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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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2SK2728

Silicon N Channel MOS FET
High Speed Power Switching

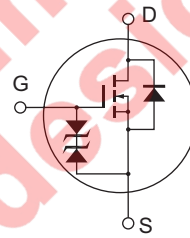
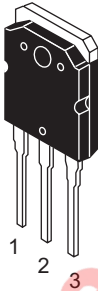
REJ03G1026-0400
(Previous: ADE-208-454B)
Rev.4.00
Sep 07, 2005

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	18	A
Drain peak current	I _{D(pulse)} * ¹	72	A
Body to drain diode reverse drain current	I _{DR}	18	A
Avalanche current	I _{AP} * ³	18	A
Avalanche energy	E _{AR} * ³	18	mJ
Channel dissipation	P _{ch} * ²	150	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 T_c = 25°C
 3. Value at T_{ch} = 25°C, R_g ≥ 50 Ω

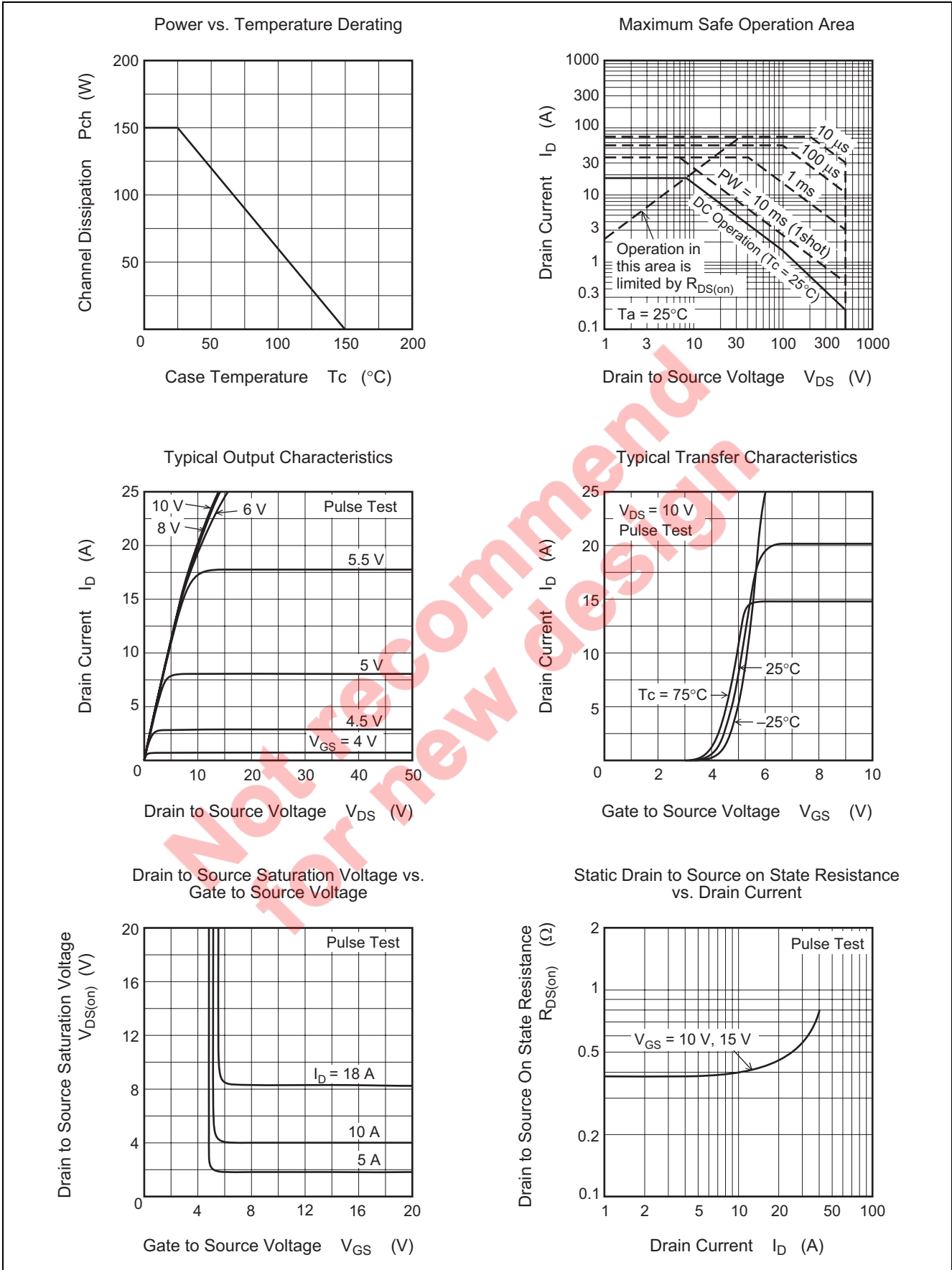
Electrical Characteristics

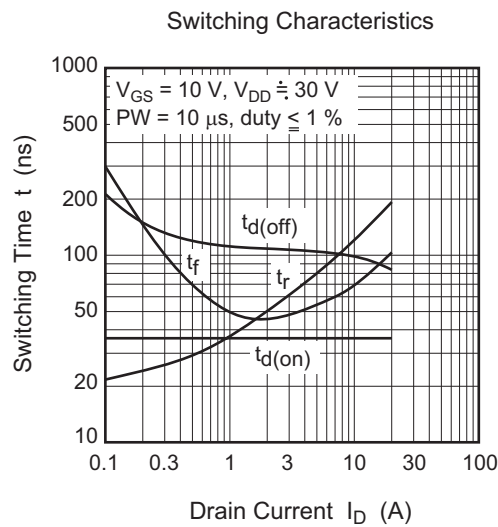
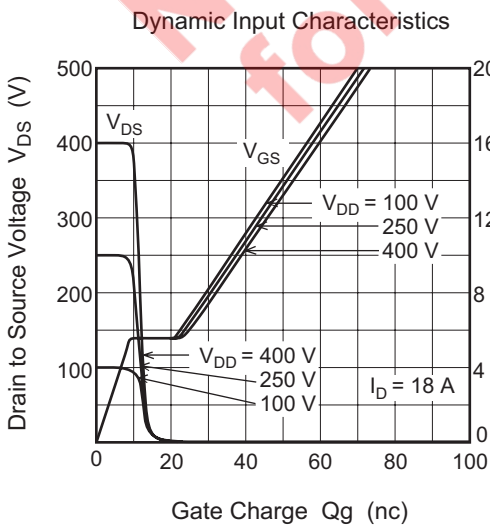
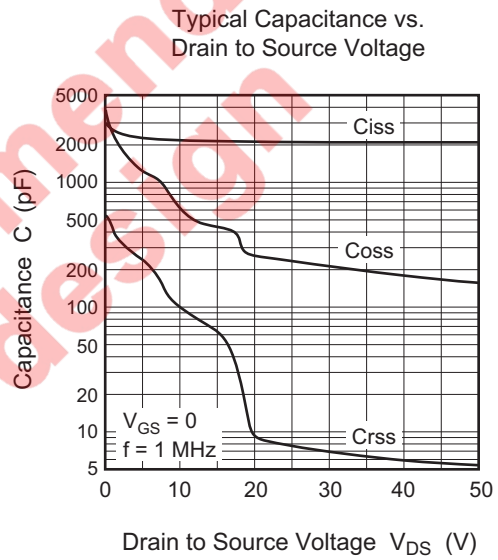
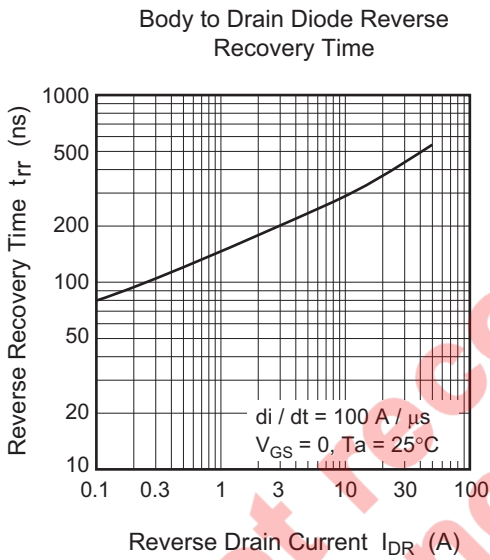
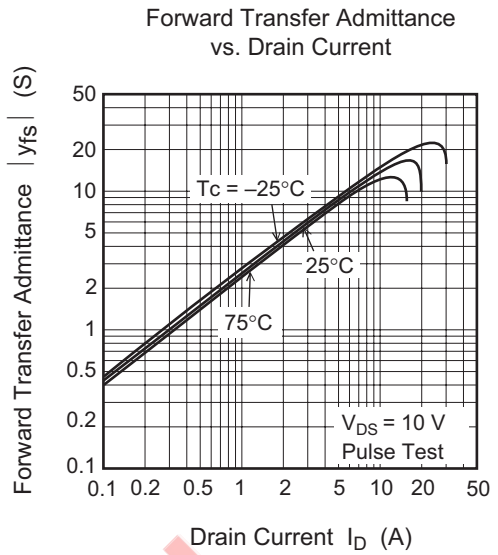
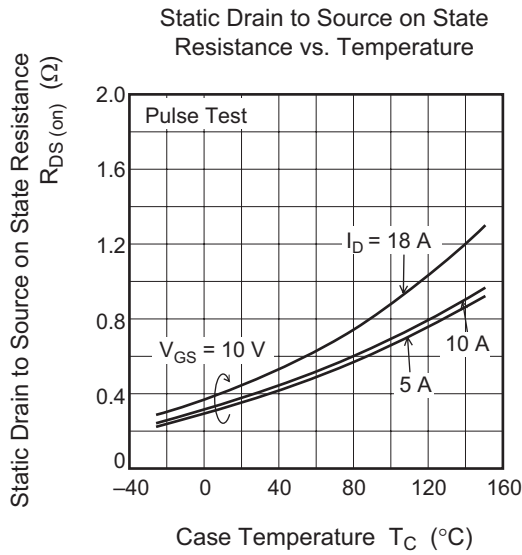
(Ta = 25°C)

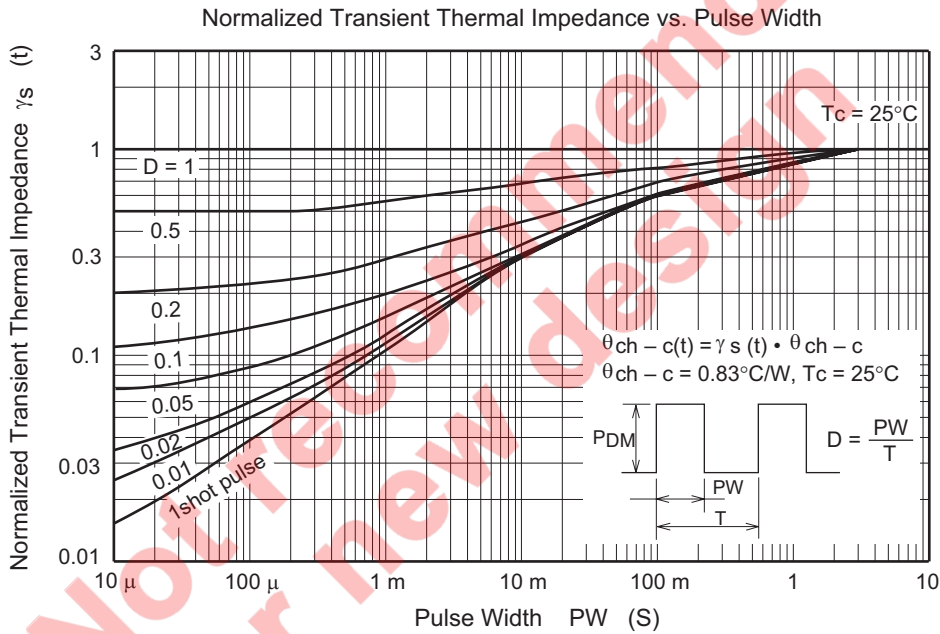
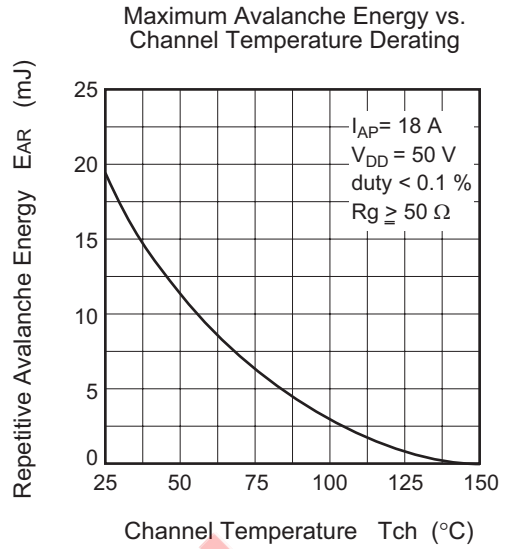
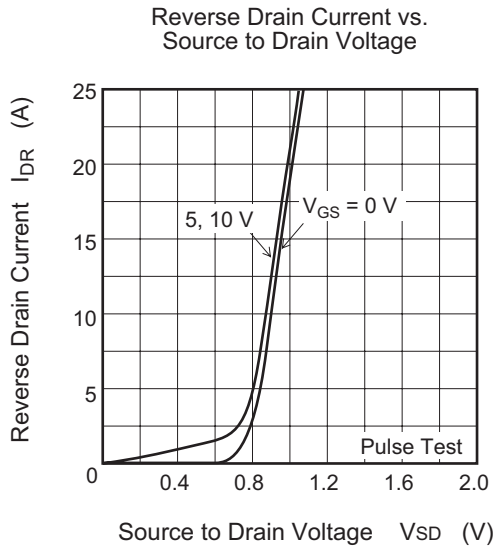
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR)DSS}	500	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±30	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±25 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	10	μA	V _{DS} = 500 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	2.5	—	3.5	V	I _D = 1 mA, V _{DS} = 10V* ⁴
Static drain to source on state resistance	R _{DS(on)}	—	0.38	0.45	Ω	I _D = 9 A, V _{GS} = 10 V* ⁴
Forward transfer admittance	y _{fs}	8	13	—	S	I _D = 9 A, V _{DS} = 10 V* ⁴
Input capacitance	C _{iss}	—	2150	—	pF	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz
Output capacitance	C _{oss}	—	630	—	pF	
Reverse transfer capacitance	C _{rss}	—	100	—	pF	
Total gate charge	Q _g	—	38	—	nc	V _{DD} = 400 V, V _{GS} = 10 V, I _D = 18 A
Gate to source charge	Q _{gs}	—	10	—	nc	
Gate to drain charge	Q _{gd}	—	13	—	nc	
Turn-on delay time	t _{d(on)}	—	35	—	ns	V _{GS} = 10 V, I _D = 9 A, R _L = 3.3 Ω
Rise time	t _r	—	120	—	ns	
Turn-off delay time	t _{d(off)}	—	100	—	ns	
Fall time	t _f	—	65	—	ns	
Body to drain diode forward voltage	V _{DF}	—	1.0	—	V	I _D = 18A, V _{GS} = 0
Body to drain diode reverse recovery time	t _{rr}	—	380	—	ns	I _F = 18A, V _{GS} = 0 di _F / dt = 100 A/μs

Note: 4. Pulse test

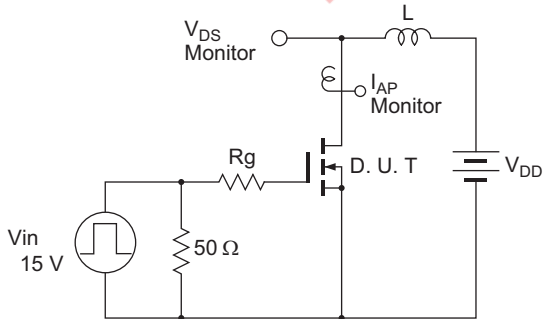
Main Characteristics



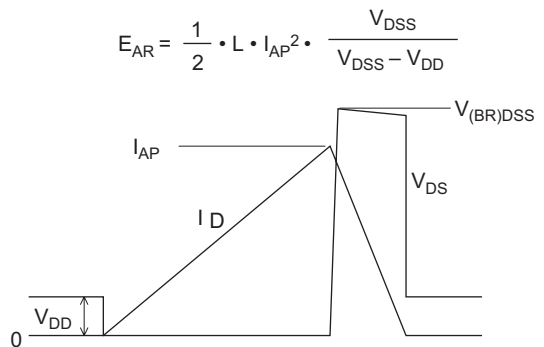


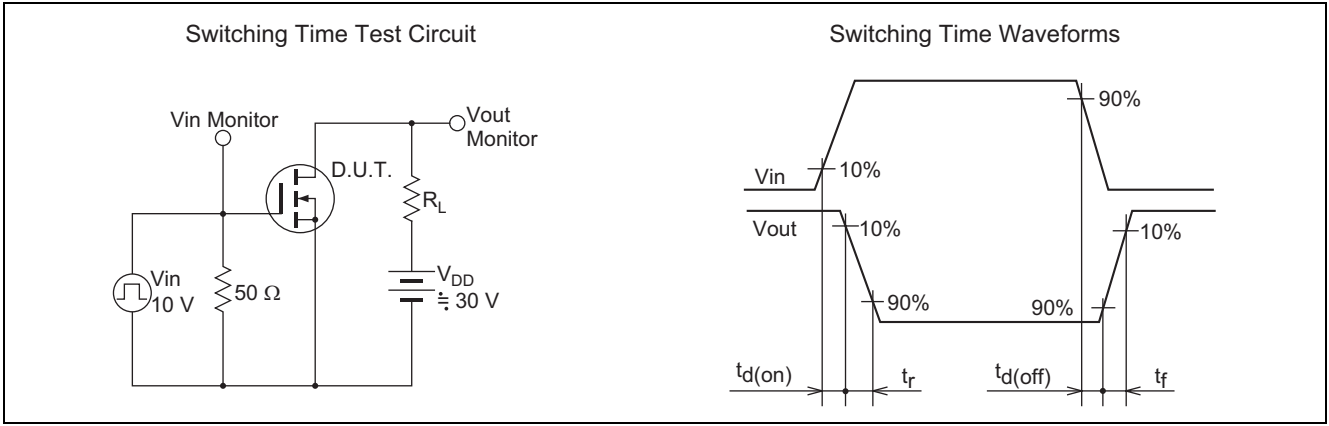


Avalanche Test Circuit



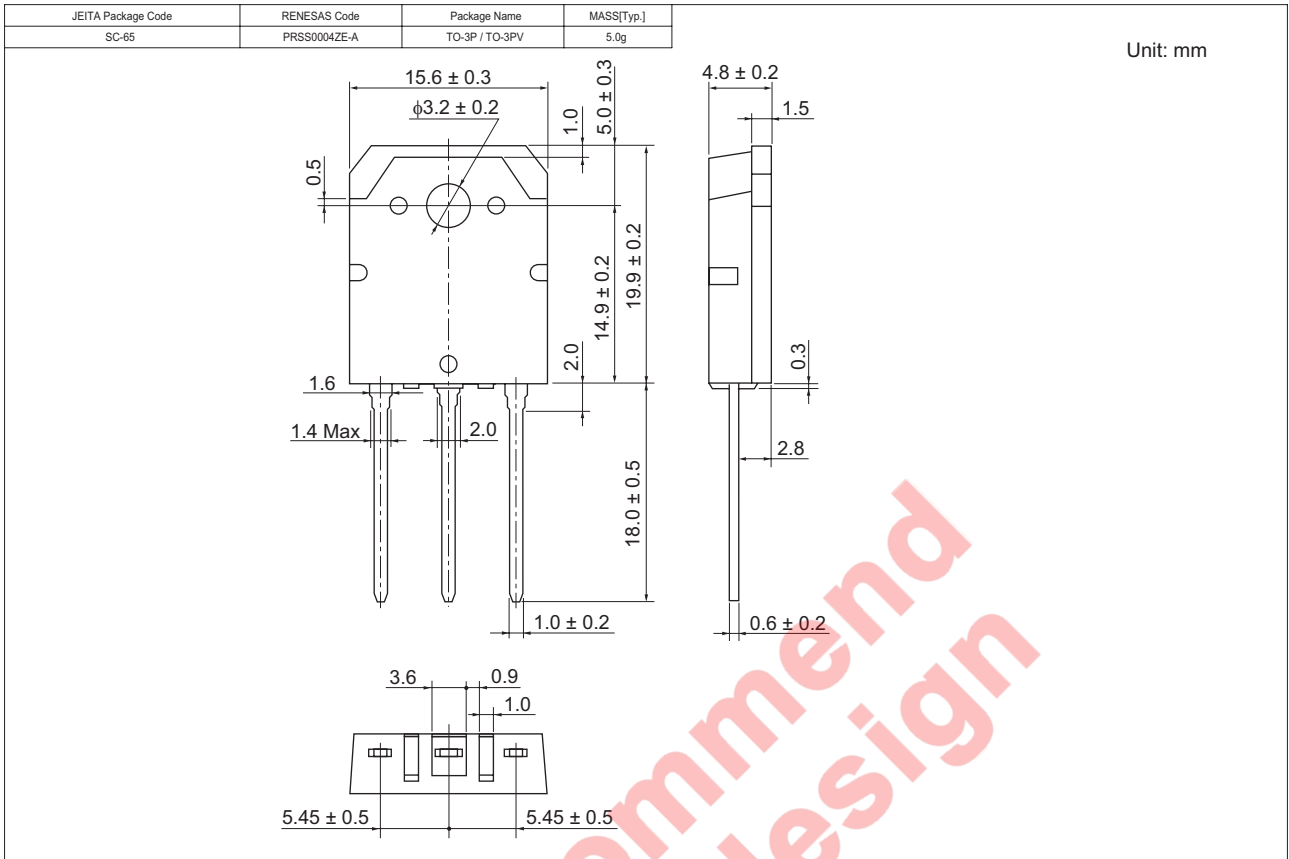
Avalanche Waveform





Not recommend
for new design

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK2728-E	360 pcs	Box (Tube)

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