

2SK3156

Silicon N Channel MOS FET
High Speed Power Switching

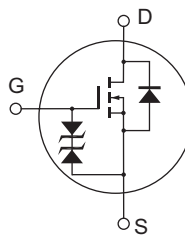
REJ03G1081-0301
(Previous: ADE-208-683A)
Rev.3.01
Apr 27, 2006

Features

- Low on-resistance
 $R_{DS} = 50 \text{ m}\Omega$ typ.
- High speed switching
- 4 V gate drive device can be driven from 5 V source

Outline

RENESAS Package code: PRSS0004AC-A
(Package name: TO-220AB)



1. Gate
2. Drain
(Flange)
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	150	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	20	A
Drain peak current	I _{D(pulse)} ^{Note1}	80	A
Body-drain diode reverse drain current	I _{DR}	20	A
Avalanche current	I _{AP} ^{Note3}	20	A
Avalanche energy	E _{AR} ^{Note3}	30	mJ
Channel dissipation	P _{ch} ^{Note2}	75	W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10μs, duty cycle ≤ 1 %
 2. Value at Tc = 25°C
 3. Value at Tch = 25°C, Rg ≥ 50 Ω

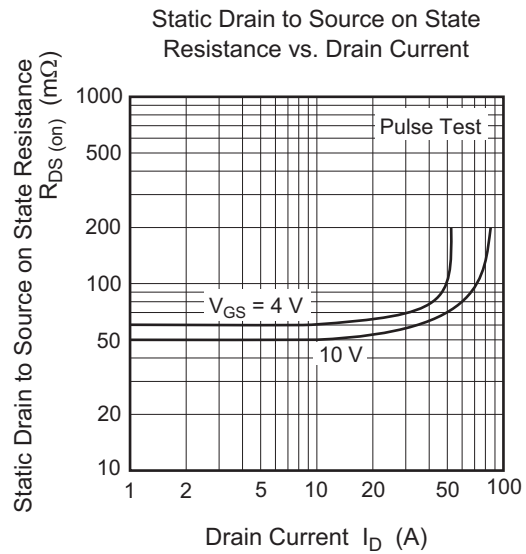
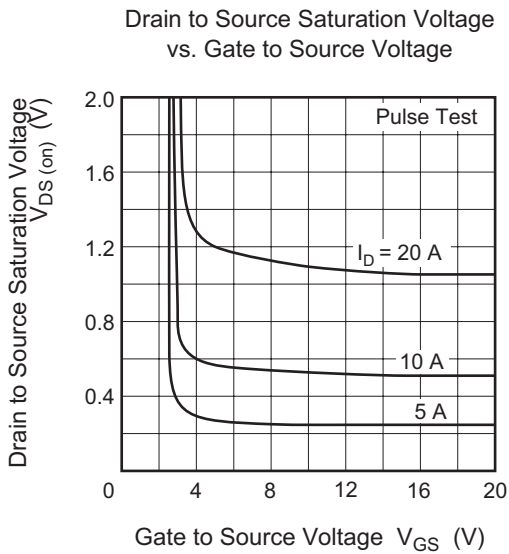
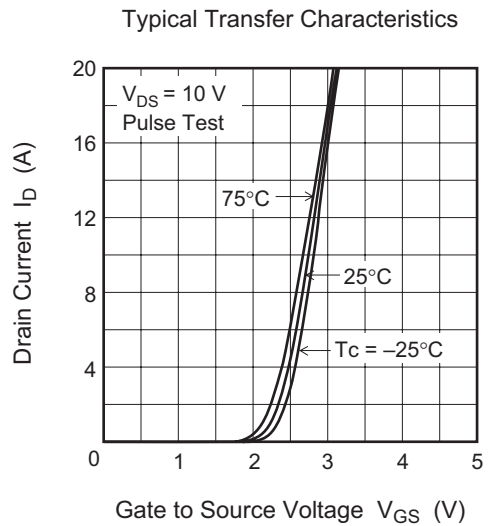
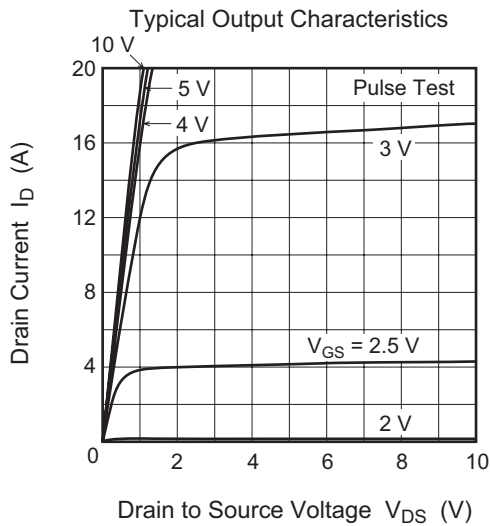
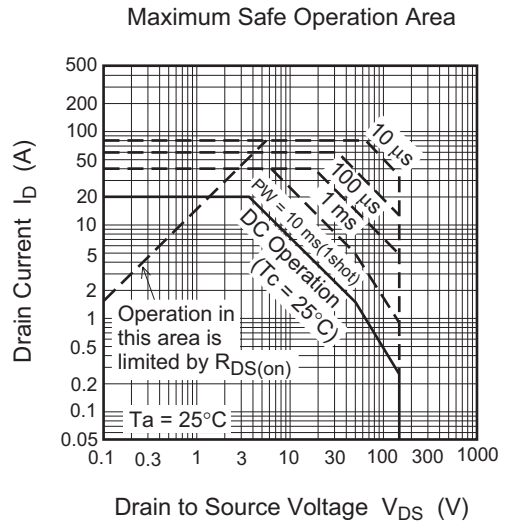
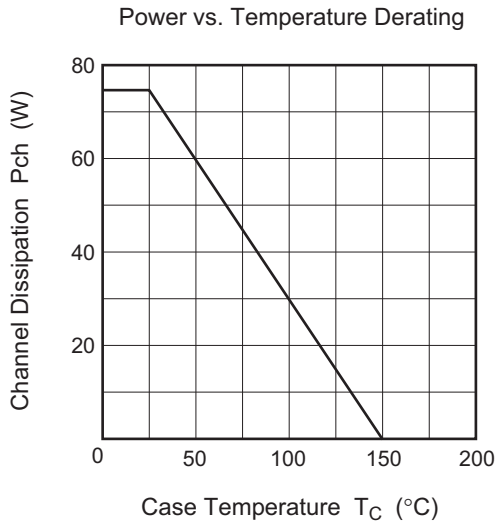
Electrical Characteristics

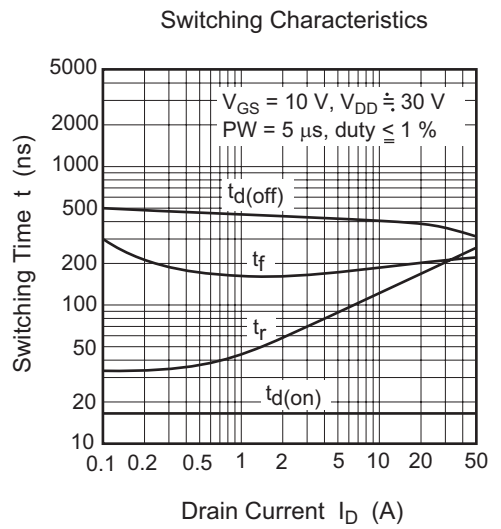
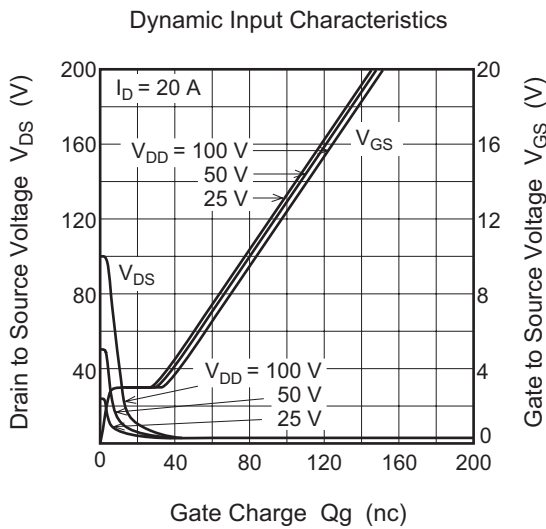
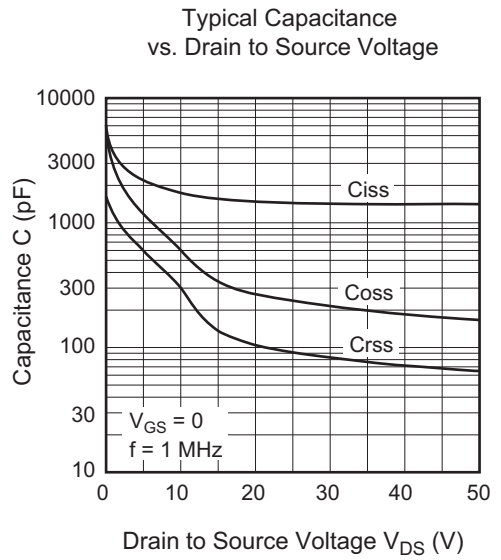
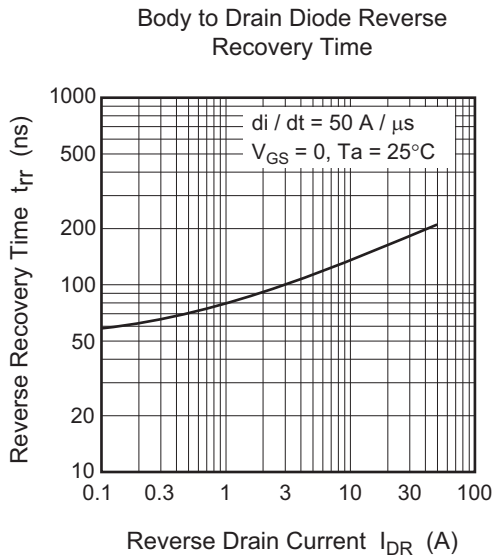
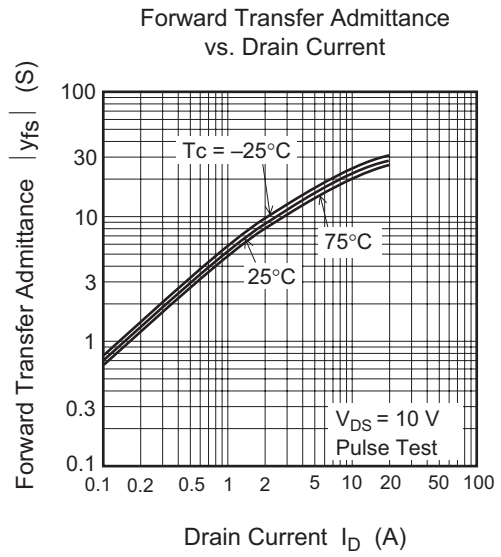
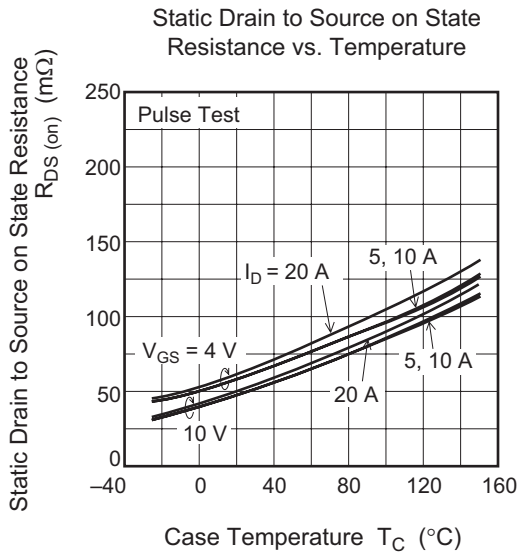
(Ta = 25°C)

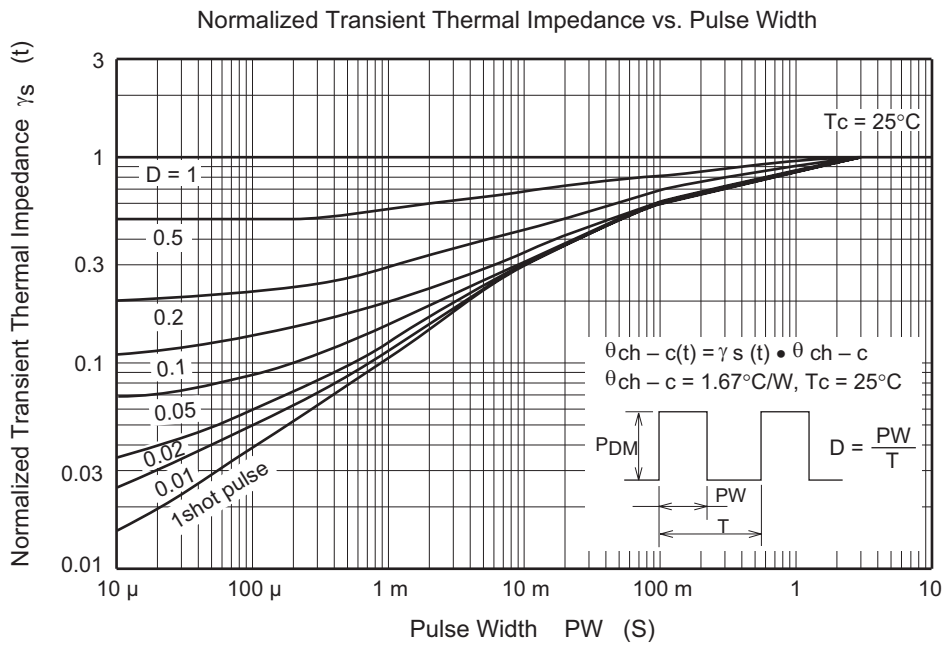
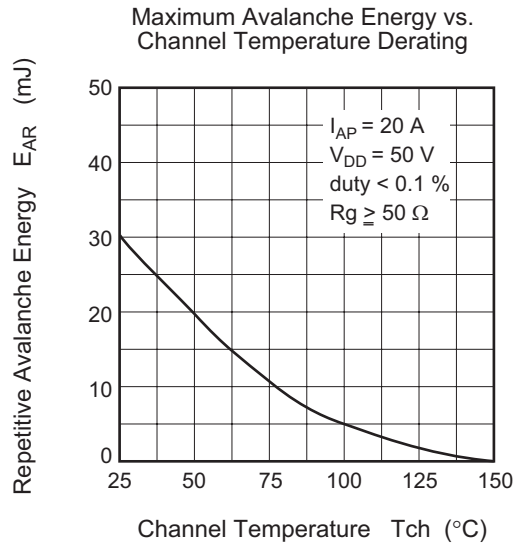
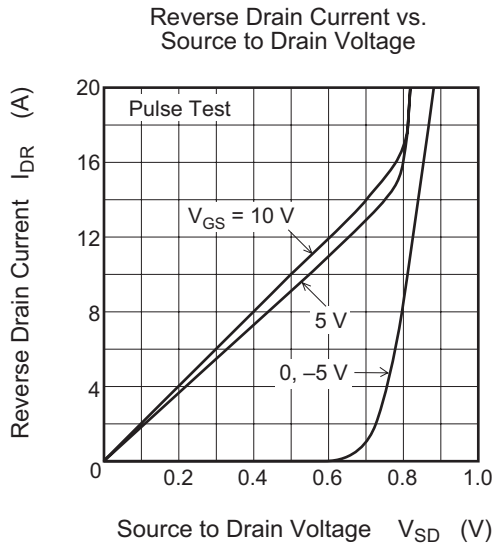
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR)DSS}	150	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±20	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±16 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	10	μA	V _{DS} = 150 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	1.0	—	2.5	V	I _D = 1 mA, V _{DS} = 10 V
Static drain to source on state resistance	R _{DS(on)}	—	50	70	mΩ	I _D = 10 A, V _{GS} = 10 V ^{Note4}
	R _{DS(on)}	—	60	80	mΩ	I _D = 10 A, V _{GS} = 4 V ^{Note4}
Forward transfer admittance	y _{fs}	13	22	—	S	I _D = 10 A, V _{DS} = 10 V ^{Note4}
Input capacitance	C _{iss}	—	1750	—	pF	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz
Output capacitance	C _{oss}	—	600	—	pF	
Reverse transfer capacitance	C _{rss}	—	300	—	pF	
Turn-on delay time	t _{d(on)}	—	18	—	ns	I _D = 10 A, V _{GS} = 10 V, R _L = 3 Ω
Rise time	t _r	—	125	—	ns	
Turn-off delay time	t _{d(off)}	—	400	—	ns	
Fall time	t _f	—	190	—	ns	
Body-drain diode forward voltage	V _{DF}	—	0.9	—	V	I _F = 20 A, V _{GS} = 0
Body-drain diode reverse recovery time	t _{rr}	—	170	—	ns	I _F = 20 A, V _{GS} = 0 di _F / dt = 50 A/μs

Note: 4. Pulse test

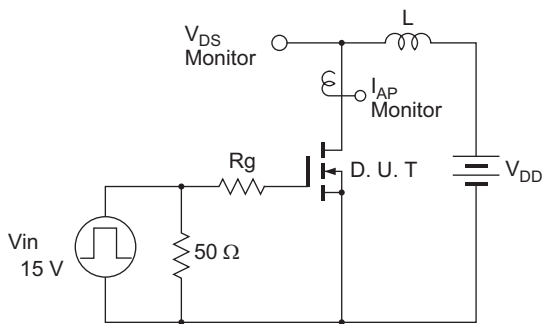
Main Characteristics



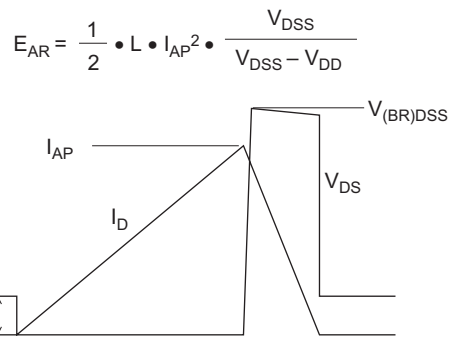


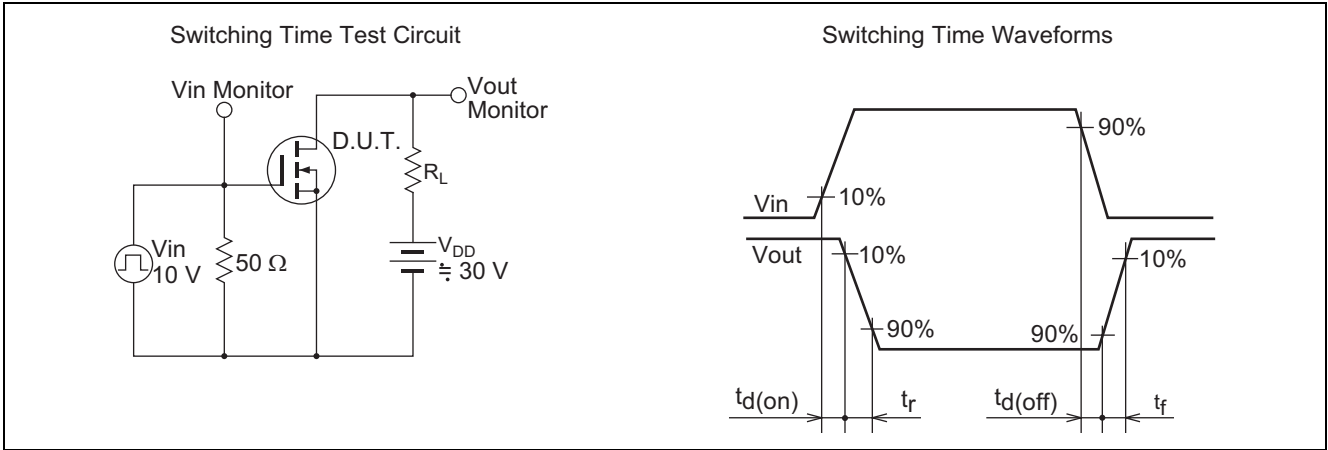


Avalanche Test Circuit

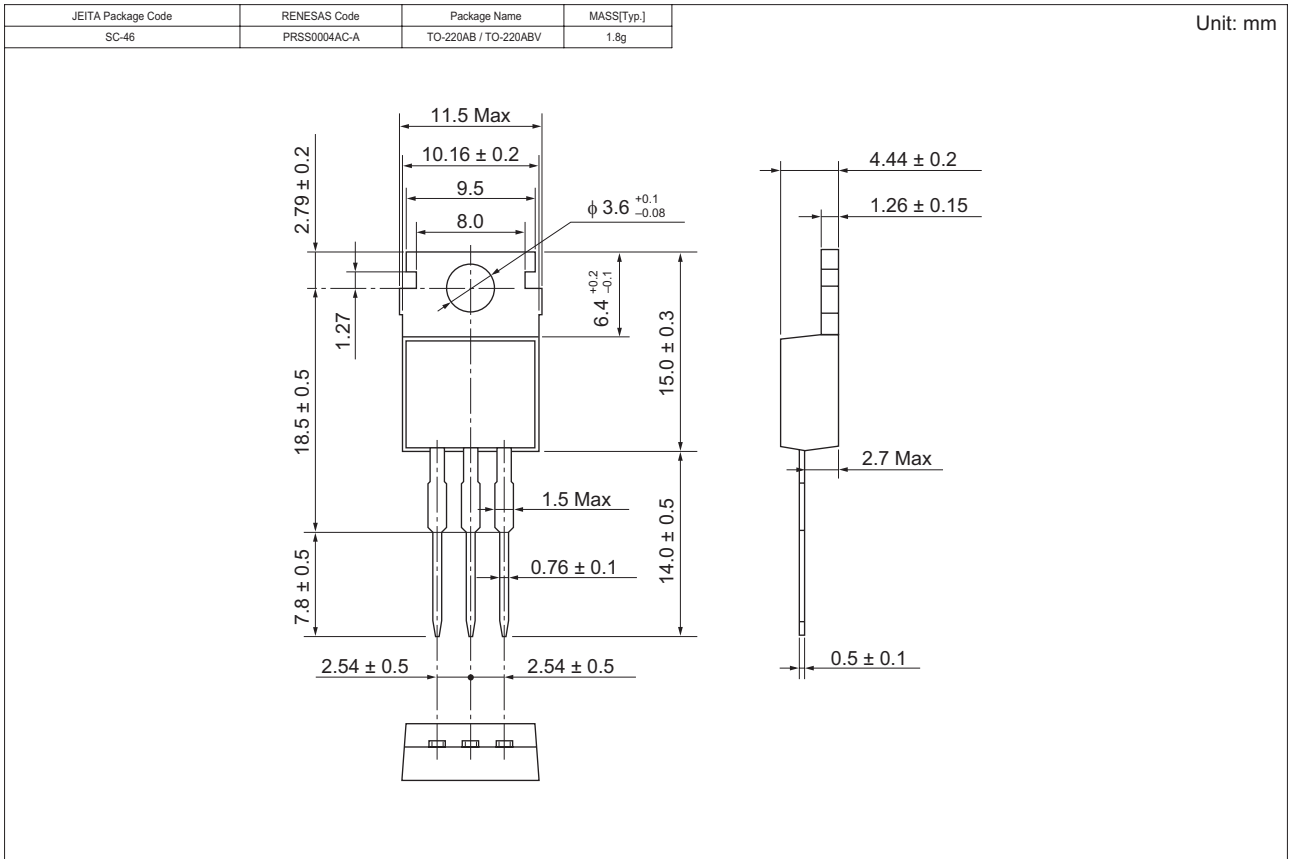


Avalanche Waveform





Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK3156-E	500 pcs	Box (Sack)

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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.
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Renesas Technology (Shanghai) Co., Ltd.

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Renesas Technology Hong Kong Ltd.

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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.

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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, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510