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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Not recommended
for new design

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2SK2727

Silicon N Channel MOS FET
High Speed Power Switching

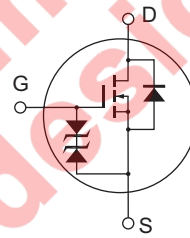
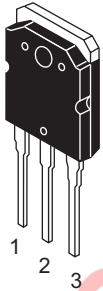
REJ03G1025-0300
(Previous: ADE-208-526A)
Rev.3.00
Sep 07, 2005

Features

- Low on-resistance
- High speed switching
- Low drive current
- Avalanche ratings

Outline

RENESAS Package code: PRSS0004ZE-A
(Package name: TO-3P)



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

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	500	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D	10	A
Drain peak current	$I_{D(pulse)}^{*1}$	40	A
Body to drain diode reverse drain current	I_{DR}	10	A
Avalanche current	I_{AP}^{*3}	10	A
Avalanche energy	E_{AR}^{*3}	5.55	mJ
Channel dissipation	P_{ch}^{*2}	100	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 $T_c = 25^\circ C$
 3. Value at $T_{ch} = 25^\circ C$, $R_g \geq 50 \Omega$

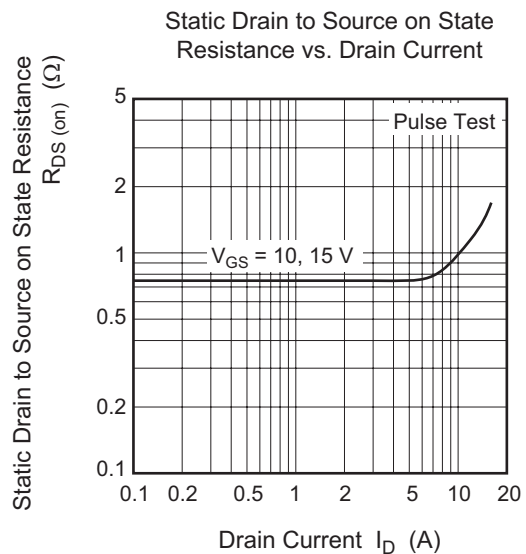
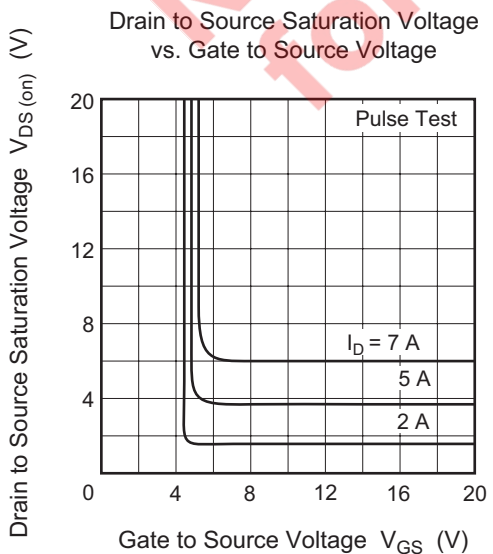
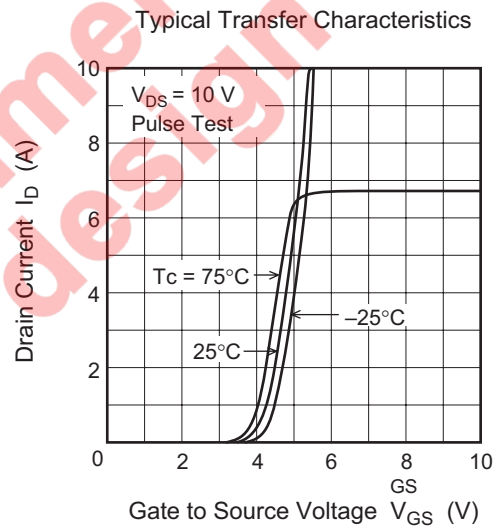
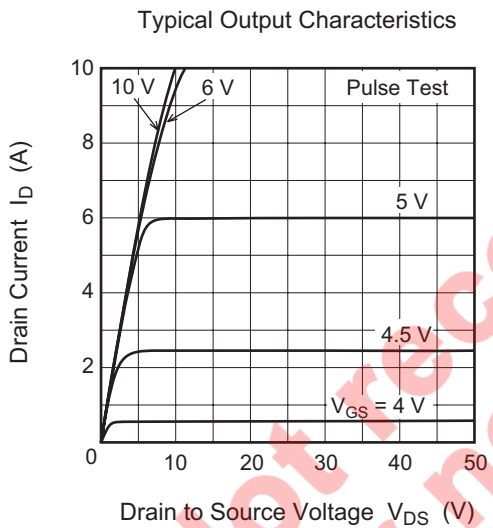
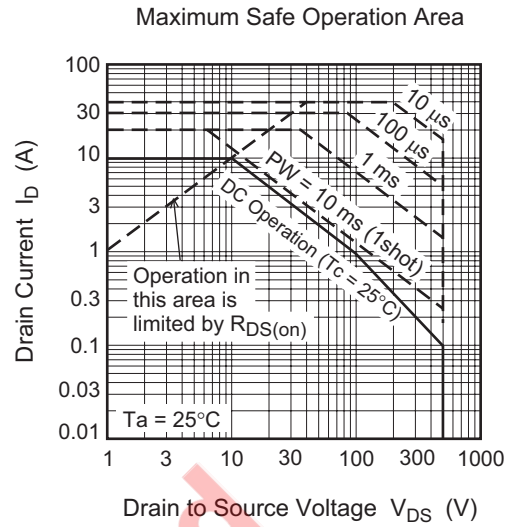
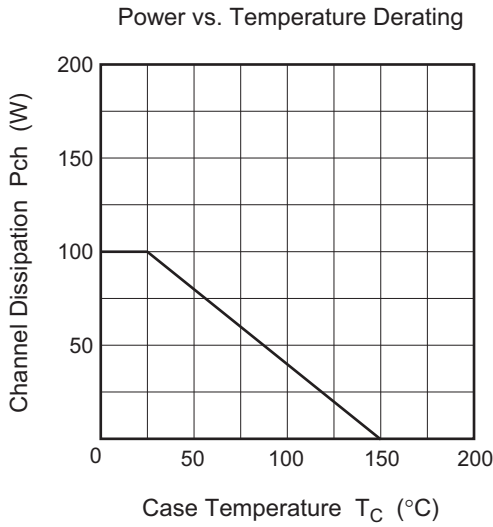
Electrical Characteristics

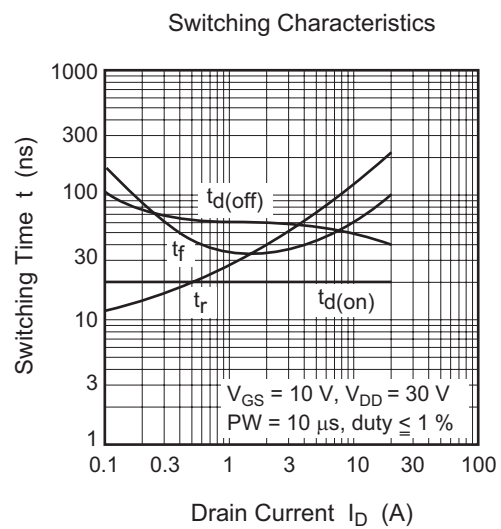
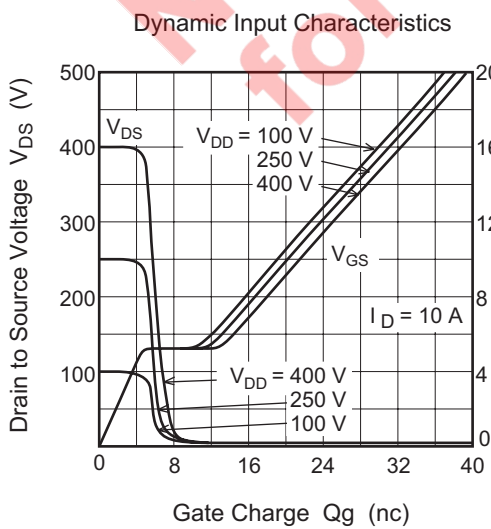
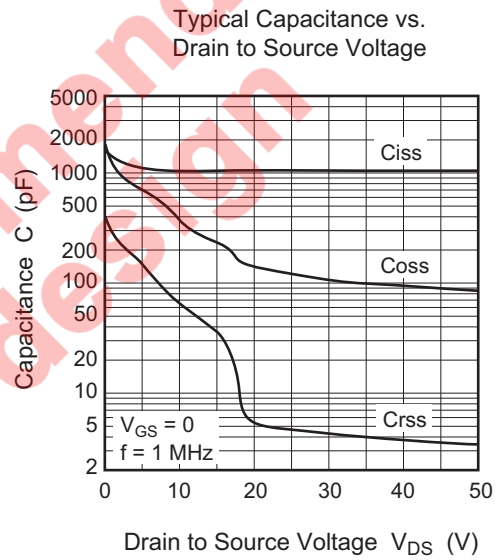
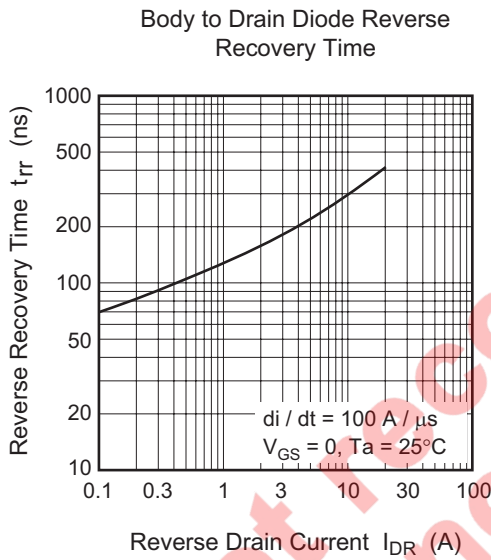
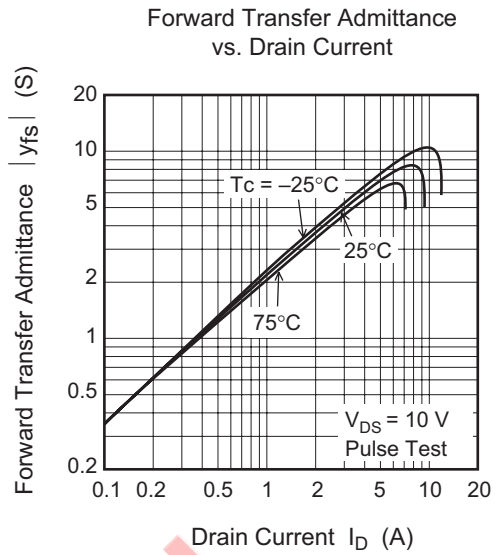
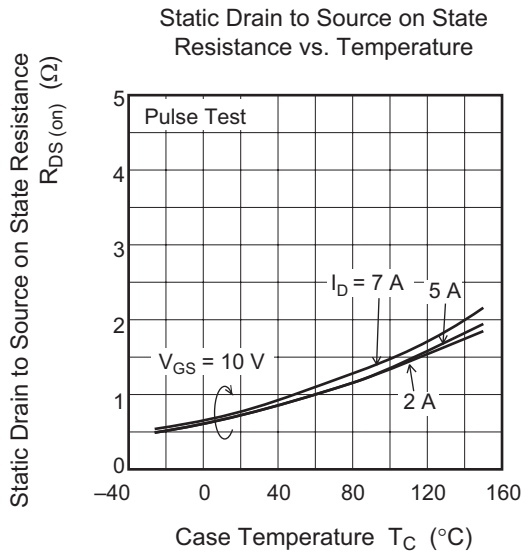
(Ta = 25°C)

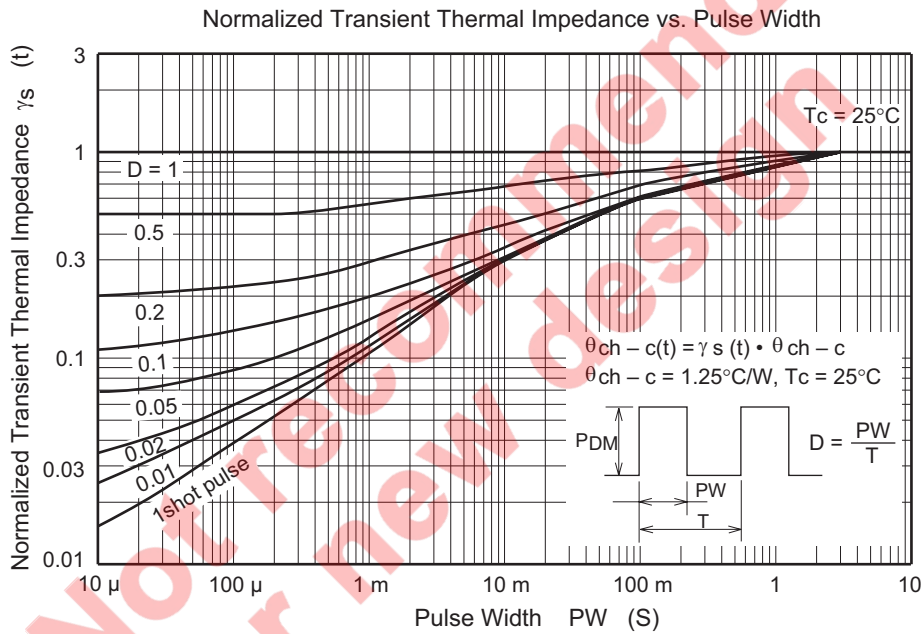
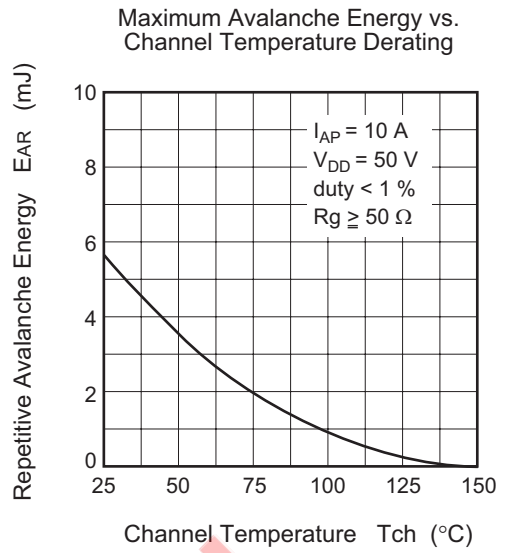
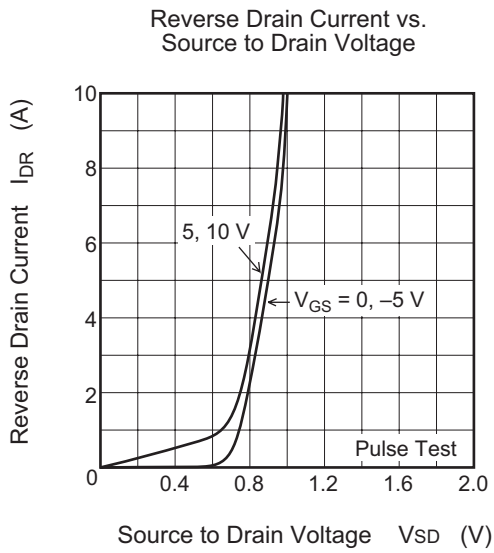
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	500	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±30	—	—	V	$I_G = \pm 100 \mu A$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 25 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	10	μA	$V_{DS} = 500 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.5	—	3.5	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}^{*4}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.75	0.95	Ω	$I_D = 5 \text{ A}$, $V_{GS} = 10 \text{ V}^{*4}$
Forward transfer admittance	$ y_{fs} $	4.2	7.0	—	S	$I_D = 5 \text{ A}$, $V_{DS} = 10 \text{ V}^{*4}$
Input capacitance	C_{iss}	—	1100	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	330	—	pF	
Reverse transfer capacitance	C_{rss}	—	65	—	pF	
Total gate charge	Q_g	—	21	—	nc	$V_{DD} = 400 \text{ V}$, $V_{GS} = 10 \text{ V}$, $I_D = 10 \text{ A}$
Gate to source charge	Q_{gs}	—	5	—	nc	
Gate to drain charge	Q_{gd}	—	8	—	nc	
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	$V_{GS} = 10 \text{ V}$, $I_D = 5 \text{ A}$, $R_L = 6 \Omega$
Rise time	t_r	—	70	—	ns	
Turn-off delay time	$t_{d(off)}$	—	55	—	ns	
Fall time	t_f	—	50	—	ns	
Body to drain diode forward voltage	V_{DF}	—	1.0	—	V	$I_D = 10 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	300	—	ns	$I_F = 10 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu s$

- Note: 4. Pulse test

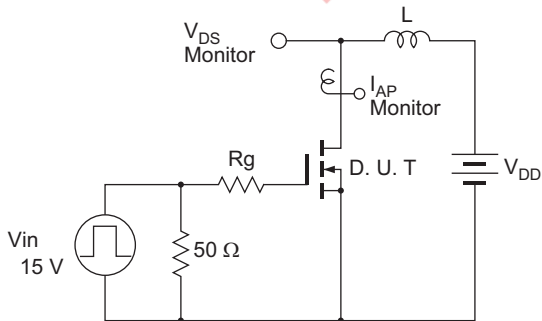
Main Characteristics



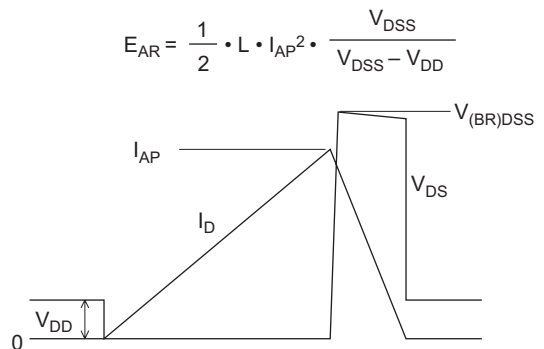


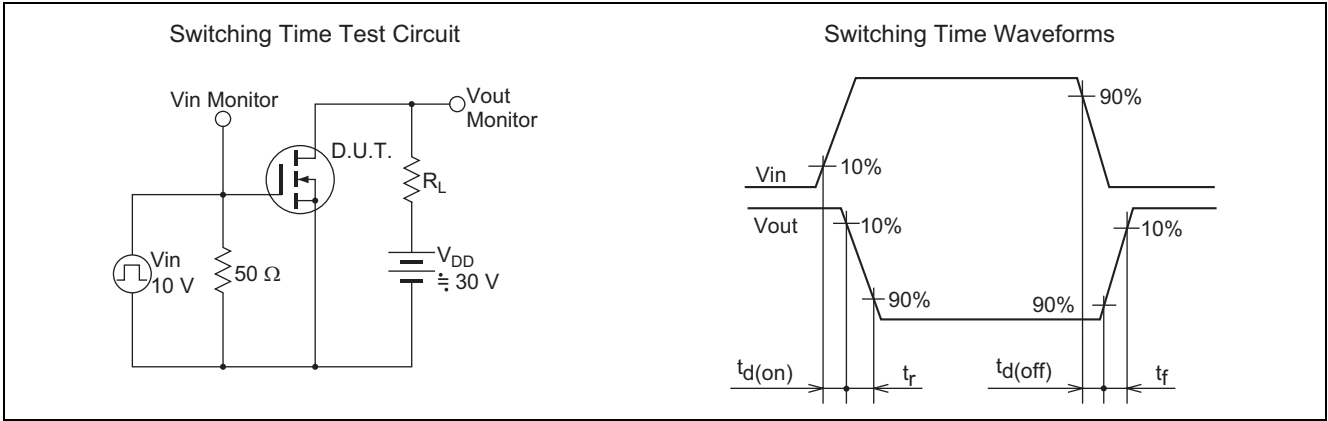


Avalanche Test Circuit



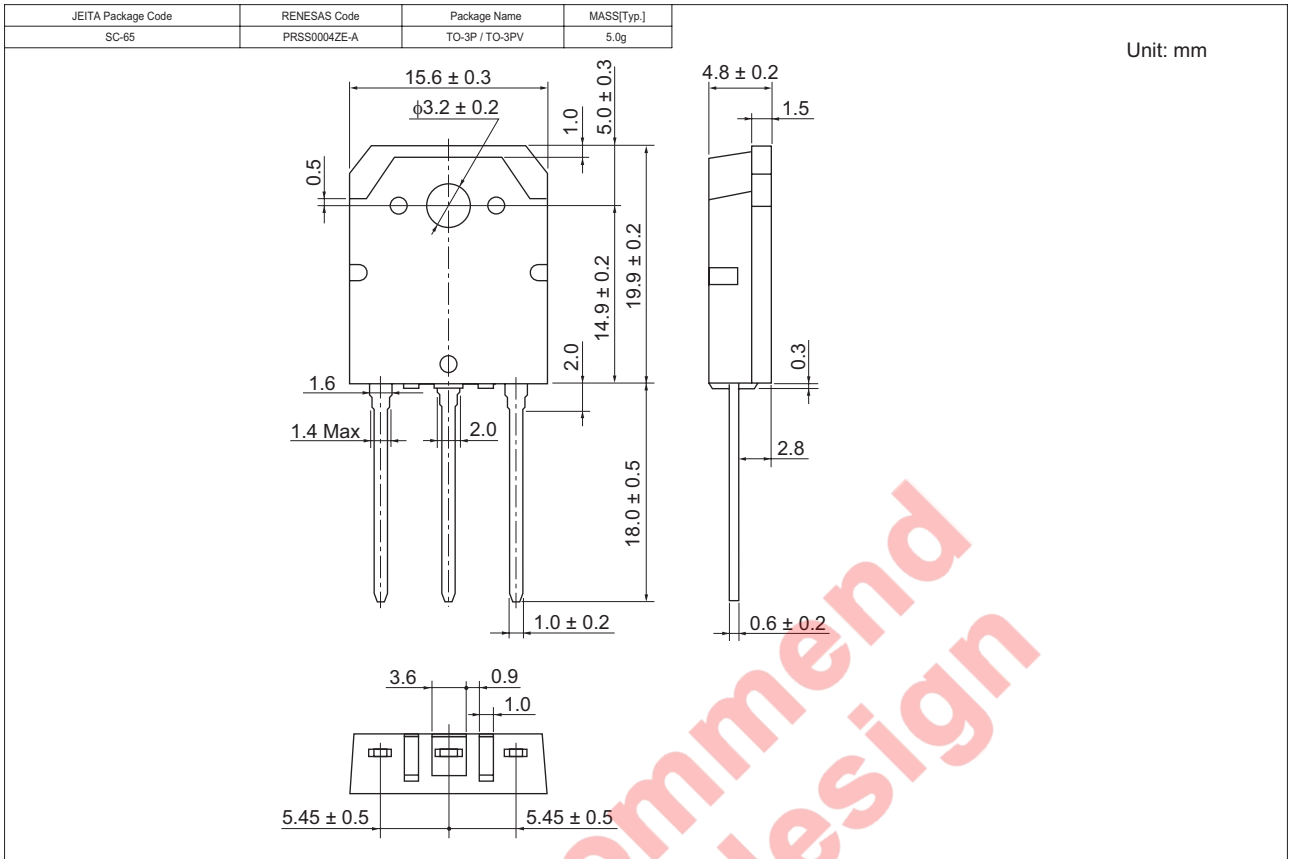
Avalanche Waveform





Not recommend
for new design

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK2727-E	360 pcs	Box (Tube)

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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 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 (Shanghai) Co., Ltd.

Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

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