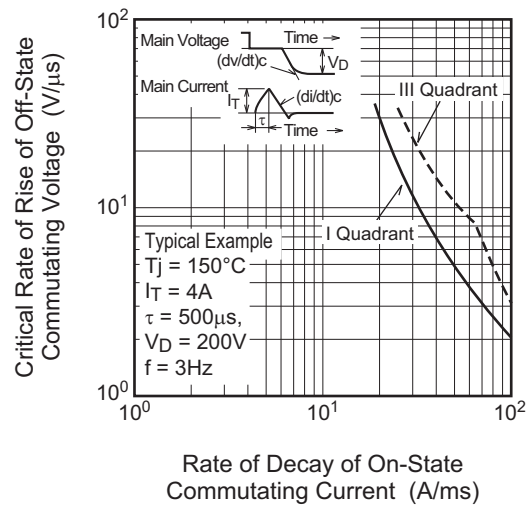
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj=150°C)

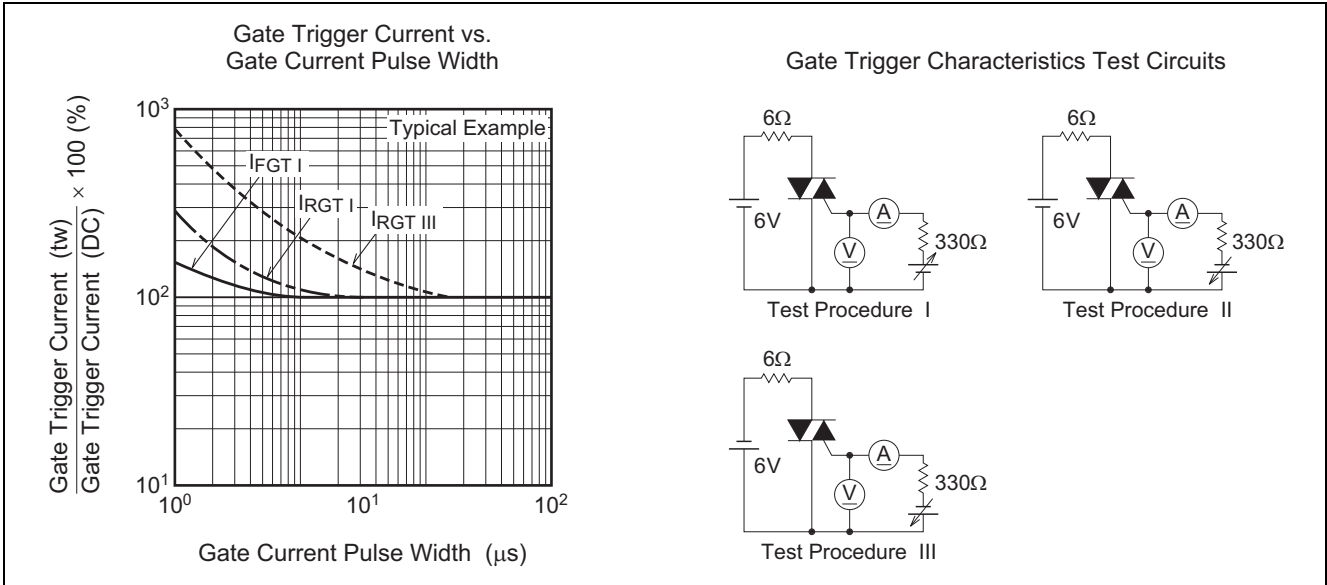


Commutation Characteristics (Tj=125°C)

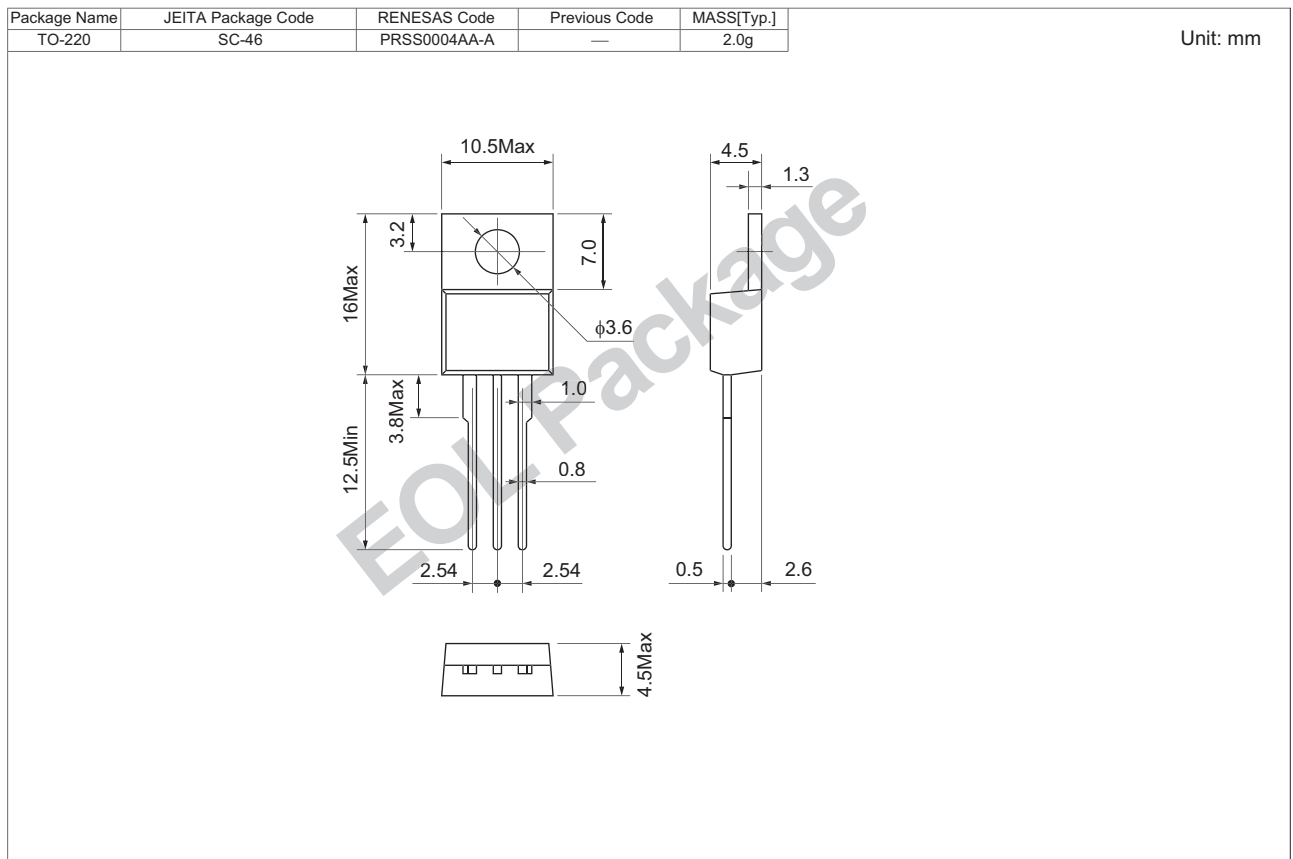
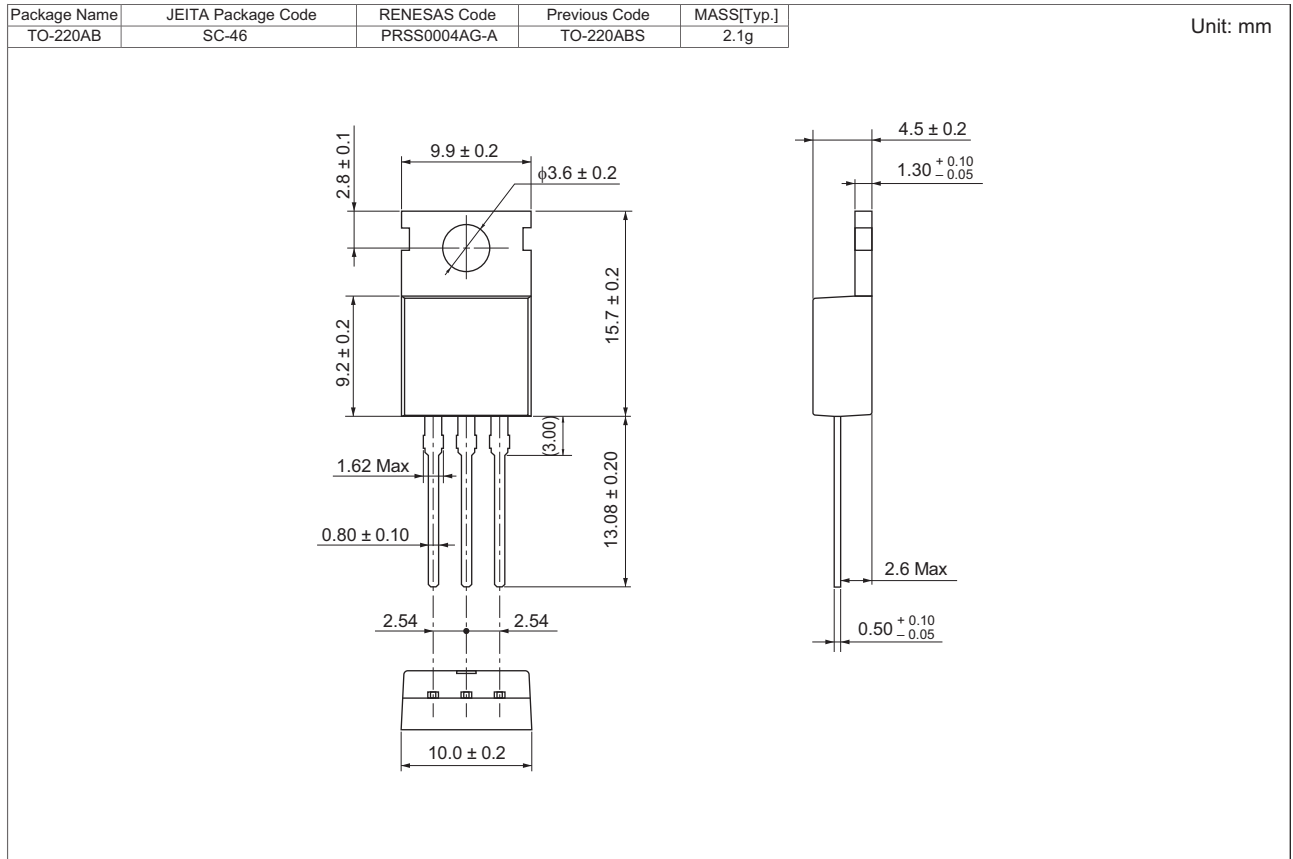


Commutation Characteristics (Tj=150°C)





Package Dimensions



Ordering Information

| Orderable Part Number | Packing | Quantity | Remark |
|------------------------------|----------------|-----------------|---------------------------------------|
| BCR16CM-16LH#BB0 | Tube | 50 pcs. | Straight type |
| BCR16CM-16LH-1#BB0 | Tube | 50 pcs. | Straight type, I _{GT} item:1 |
| BCR16CM-16LHJ6#BB0 | Tube | 50 pcs. | J6 Lead form |
| BCR16CM16LH1J6#BB0 | Tube | 50 pcs. | J6 Lead form, I _{GT} item:1 |

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

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