

2SK1880(L), 2SK1880(S)

Silicon N Channel MOS FET

REJ03G0983-0200
(Previous: ADE-208-1331)
Rev.2.00
Sep 07, 2005

Application

High speed power switching

Features

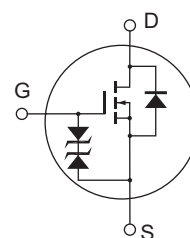
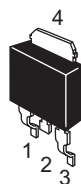
- Low on-resistance
- High speed switching
- No secondary breakdown
- Suitable for switching regulator

Outline

RENESAS Package code: PRSS0004ZD-A
(Package name: DPAK(L)-(1))



RENESAS Package code: PRSS0004ZD-C
(Package name: DPAK(S))



1. Gate
2. Drain
3. Source
4. Drain

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DS}	600	V
Gate to source voltage	V_{GS}	± 30	V
Drain current	I_D	1.5	A
Drain peak current	$I_{D(pulse)}^{*1}$	3.0	A
Body to drain diode reverse drain current	I_{DR}	1.5	A
Channel dissipation	P_{ch}^{*2}	20	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1 \%$ 2. Value at $T_c = 25^\circ C$

Electrical Characteristics

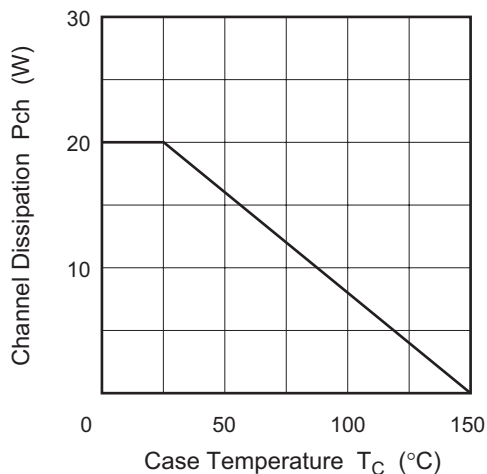
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	600	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 30	—	—	V	$I_G = \pm 100 \mu A$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 25 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	100	μA	$V_{DS} = 500 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	3.0	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	6.5	8.0	Ω	$I_D = 1 \text{ A}$, $V_{GS} = 10 \text{ V}^{*3}$
Forward transfer admittance	$ y_{fs} $	0.85	1.4	—	S	$I_D = 1 \text{ A}$, $V_{DS} = 20 \text{ V}^{*3}$
Input capacitance	C_{iss}	—	250	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	55	—	pF	
Reverse transfer capacitance	C_{rss}	—	8	—	pF	
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$I_D = 1 \text{ A}$, $V_{GS} = 10 \text{ V}$, $R_L = 30 \Omega$
Rise time	t_r	—	25	—	ns	
Turn-off delay time	$t_{d(off)}$	—	35	—	ns	
Fall time	t_f	—	30	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.95	—	V	$I_F = 1.5 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	350	—	μs	$I_F = 1.5 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 100 \text{ A}/\mu s$

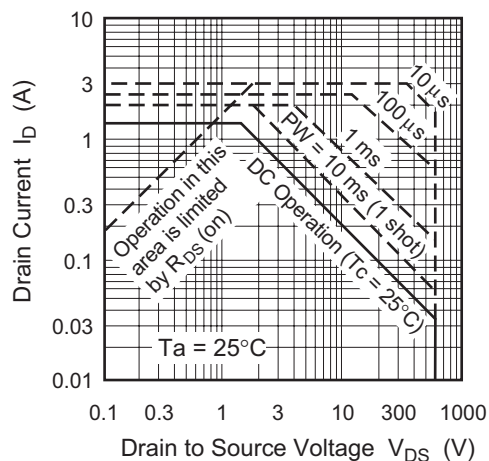
Note: 3. Pulse Test

Main Characteristics

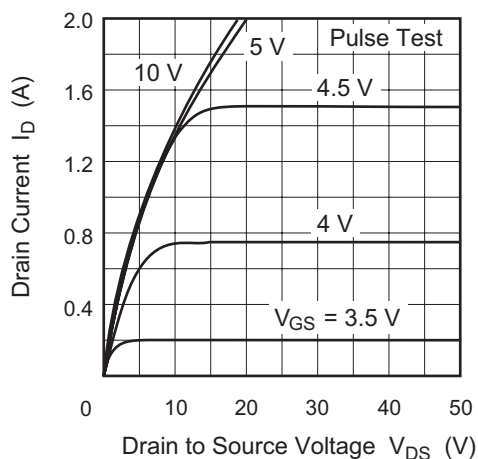
Power vs. Temperature Derating



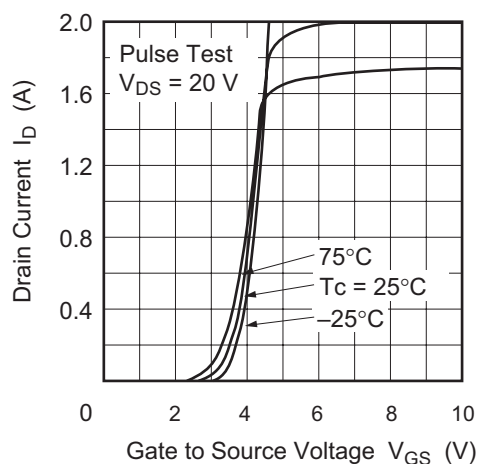
Maximum Safe Operation Area



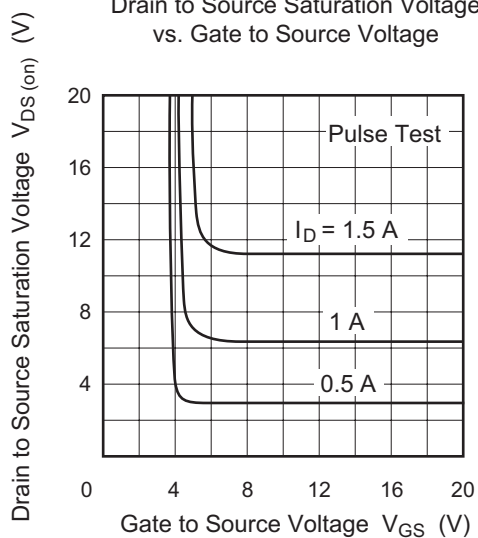
Typical Output Characteristics



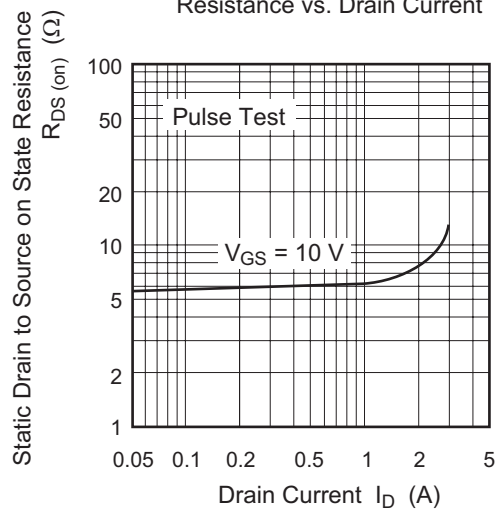
Typical Transfer Characteristics

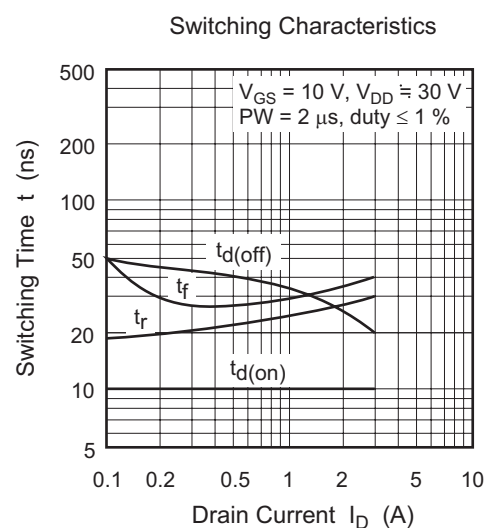
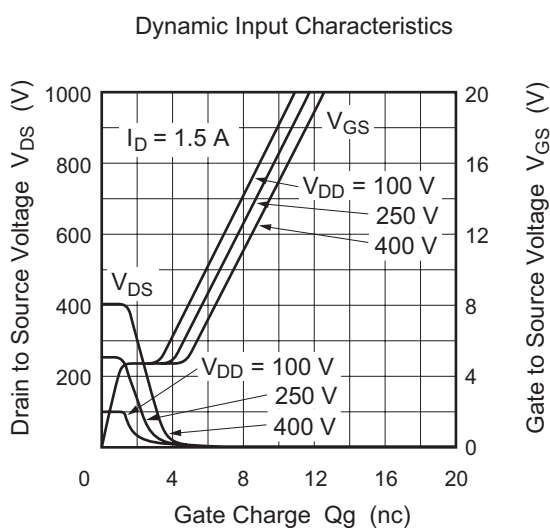
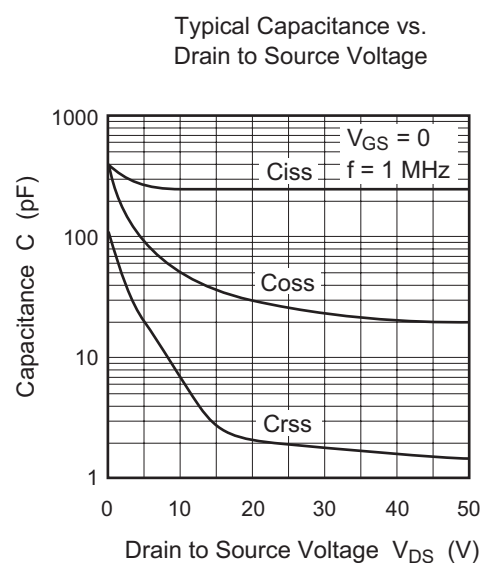
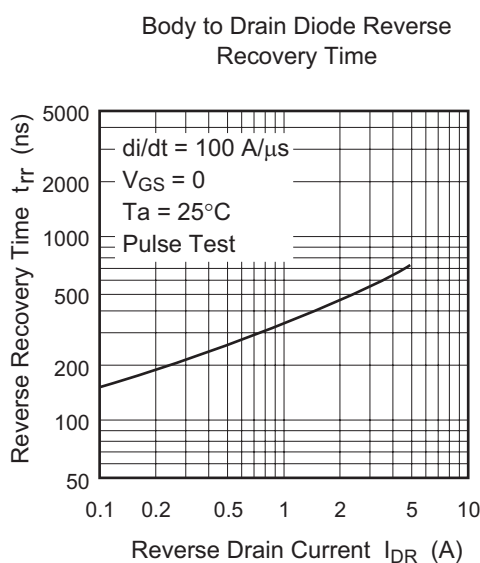
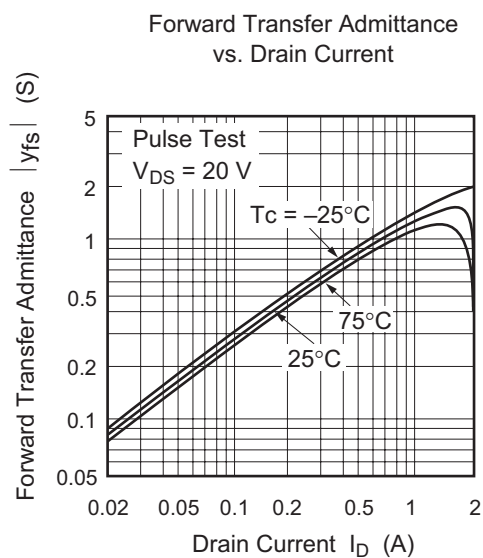
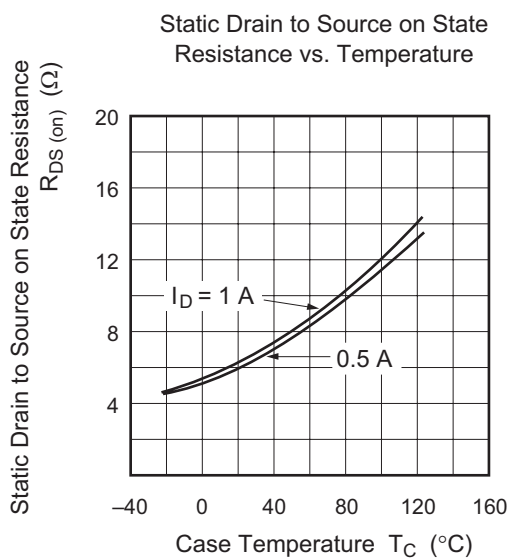


Drain to Source Saturation Voltage vs. Gate to Source Voltage

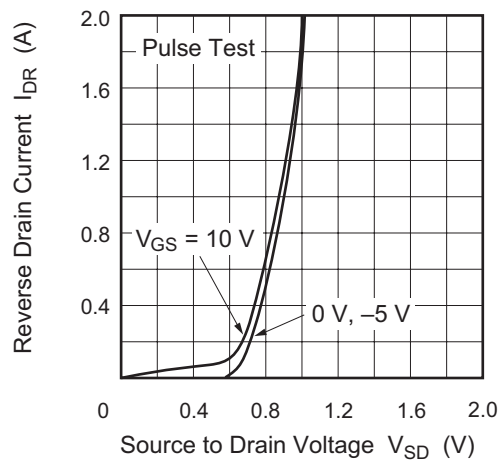


Static Drain to Source on State Resistance vs. Drain Current

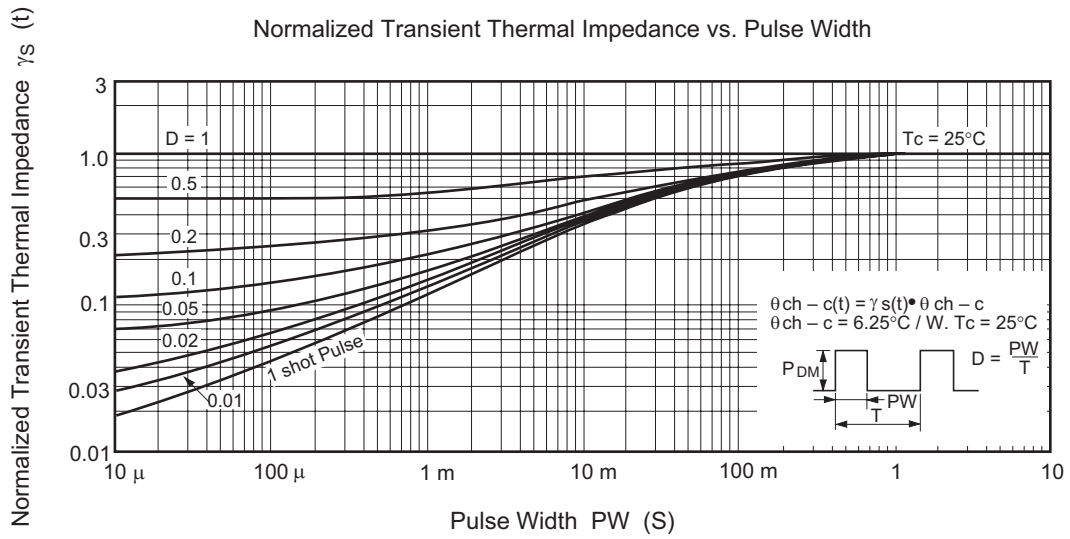




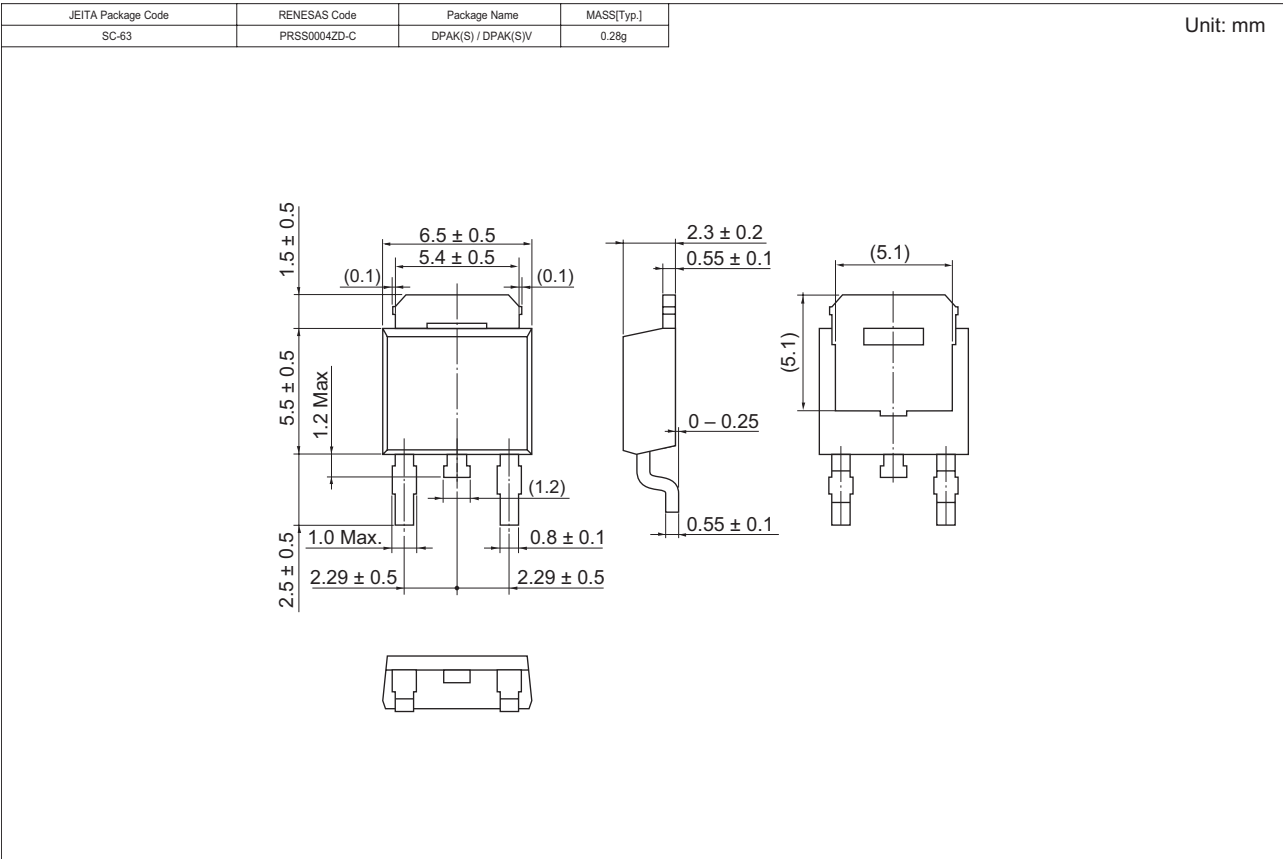
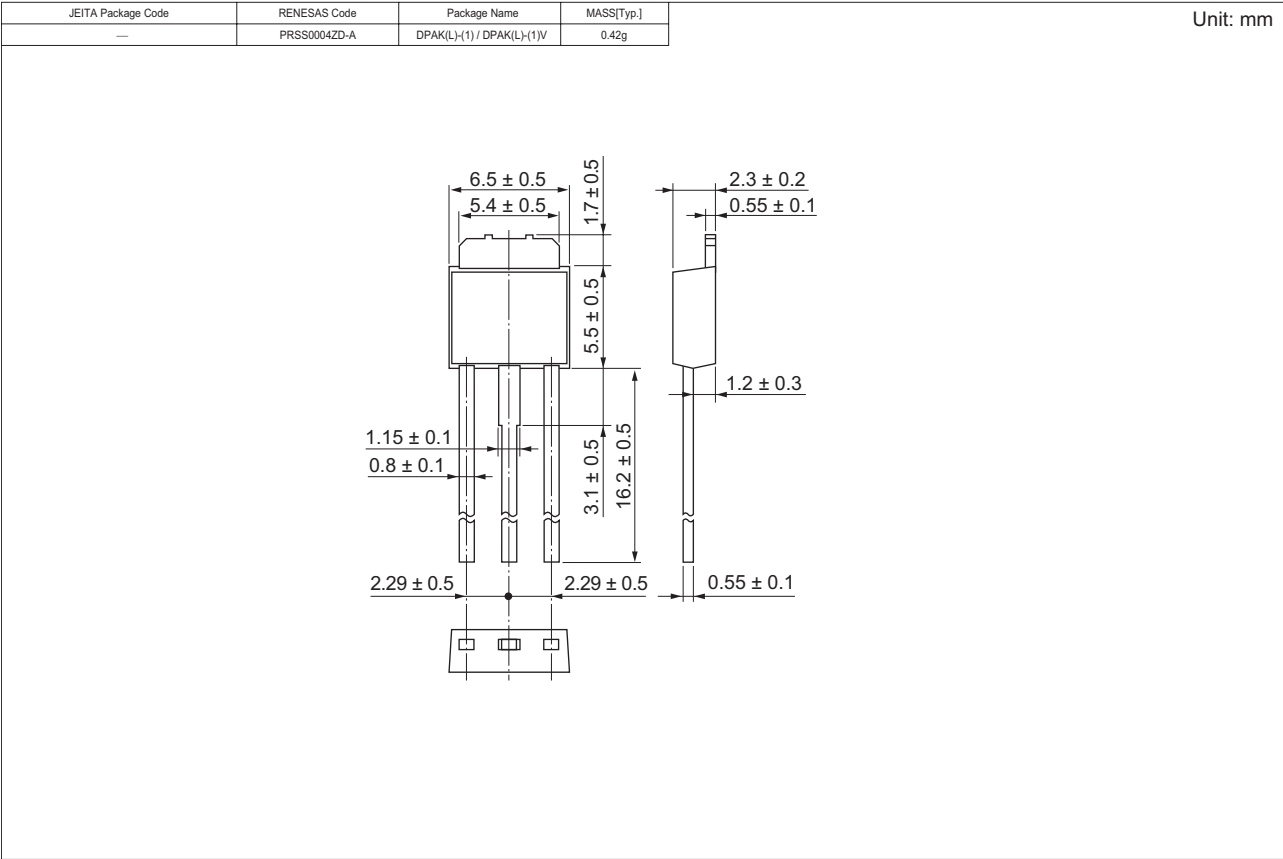
Reverse Drain Current vs.
Source to Drain Voltage



Normalized Transient Thermal Impedance vs. Pulse Width



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK1880L-E	3200 pcs	Box (Sack)
2SK1880STL-E	3000 pcs	Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited

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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 (Shanghai) Co., Ltd.

Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
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Renesas Technology Singapore Pte. Ltd.

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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