

CR8CM-12A

Thyristor

Medium Power Use

REJ03G1707-0100

Rev.1.00

Jul 03, 2008

Features

- $I_T(AV)$: 8 A
- V_{DRM} : 600 V
- I_{GT} : 15 mA
- Non-Insulated Type
- Planar Passivation Type

Outline

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



1. Cathode
2. Anode
3. Gate
4. Anode

Applications

Switching mode power supply, regulator for autcycle, motor control, heater control, and other general purpose control applications

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		12	
Repetitive peak reverse voltage	V_{RRM}	600	V
Non-repetitive peak reverse voltage	V_{RSM}	720	V
DC reverse voltage	$V_R(DC)$	480	V
Repetitive peak off-state voltage	V_{DRM}	600	V
DC off-state voltage	$V_D(DC)$	480	V



Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	I_T (RMS)	12.6	A	
Average on-state current	I_T (AV)	8	A	Commercial frequency, sine half wave 180° conduction, $T_c = 99^\circ\text{C}$ ^{Note1}
Surge on-state current	I_{TSM}	120	A	50 Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	72	A^2s	Value corresponding to 1 cycle of half wave 50 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 forward voltage	V_{FGM}	6	V	
Peak gate reverse voltage	V_{RGM}	10	V	
Peak gate forward current	I_{FGM}	2	A	
Junction temperature	T_j	– 40 to +125	$^\circ\text{C}$	
Storage temperature	T_{stg}	– 40 to +125	$^\circ\text{C}$	
Mass	—	2.0	g	Typical value

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	2.0	mA	$T_j = 125^\circ\text{C}$, V_{RRM} applied
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_j = 125^\circ\text{C}$, V_{DRM} applied
On-state voltage	V_{TM}	—	—	1.4	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 25\text{ A}$, instantaneous value
Gate trigger voltage	V_{GT}	—	—	1.0	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 1\text{ A}$
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$
Gate trigger current	I_{GT}	—	—	15	mA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 1\text{ A}$
Holding current	I_H	—	15	—	mA	$T_j = 25^\circ\text{C}$, $V_D = 12\text{ V}$
Thermal resistance	$R_{th(j-c)}$	—	—	2.0	$^\circ\text{C/W}$	Junction to case ^{Note1 Note2}

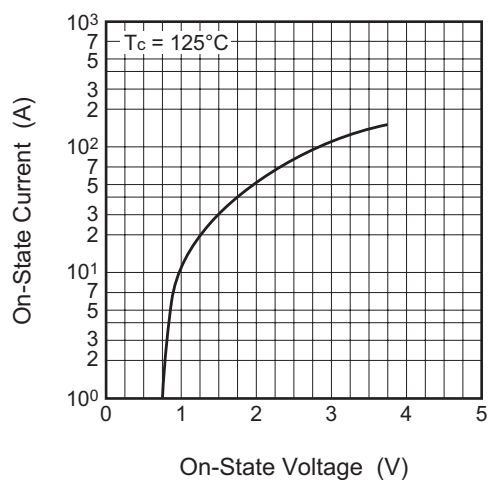
Notes: 1. Case temperature is measured at anode tab 1.5 mm away from the molded case.

2. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is 1.0°C/W .

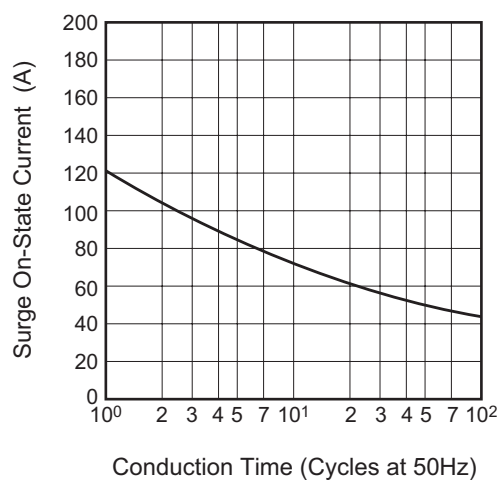
Performance Curves

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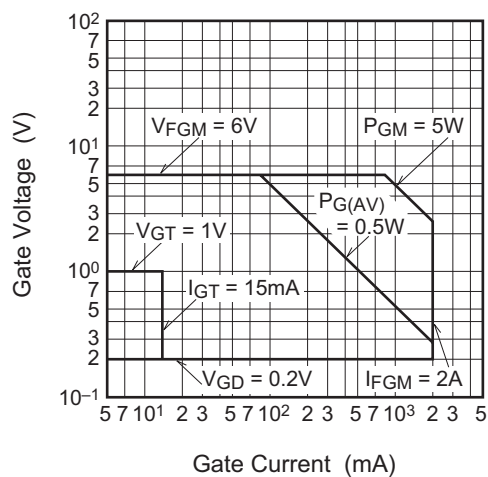
Maximum On-State Characteristics



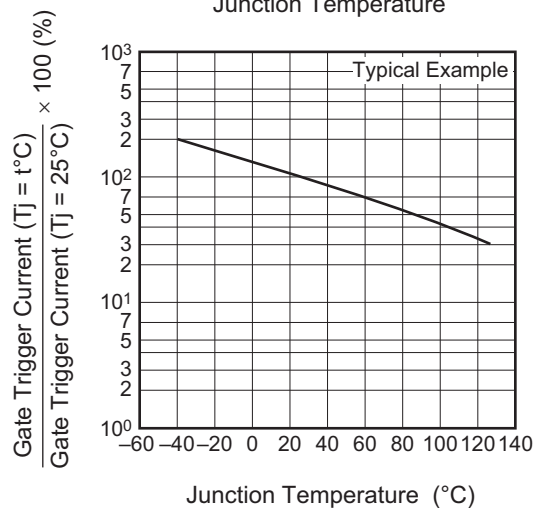
Rated Surge On-State Current



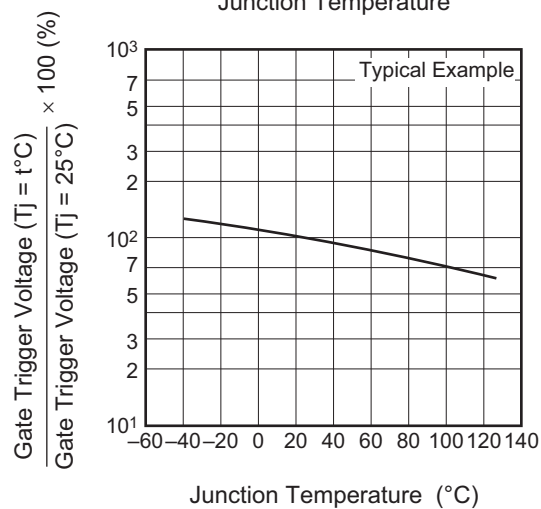
Gate Characteristics



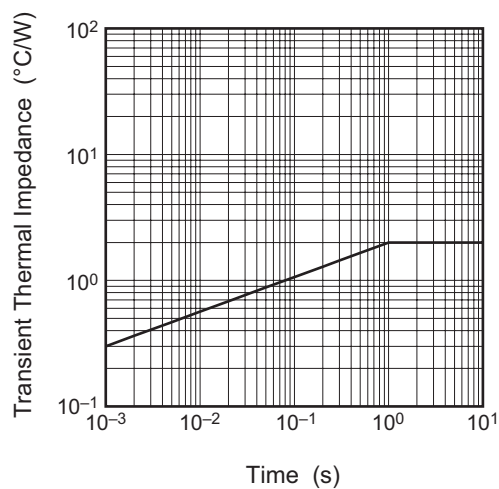
Gate Trigger Current vs. Junction Temperature

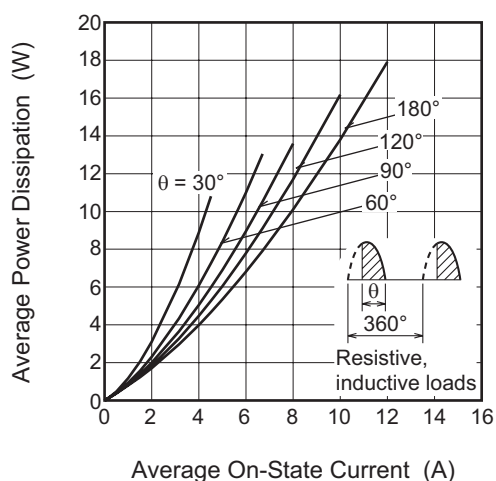
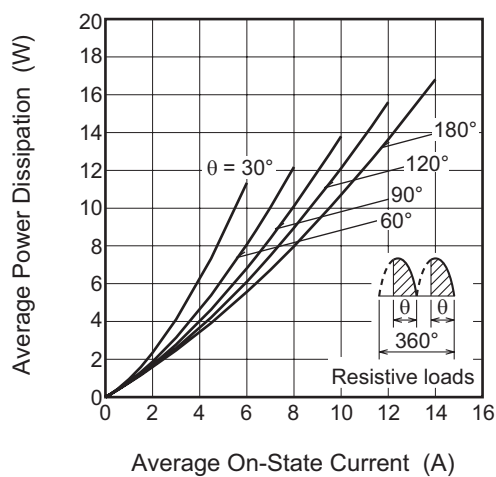
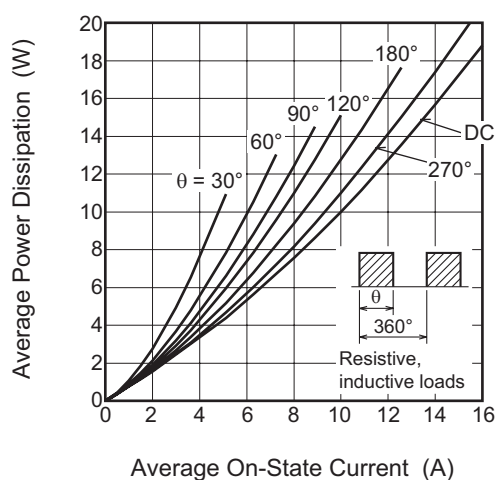
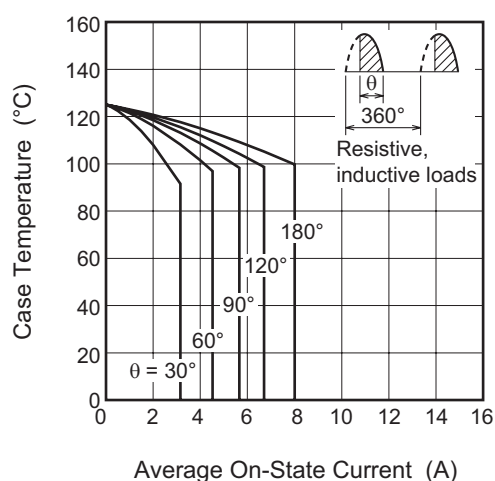
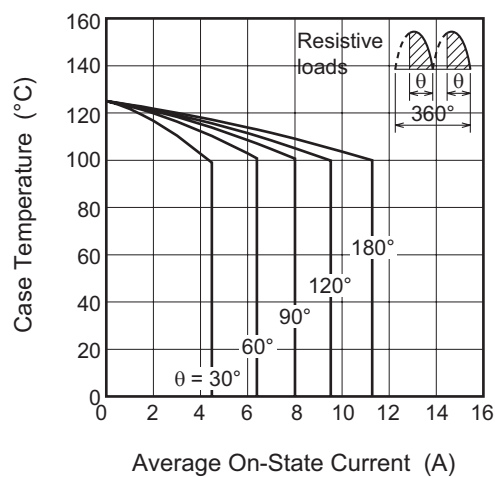
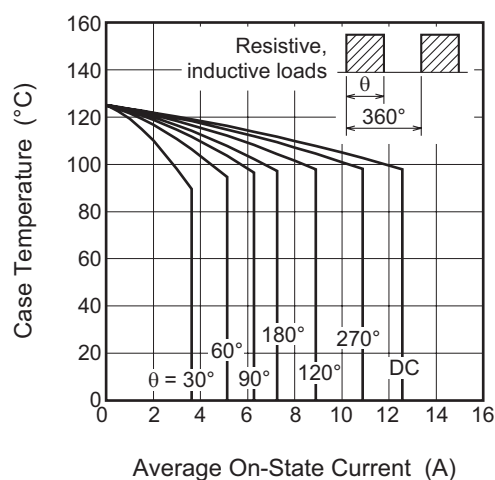


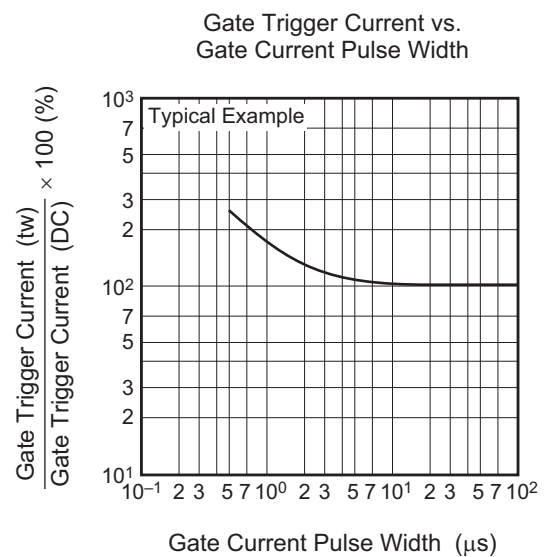
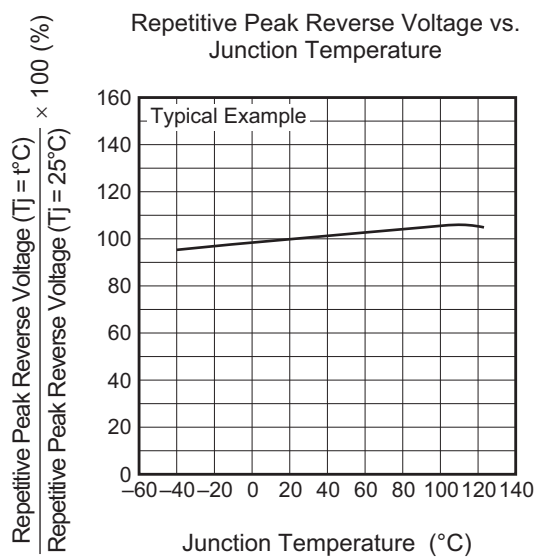
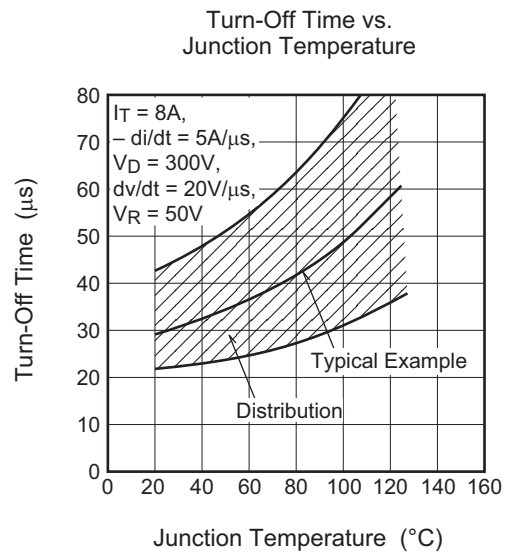
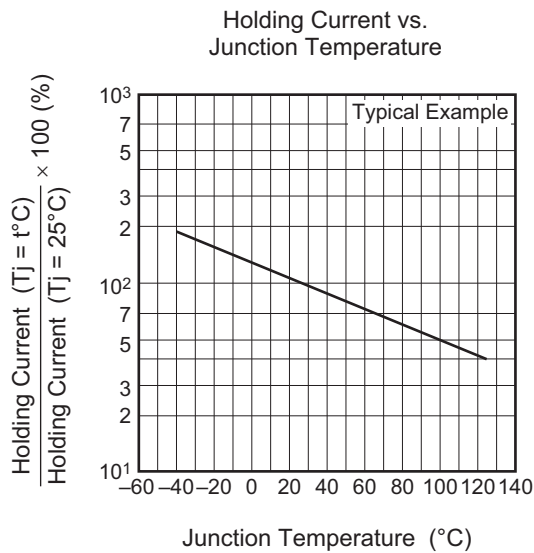
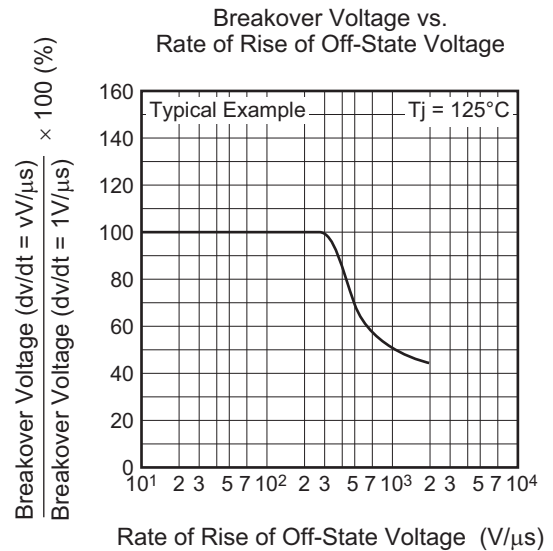
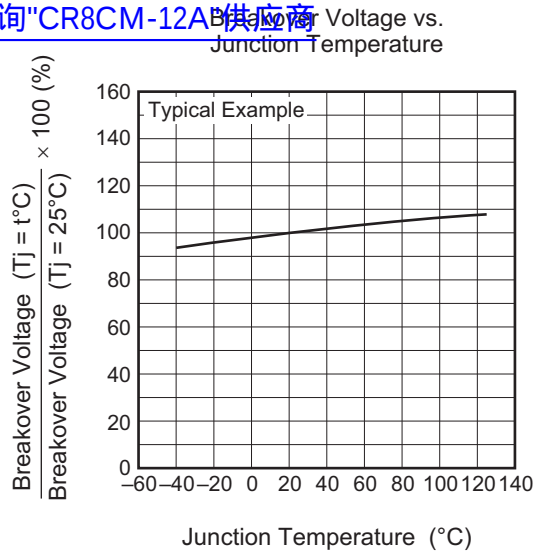
Gate Trigger Voltage vs. Junction Temperature



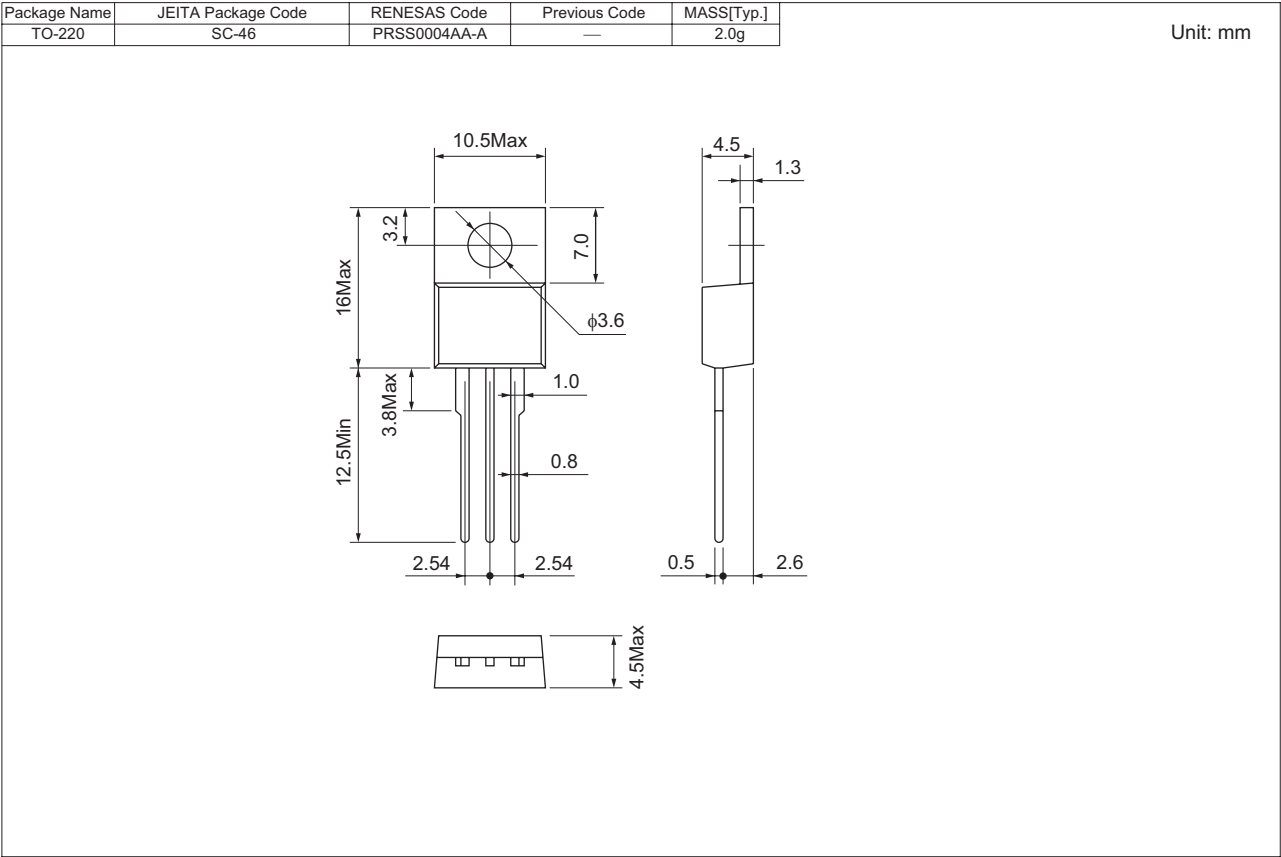
Maximum Transient Thermal Impedance Characteristics (Junction to case)



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(Single-Phase Half Wave)Maximum Average Power Dissipation
(Single-Phase Full Wave)Maximum Average Power Dissipation
(Rectangular Wave)Allowable Case Temperature vs.
Average On-State Current
(Single-Phase Half Wave)Allowable Case Temperature vs.
Average On-State Current
(Single-Phase Full Wave)Allowable Case Temperature vs.
Average On-State Current
(Rectangular Wave)

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Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Vinyl sack	100	Type name	CR8CM-12A
Lead form	Plastic Magazine (Tube)	50	Type name – Lead forming code	CR8CM-12A-A8

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

Renesas Technology Corp. Sales Strategic Planning Div. Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

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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, AZIA Center, No.1233 Lujiazui Ring Rd, Pudong District, Shanghai, China 200120
Tel: <86> (21) 5877-1818, Fax: <86> (21) 6887-7858/7898

Renesas Technology Hong Kong Ltd.
7th Floor, North Tower, World Finance Centre, Harbour City, Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2377-3473

Renesas Technology Taiwan Co., Ltd.
10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 3518-3399

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

Renesas Technology Korea Co., Ltd.
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, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510