

BCR8PM-14LD

Triac

Medium Power Use

REJ03G1565-0100

Rev.1.00

Jul 06, 2007

Features

- $I_{T(RMS)}$: 8 A
- V_{DRM} : 700 V
- I_{FGTI} , I_{RGTI} , I_{RGTIII} : 50 mA
- V_{ISO} : 2000 V
- The product guaranteed maximum junction temperature 150°C.
- Insulated Type
- Planar Type

Outline

RENESAS Package code: PRSS0003AA-A
(Package name: TO-220F)



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

Applications

Motor control, heater control

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} | 800 | V |

| Parameter | Symbol | Ratings | Unit | Conditions |
|--------------------------------|-------------|--------------|------------|--|
| RMS on-state current | $I_T (RMS)$ | 8 | A | Commercial frequency, sine full wave 360° conduction, $T_c = 85^\circ C$ |
| Surge on-state current | I_{TSM} | 48 | A | 60Hz sinewave 1 full cycle, peak value, non-repetitive |
| I^2t for fusing | I^2t | 9.5 | 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 +150 | $^\circ C$ | |
| Storage temperature | T_{stg} | - 40 to +150 | $^\circ C$ | |
| Mass | — | 2.0 | g | Typical value |
| Isolation voltage | Viso | 2000 | V | $T_a = 25^\circ C$, AC 1 minute, $T_1 \cdot T_2 \cdot G$ 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 | $T_j = 125^\circ C$, V_{DRM} applied |
| On-state voltage | V_{TM} | — | — | 2.0 | V | $T_c = 25^\circ C$, $I_{TM} = 12 A$, Instantaneous measurement |
| Gate trigger voltage ^{Note2} | I | V_{FGTI} | — | — | 1.5 | $T_j = 25^\circ C$, $V_D = 6 V$, $R_L = 6 \Omega$, $R_G = 330 \Omega$ |
| | II | V_{RGTI} | — | — | 1.5 | |
| | III | V_{RGTIII} | — | — | 1.5 | |
| Gate trigger current ^{Note2} | I | I_{FGTI} | — | — | 50 | $T_j = 25^\circ C$, $V_D = 6 V$, $R_L = 6 \Omega$, $R_G = 330 \Omega$ |
| | II | I_{RGTI} | — | — | 50 | |
| | III | I_{RGTIII} | — | — | 50 | |
| Gate non-trigger voltage | V_{GD} | 0.2 | — | — | V | $T_j = 125^\circ C$, $V_D = 1/2 V_{DRM}$ |
| Thermal resistance | $R_{th(j-c)}$ | — | — | 4.9 | $^\circ C/W$ | Junction to case ^{Note3} |
| Critical-rate of rise of off-state commutating voltage ^{Note4} | $(dv/dt)_c$ | 10 | — | — | $V/\mu s$ | $T_j = 125^\circ C$ |

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

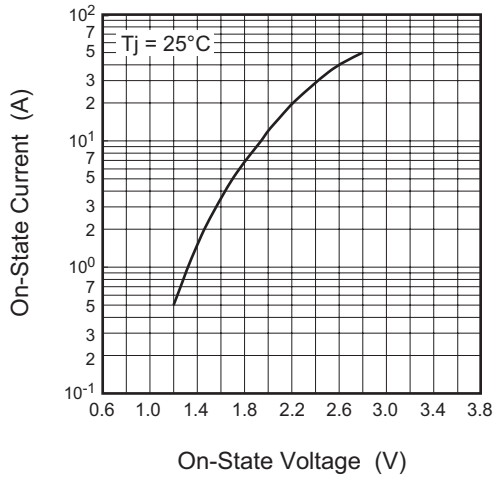
3. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is $0.5^\circ C/W$.

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

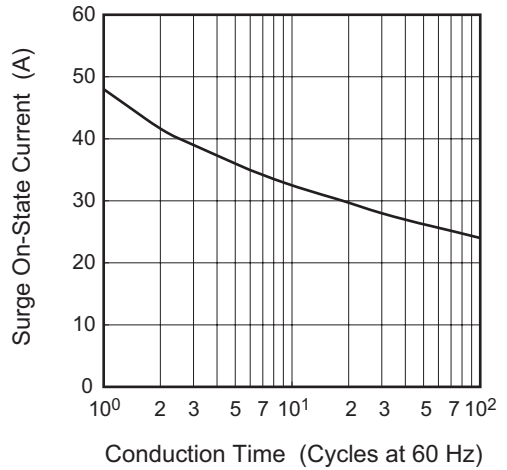
| Test conditions | Commutating voltage and current waveforms (inductive load) |
|--|--|
| 1. Junction temperature $T_j = 125^\circ C$ 2. Rate of decay of on-state commutating current $(di/dt)_c = - 4 A/ms$ 3. Peak off-state voltage $V_D = 400 V$ | |

Performance Curves

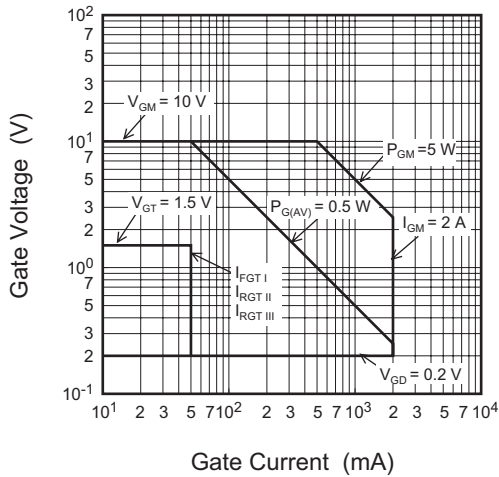
Maximum On-State Characteristics



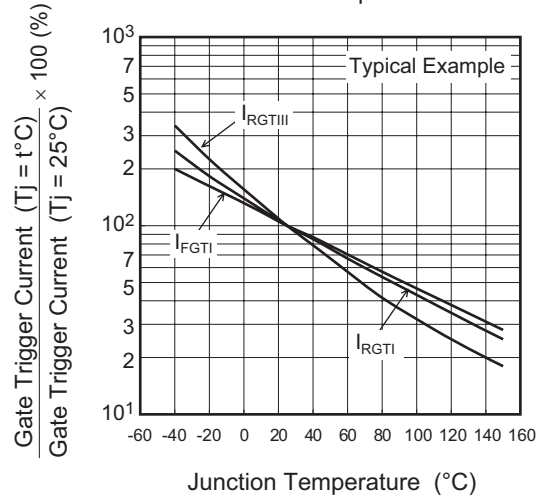
Rated Surge On-State Current



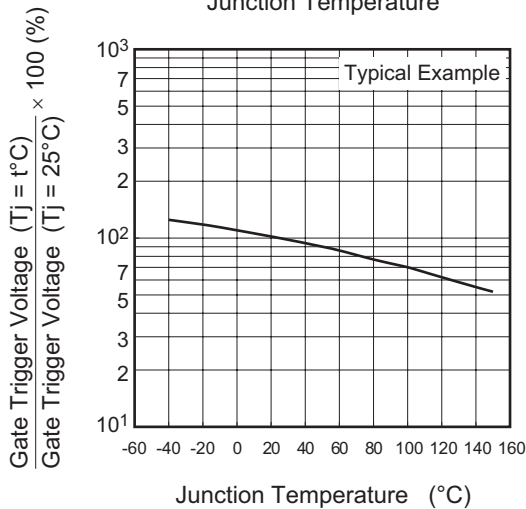
Gate Characteristics (I, II and III)



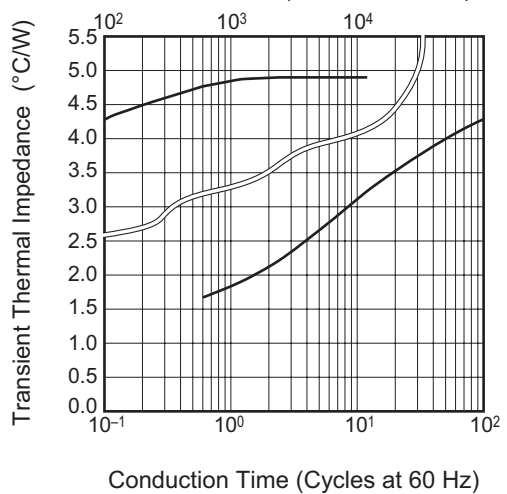
Gate Trigger Current vs. Junction Temperature



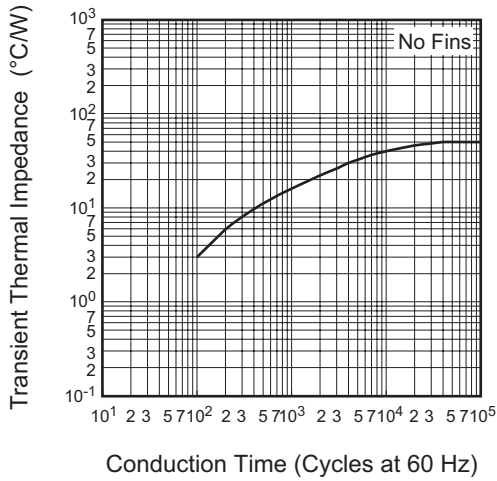
Gate Trigger Voltage vs. Junction Temperature



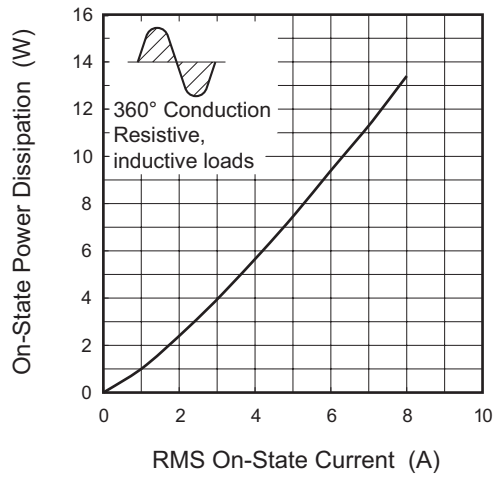
Maximum Transient Thermal Impedance Characteristics (Junction to case)



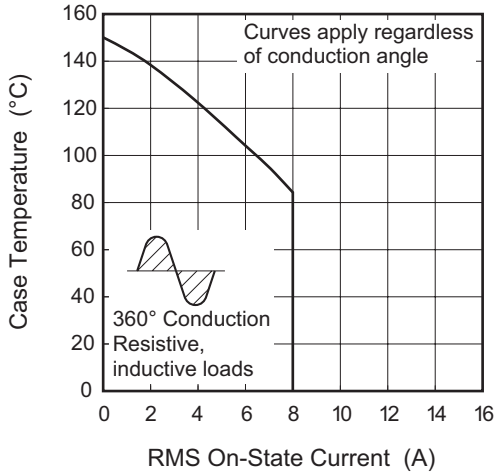
Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



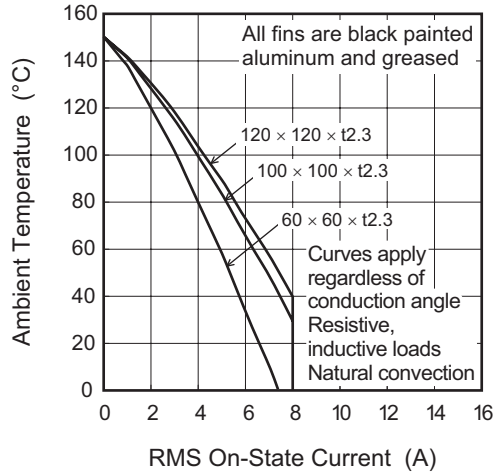
Maximum On-State Power Dissipation



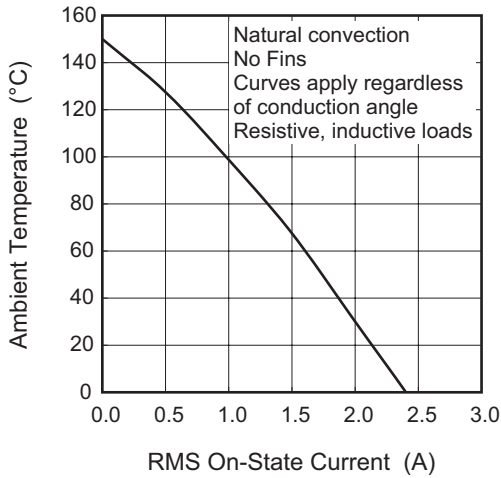
Allowable Case Temperature vs. RMS On-State Current



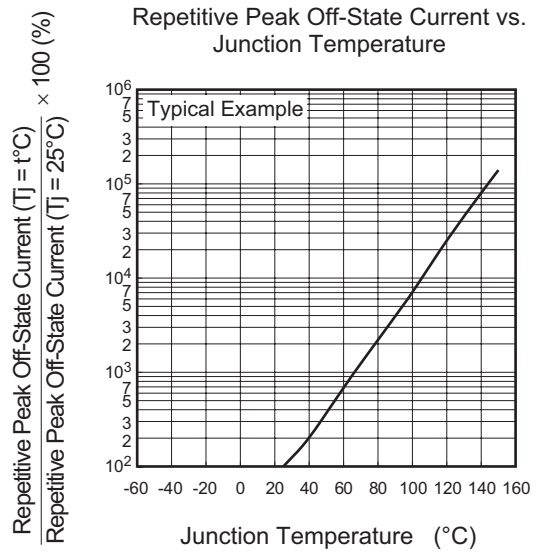
Allowable Ambient Temperature vs. RMS On-State Current



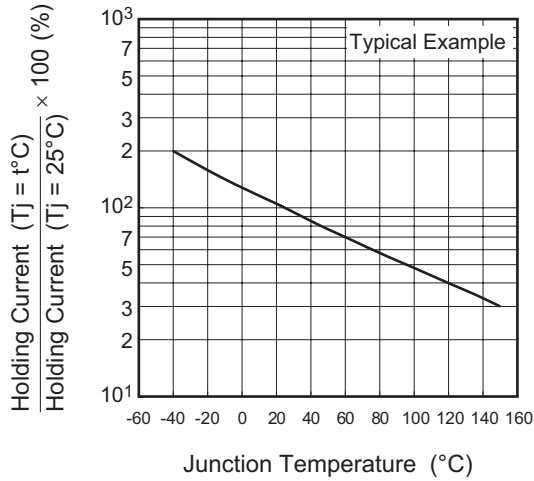
Allowable Ambient Temperature vs. RMS On-State Current



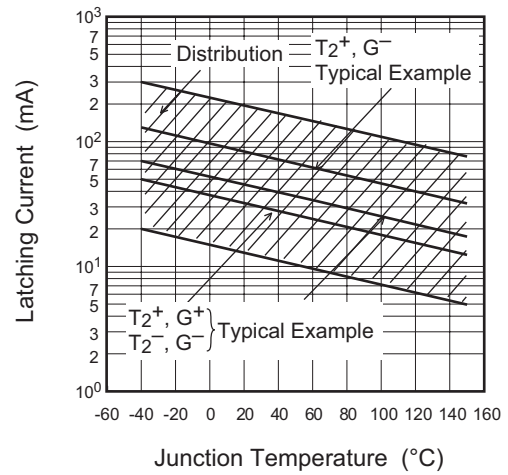
Repetitive Peak Off-State Current vs. Junction Temperature



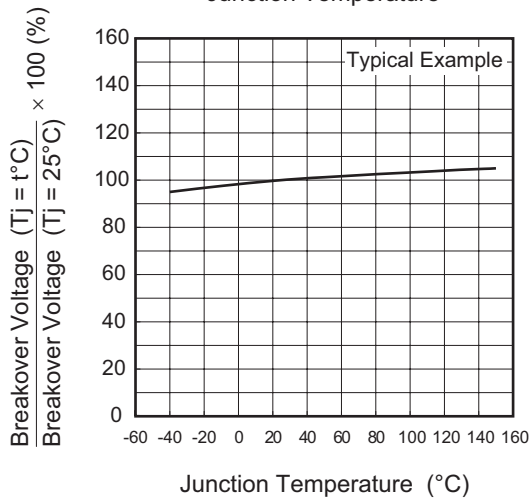
Holding Current vs. Junction Temperature



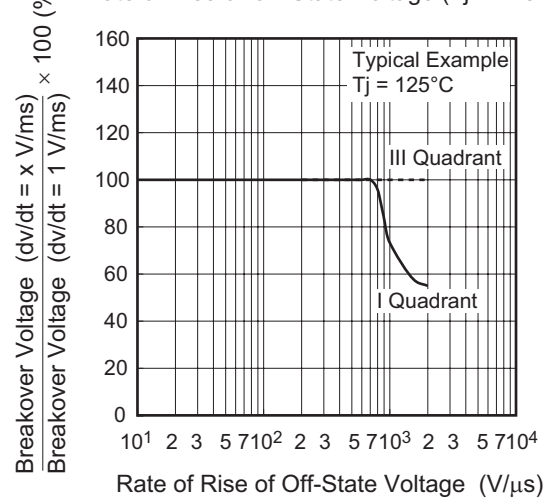
Latching Current vs. Junction Temperature



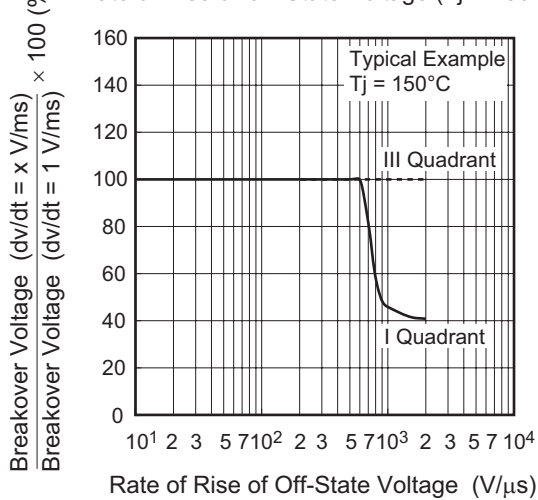
Breakover Voltage vs. Junction Temperature



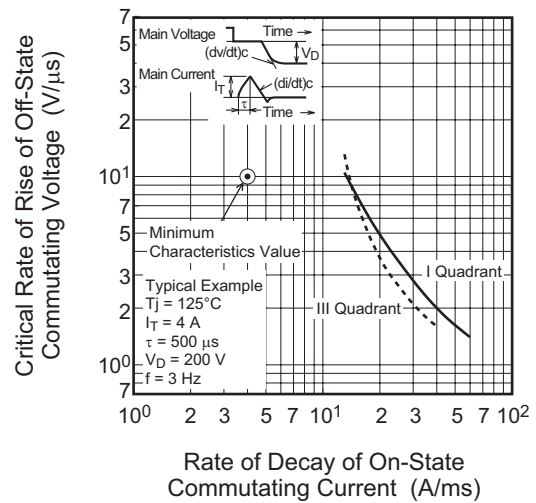
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj = 125°C)



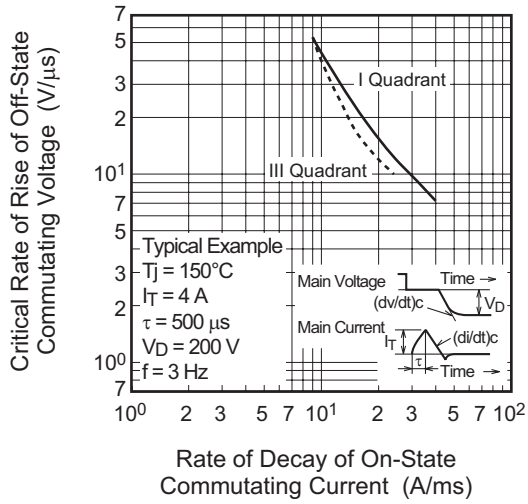
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj = 150°C)



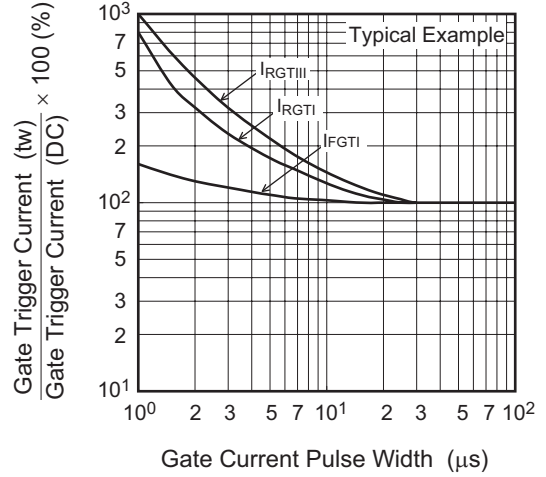
Commutation Characteristics (Tj = 125°C)



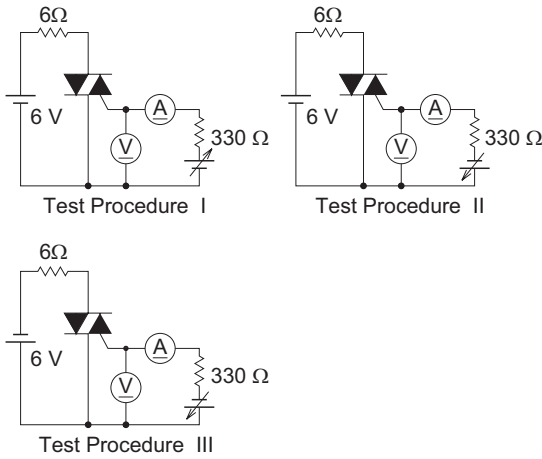
Commutation Characteristics ($T_j = 150^\circ\text{C}$)



Gate Trigger Current vs. Gate Current Pulse Width



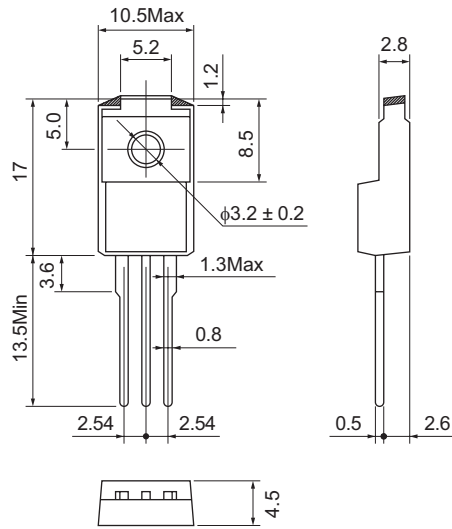
Gate Trigger Characteristics Test Circuits



Package Dimensions

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

Unit: mm



Order Code

| Lead form | Standard packing | Quantity | Standard order code | Standard order code example |
|---------------|-------------------------|----------|-------------------------------|-----------------------------|
| Straight type | Vinyl sack | 100 | Type name | BCR8PM-14LD |
| Lead form | Plastic Magazine (Tube) | 50 | Type name – Lead forming code | BCR8PM-14LD-A8 |

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

Notes:

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Renesas Technology America, Inc.
450 Holger Way, San Jose, CA 95134-1368, U.S.A
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology (Shanghai) Co., Ltd.
Unit 204, 205, AZIACenter, No.1233 Lujiazui Ring Rd, Pudong District, Shanghai, China 200120
Tel: <86> (21) 5877-1818, Fax: <86> (21) 6887-7898

Renesas Technology Hong Kong Ltd.
7th Floor, North Tower, World Finance Centre, Harbour City, 1 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.
10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology Singapore Pte. Ltd.
1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

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Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> (2) 796-3115, Fax: <82> (2) 796-2145

Renesas Technology Malaysia Sdn. Bhd
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510