

BCR1AM-14A

700V - 1A - Triac

Low Power Use

R07DS1076EJ0400

Rev.4.00

Feb. 22, 2022

Features

- $I_T (RMS)$: 1 A
- V_{DRM} : 700 V
- $I_{FGT I}$: 5 mA
- $I_{RGT I}$, $I_{RGT III}$: 5 mA or 3 mA (I_{GT} item: 1)
- $I_{FGT III}$: 10 mA
- T_j : 125 °C
- Planar Passivation Type
- RoHS Compliant
- Halogen-free (PRSS0003DJ-A)
- Completely Pb-free (PRSS0003DJ-A)

Outline

RENESAS Package code: PRSS0003EA-A (Package name: TO-92*) PRSS0003DJ-A (Package name: TO-92)

Ordering code: #B00 #BD0

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

Application

Washing machine, electric fan, air cleaner, Solid State Relay and other general purpose AC control applications.

Maximum Ratings

| Parameter | Symbol | Voltage class | | Unit |
|--|-----------|---------------|--|------|
| | | 14 | | |
| Repetitive peak off-state voltage ^{Note1} | V_{DRM} | 700 | | V |
| Non-repetitive peak off-state voltage ^{Note1} | V_{DSM} | 840 | | V |

Notes: 1. Gate open.

| Parameter | Symbol | Ratings | Unit | Conditions |
|--------------------------------|--------------|-------------|------------------|---|
| RMS on-state current | $I_T (RMS)$ | 1.0 | A | Commercial frequency, sine full wave 360° conduction, $T_c = 56^\circ C$ ^{Note3} |
| Surge on-state current | I_{TSM} | 10 | A | 60 Hz sinewave 1 full cycle, peak value, non-repetitive |
| I^2t for fusing | I^2t | 0.41 | A ² s | Value corresponding to 1 cycle of half wave 60 Hz, surge on-state current |
| Peak gate power dissipation | P_{GM} | 1 | W | |
| Average gate power dissipation | $P_{G (AV)}$ | 0.1 | W | |
| Peak gate voltage | V_{GM} | 6 | V | |
| Peak gate current | I_{GM} | 0.5 | A | |
| Junction Temperature | T_j | -40 to +125 | °C | |
| Storage temperature | T_{stg} | -40 to +125 | °C | |

Electrical Characteristics

| Parameter | Symbol | BCR1AM-14A-1 (I _{GT} item : 1) | | | BCR1AM-14A | | | Unit | Test conditions | |
|---|----------------------|--|------|------|------------|------|------|------|--|---|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | | | |
| Repetitive peak off-state current | I _{DRM} | — | — | 0.5 | — | — | 0.5 | mA | T _j = 125°C V _{DRM} applied | |
| On-state voltage | V _{TM} | — | — | 1.6 | — | — | 1.6 | V | T _c = 25°C, I _{TM} = 1.5 A instantaneous measurement | |
| Gate trigger voltage ^{Note2} | I | V _{FGTI} | — | — | 2.0 | — | — | 2.0 | V | T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω |
| | II | V _{RGTI} | — | — | 2.0 | — | — | 2.0 | V | |
| | III | V _{RGTIII} | — | — | 2.0 | — | — | 2.0 | V | |
| | IV | V _{FGTIII} | — | — | 2.0 | — | — | 2.0 | V | |
| Gate trigger current ^{Note2} | I | I _{FGTI} | — | — | 5 | — | — | 5 | mA | T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω |
| | II | I _{RGTI} | — | — | 3 | — | — | 5 | mA | |
| | III | I _{RGTIII} | — | — | 3 | — | — | 5 | mA | |
| | IV | I _{FGTIII} | — | — | 10 | — | — | 10 | mA | |
| Gate non-trigger voltage | V _{GD} | 0.1 | — | — | 0.1 | — | — | V | T _j = 125°C V _D = 1/2 V _{DRM} | |
| Thermal resistance | R _{th(j-c)} | — | — | 50 | — | — | 50 | °C/W | Junction to case ^{Note3} | |
| Critical-rate of rise of off-state commutating voltage ^{Note4} | (dv/dt) _c | 1.0 | — | — | 2.0 | — | — | V/μs | T _j = 125°C | |

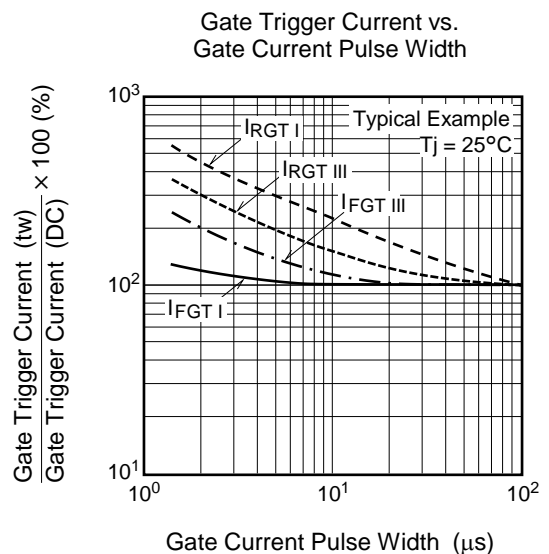
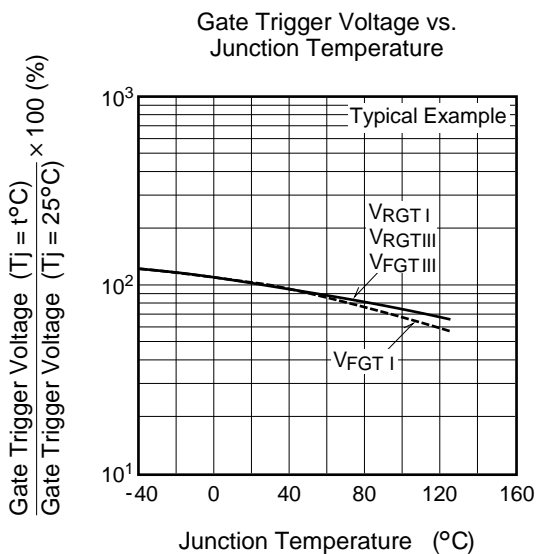
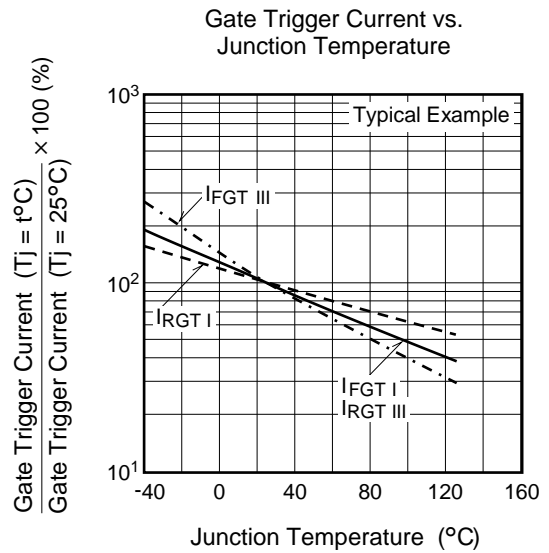
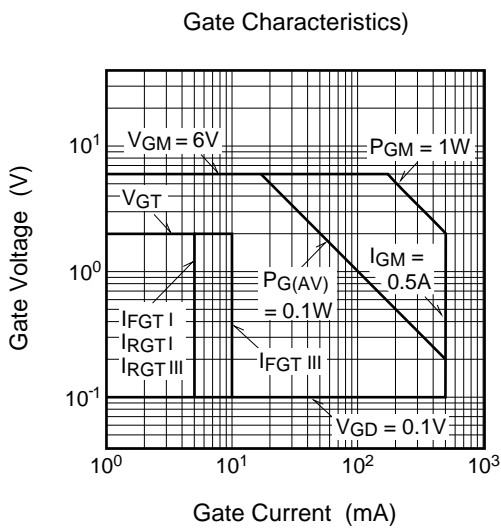
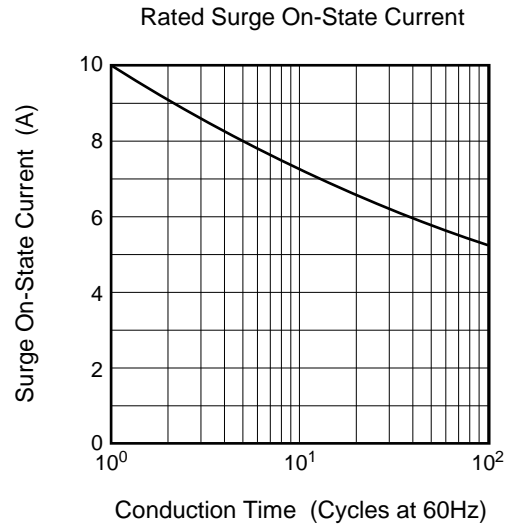
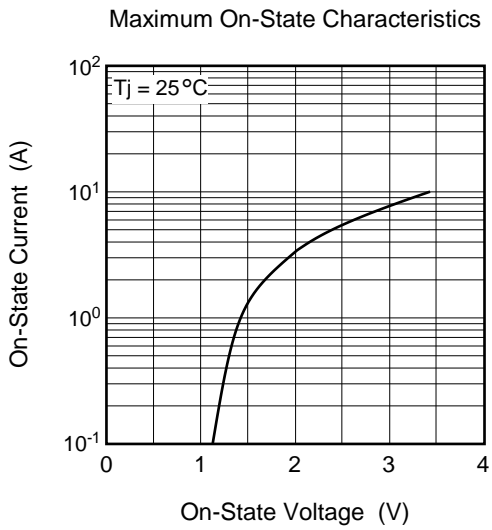
Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

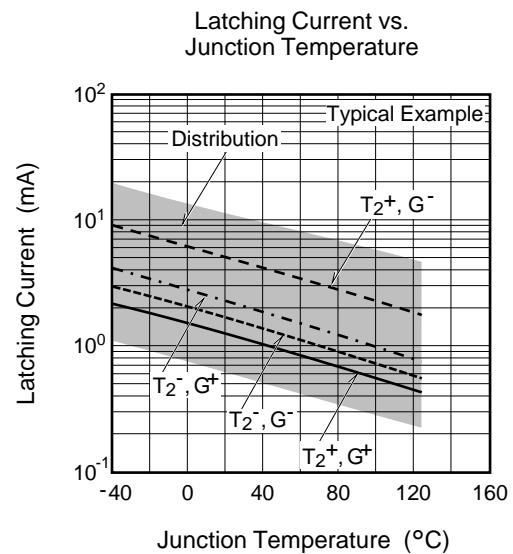
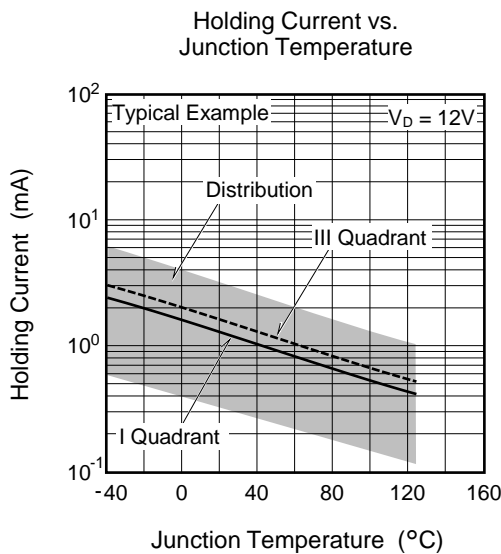
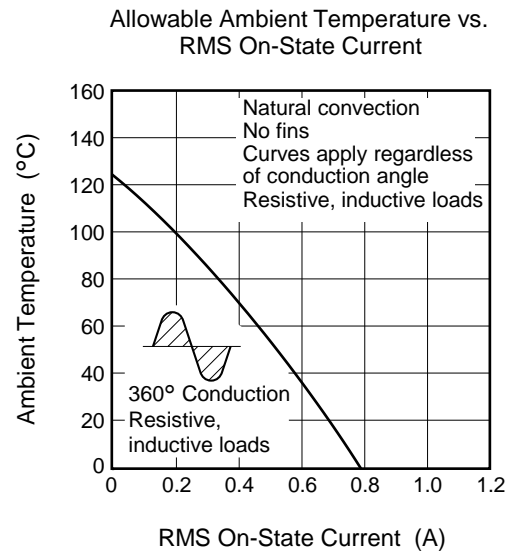
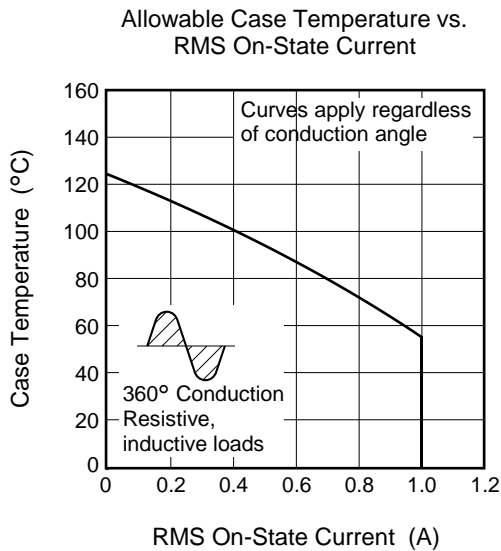
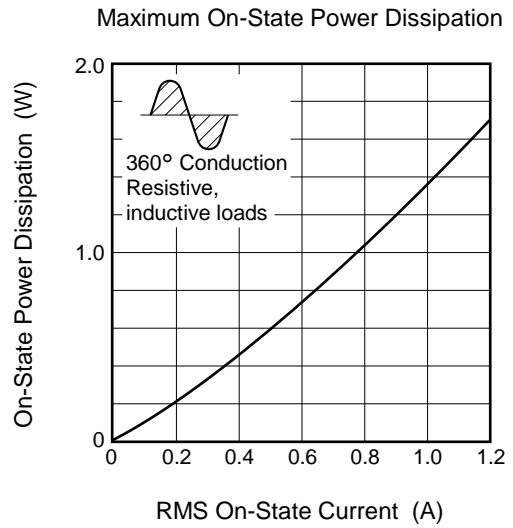
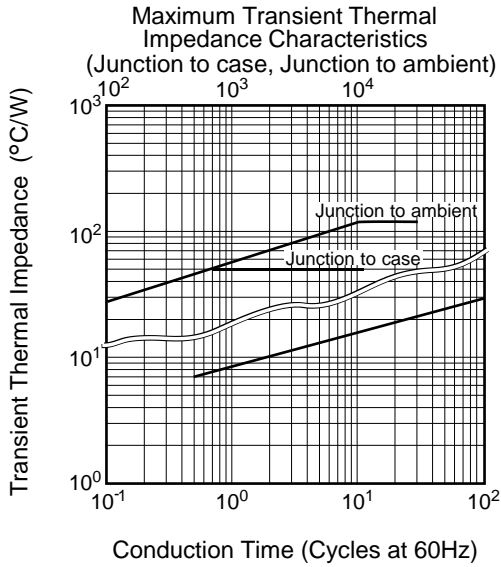
3. Case temperature is measured at the T₂ terminal 1.5 mm away from the molded case.

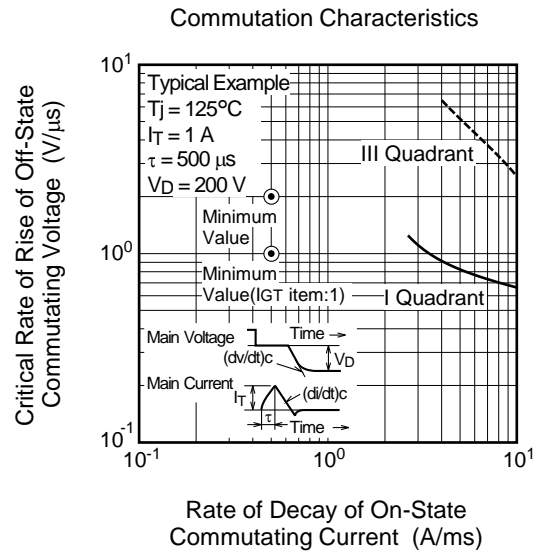
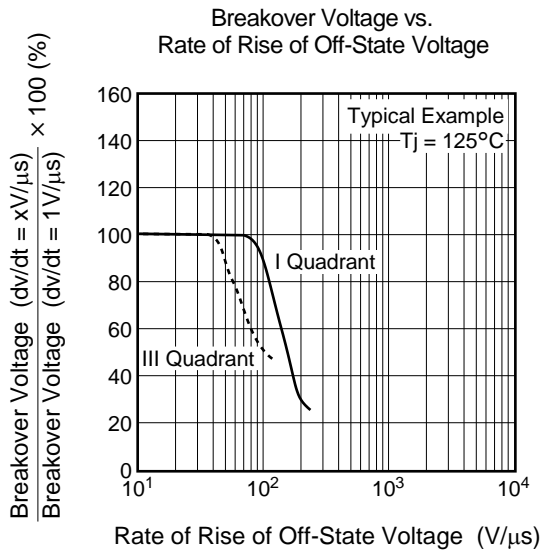
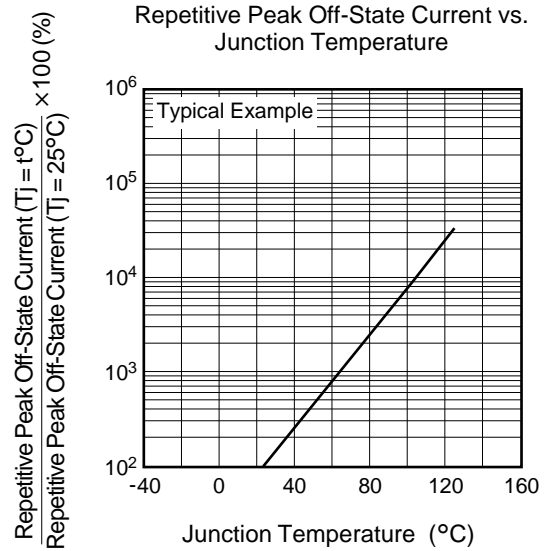
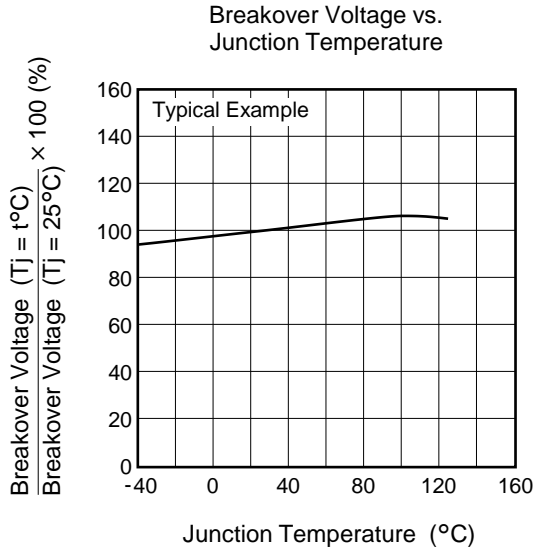
4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

| Test conditions | Commutating voltage and current waveforms (inductive load) |
|---|---|
| 1. Junction temperature T _j = 125°C 2. Rate of decay of on-state commutating current (di/dt) _c = - 0.5 A/ms 3. Peak off-state voltage V _D = 400 V | |

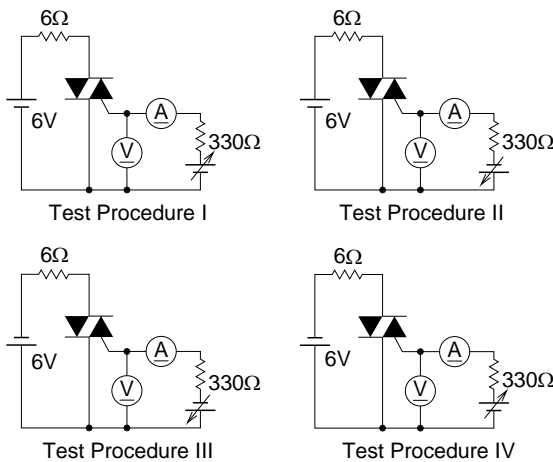
Performance Curves





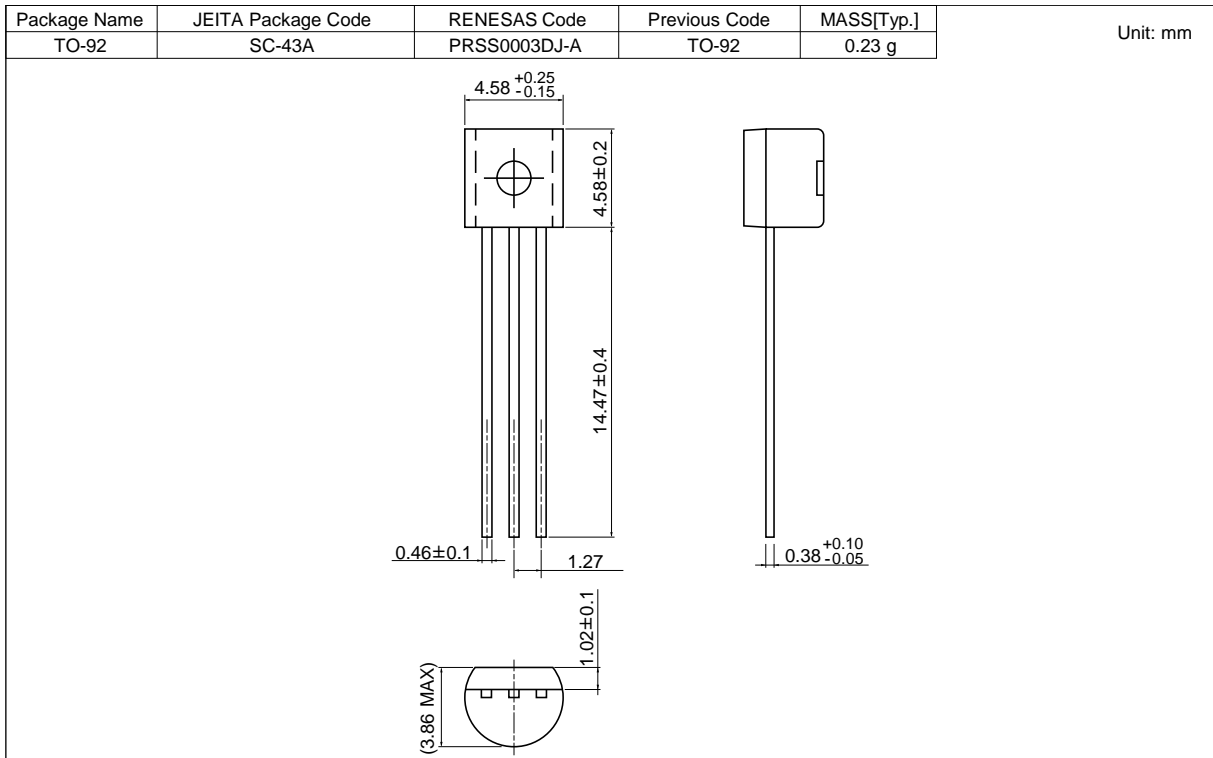


Gate Trigger Characteristics Test Circuits

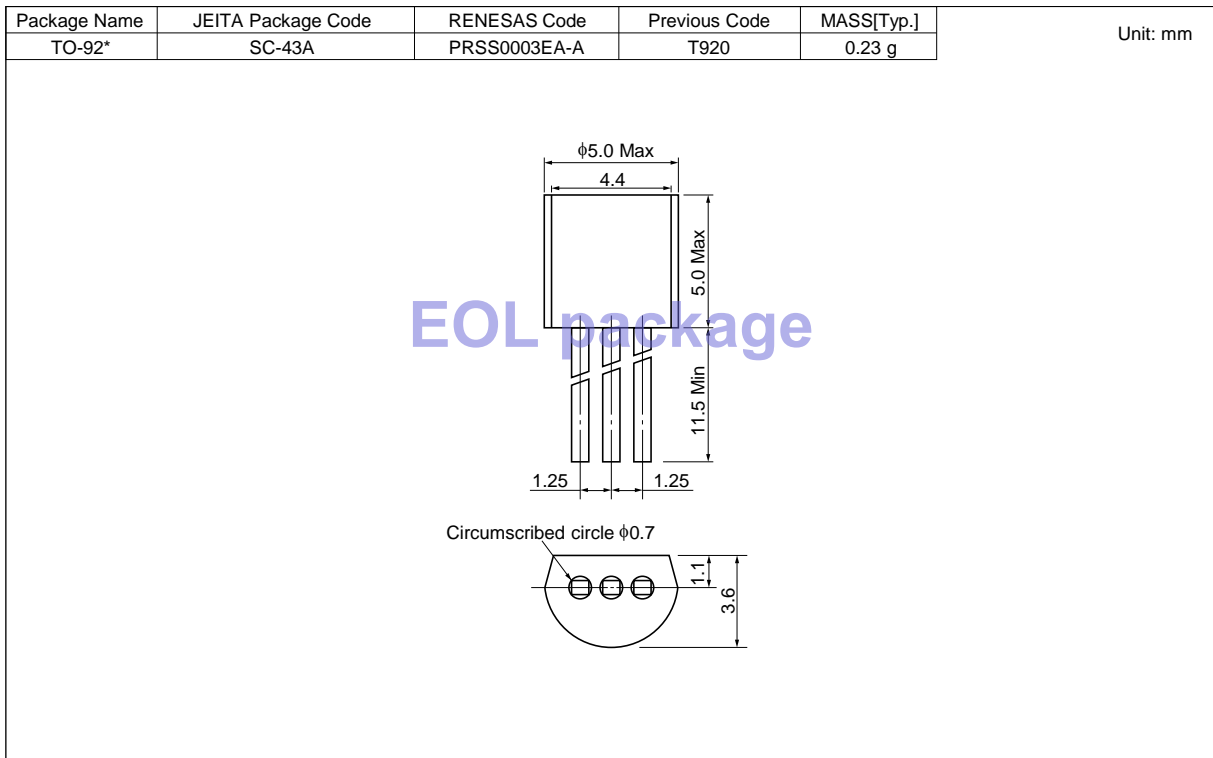


Package Dimensions

Ordering code: #BD0 <Active>



Ordering code: #B00 <Obsolete>



Ordering Information

| Orderable Part Number | Package | Packing ^{Note5} | Quantity | Remark | Status |
|-----------------------|---------|--------------------------|-----------|---------------------------------------|----------|
| BCR1AM-14A#BD0 | TO-92 | Plastic Bag | 1000 pcs. | Straight type | Active |
| BCR1AM-14A-1#BD0 | TO-92 | Plastic Bag | 1000 pcs. | Straight type, I _{GT} item:1 | |
| BCR1AM-14A-A6#BD0 | TO-92 | Plastic Bag | 1000 pcs. | A6 Lead form | |
| BCR1AM-14A-1A6#BD0 | TO-92 | Plastic Bag | 1000 pcs. | A6 Lead form, I _{GT} item:1 | |
| BCR1AM-14A-TB#BD0 | TO-92 | Adhesive Tape | 2000 pcs. | A8 Lead form | |
| BCR1AM-14A-1TB#BD0 | TO-92 | Adhesive Tape | 2000 pcs. | A8 Lead form, I _{GT} item:1 | |
| BCR1AM-14A#B00 | TO-92* | Plastic Bag | 500 pcs. | Straight type | Obsolete |
| BCR1AM-14A-1#B00 | TO-92* | Plastic Bag | 500 pcs. | Straight type, I _{GT} item:1 | |
| BCR1AM-14A-A6#B00 | TO-92* | Plastic Bag | 500 pcs. | A6 Lead form | |
| BCR1AM-14A-1A6#B00 | TO-92* | Plastic Bag | 500 pcs. | A6 Lead form, I _{GT} item:1 | |
| BCR1AM-14A-TB#B00 | TO-92* | Adhesive Tape | 2000 pcs. | A8 Lead form | |
| BCR1AM-14A-1TB#B00 | TO-92* | Adhesive Tape | 2000 pcs. | A8 Lead form, I _{GT} item:1 | |

Note: 5. Please confirm the specification about the shipping in detail.

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(Rev.4.0-1 November 2017)



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