

2SK2586

Silicon N Channel MOS FET

REJ03G1020-0500
(Previous: ADE-208-358C)
Rev.5.00
Sep 07, 2005

Application

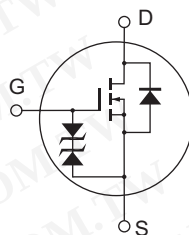
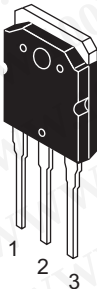
High speed power switching

Features

- Low on-resistance
 $R_{DS(on)} = 7 \text{ m}\Omega$ typ.
- High speed switching
- 4 V gate drive device can be driven from 5 V source

Outline

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



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

勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DS}	60	V
Gate to source voltage	V_{GS}	± 20	V
Drain current	I_D^{*2}	60	A
Drain peak current	$I_{D(pulse)}^{*1}$	240	A
Body to drain diode reverse drain current	I_{DR}^{*2}	60	A
Avalanche current	I_{AP}^{*3}	45	A
Avalanche energy	E_{AR}^{*3}	174	mJ
Channel dissipation	P_{ch}^{*2}	125	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

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

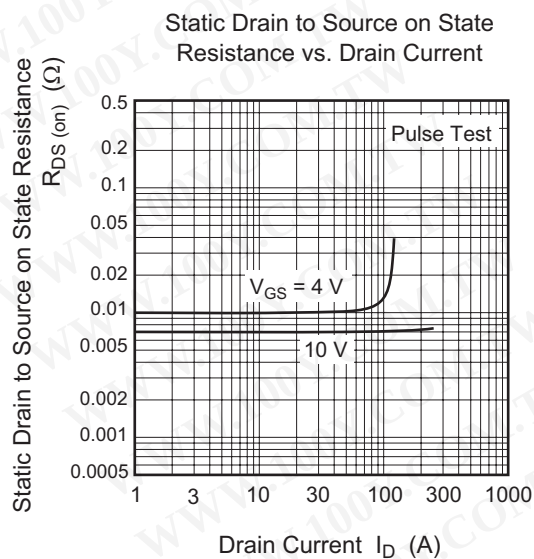
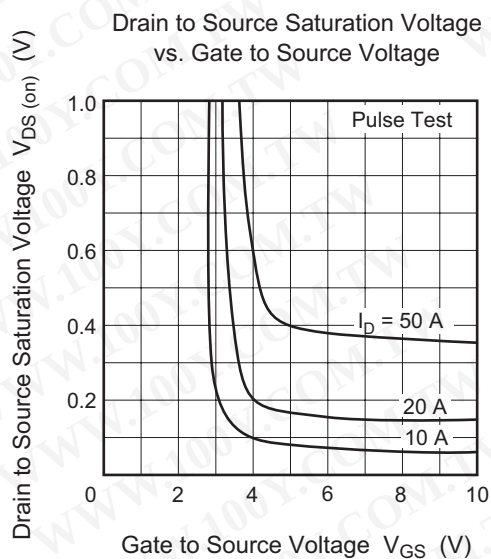
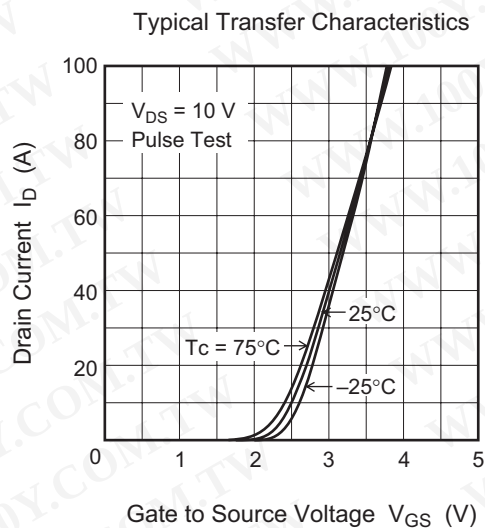
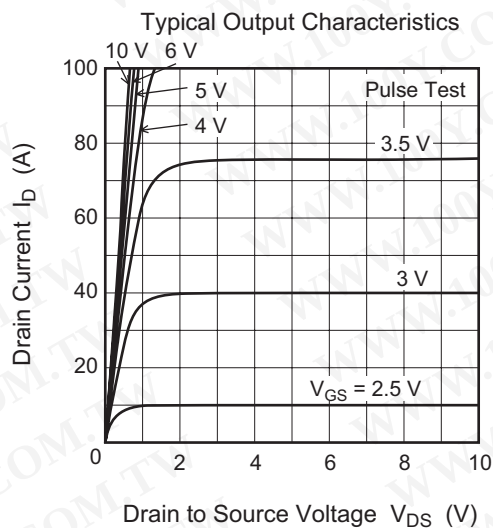
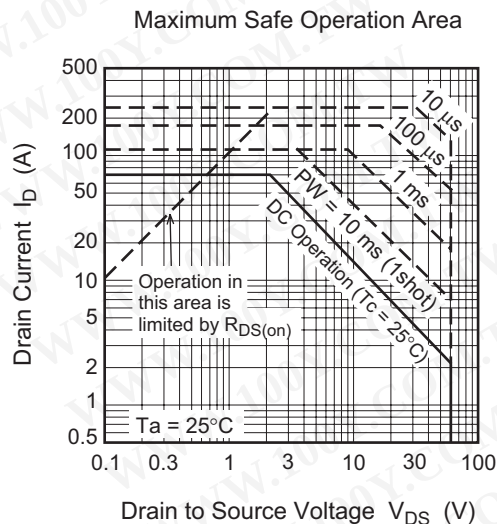
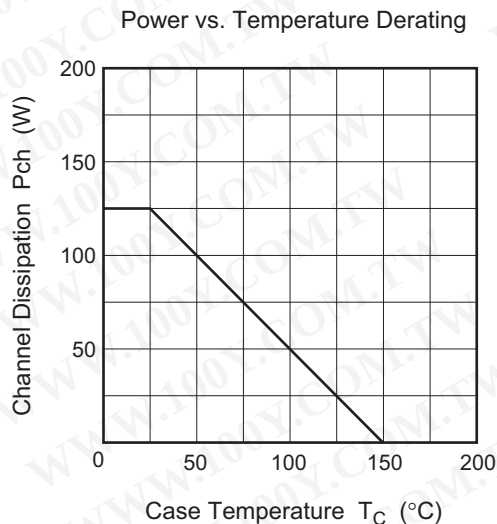
Electrical Characteristics

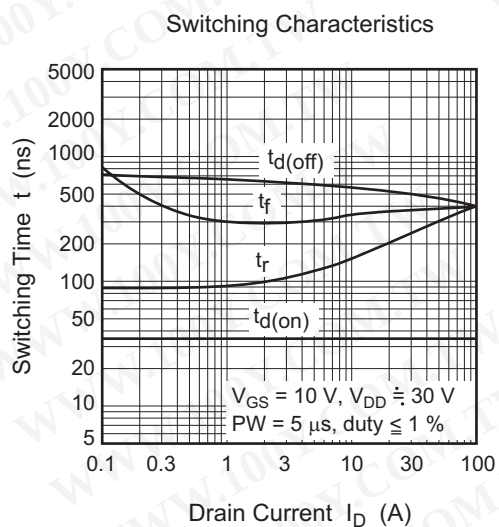
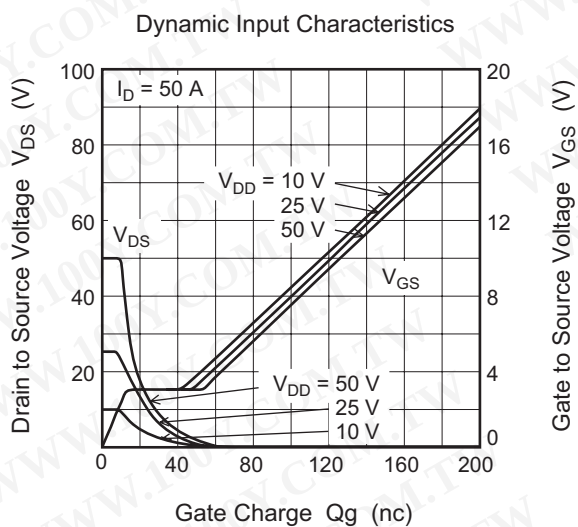
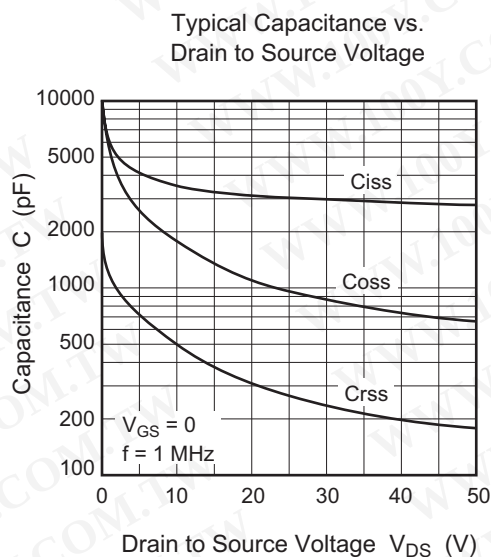
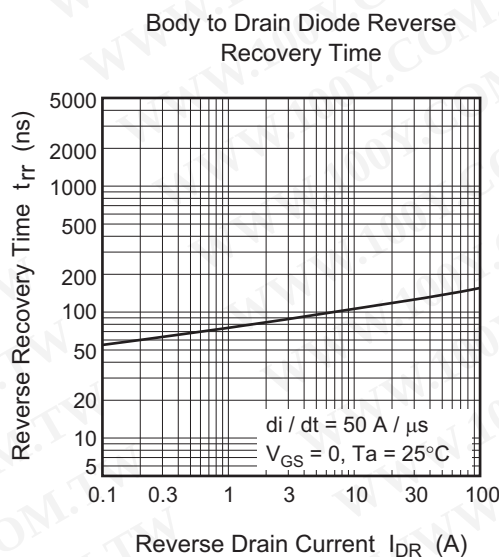
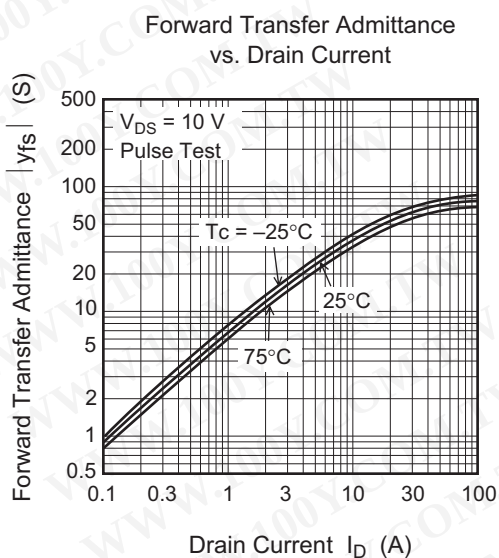
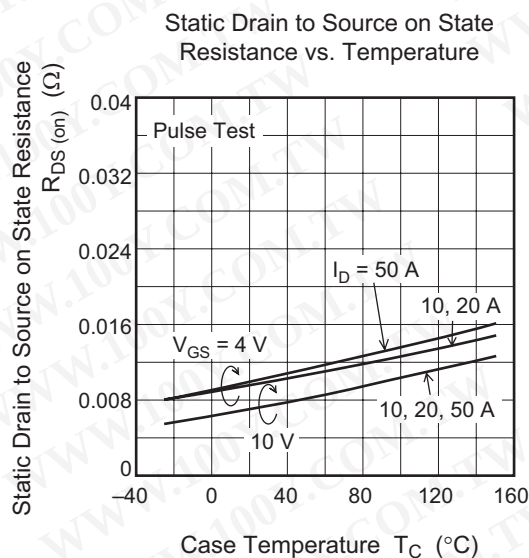
(Ta = 25°C)

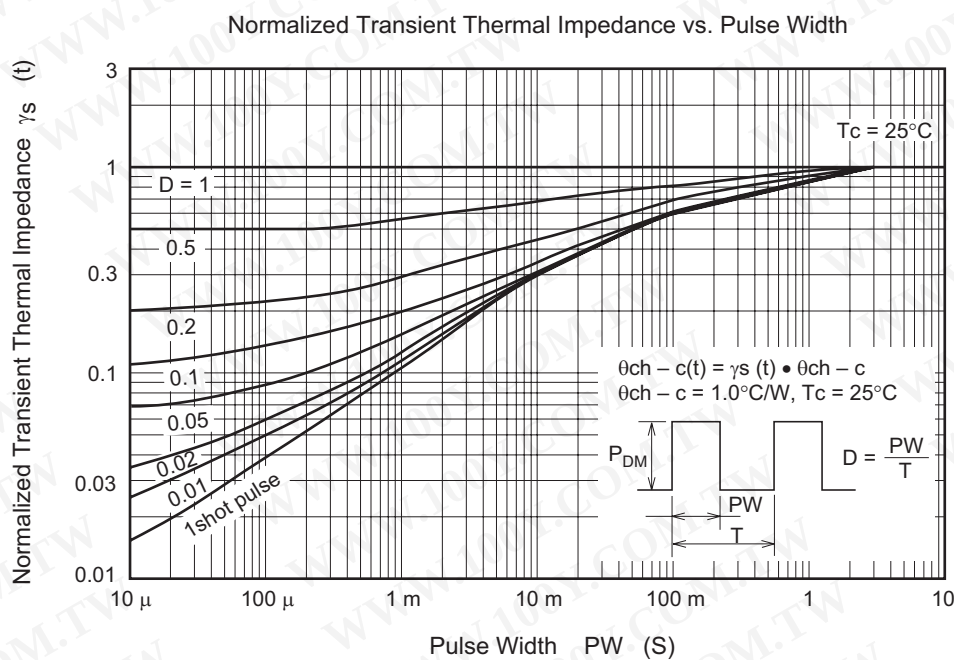
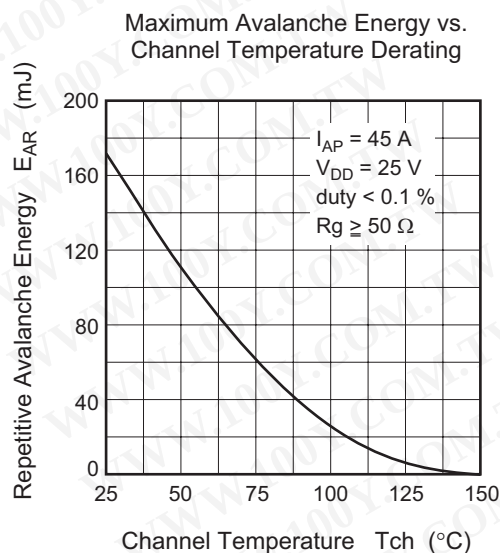
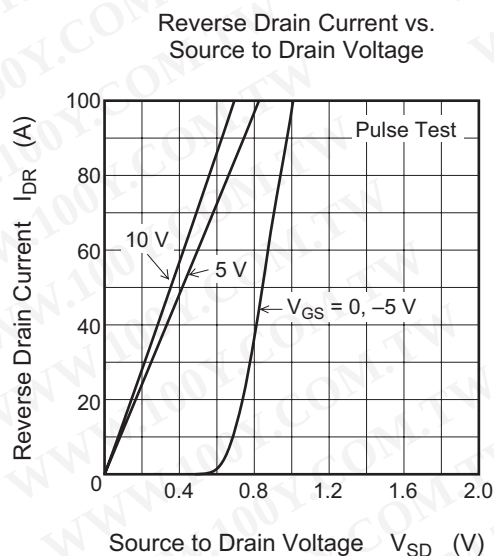
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	100	μA	$V_{DS} = 60 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	7	10	mΩ	$I_D = 30 \text{ A}$, $V_{GS} = 10 \text{ V}^{*4}$
		—	10	16	mΩ	$I_D = 30 \text{ A}$, $V_{GS} = 4 \text{ V}^{*4}$
Forward transfer admittance	$ y_{fs} $	35	60	—	S	$I_D = 30 \text{ A}$, $V_{DS} = 10 \text{ V}^{*4}$
Input capacitance	C_{iss}	—	3550	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	1760	—	pF	
Reverse transfer capacitance	C_{rss}	—	500	—	pF	
Turn-on delay time	$t_{d(on)}$	—	35	—	ns	$I_D = 30 \text{ A}$, $V_{GS} = 10 \text{ V}$, $R_L = 1.0 \text{ }\Omega$
Rise time	t_r	—	260	—	ns	
Turn-off delay time	$t_{d(off)}$	—	480	—	ns	
Fall time	t_f	—	370	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.94	—	V	$I_F = 60 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	140	—	ns	$I_F = 60 \text{ A}$, $V_{GS} = 0$ $di_F / dt = 50 \text{ A} / \mu\text{s}$

Note: 4. Pulse Test

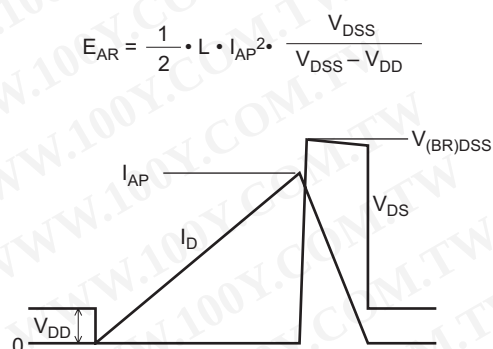
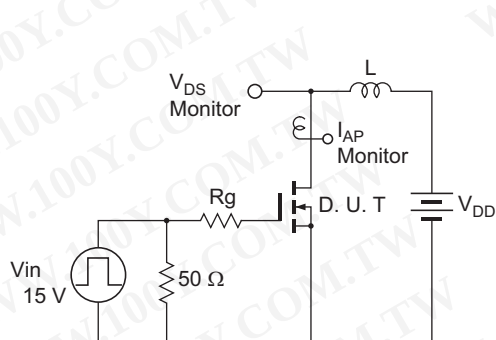
Main Characteristics



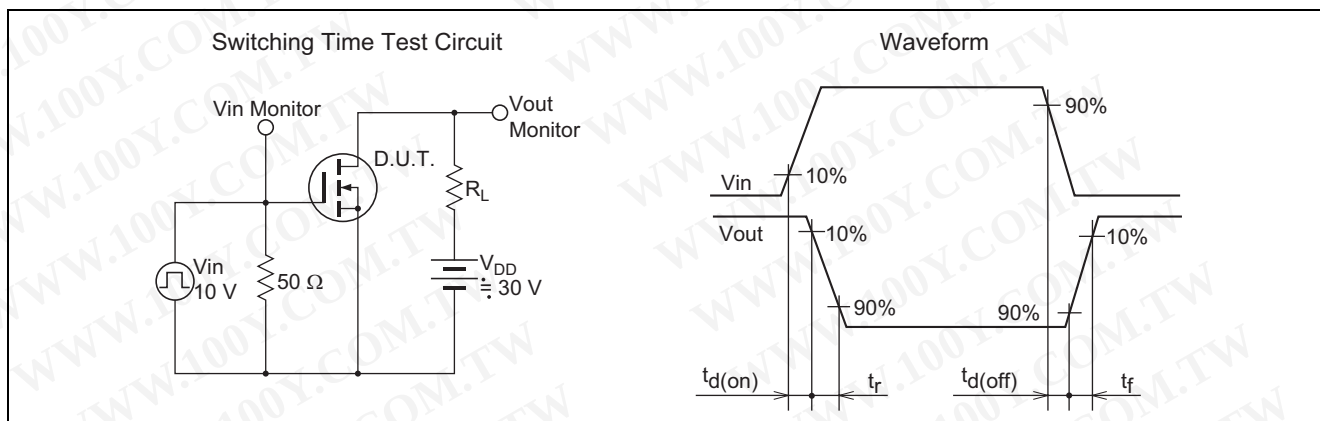




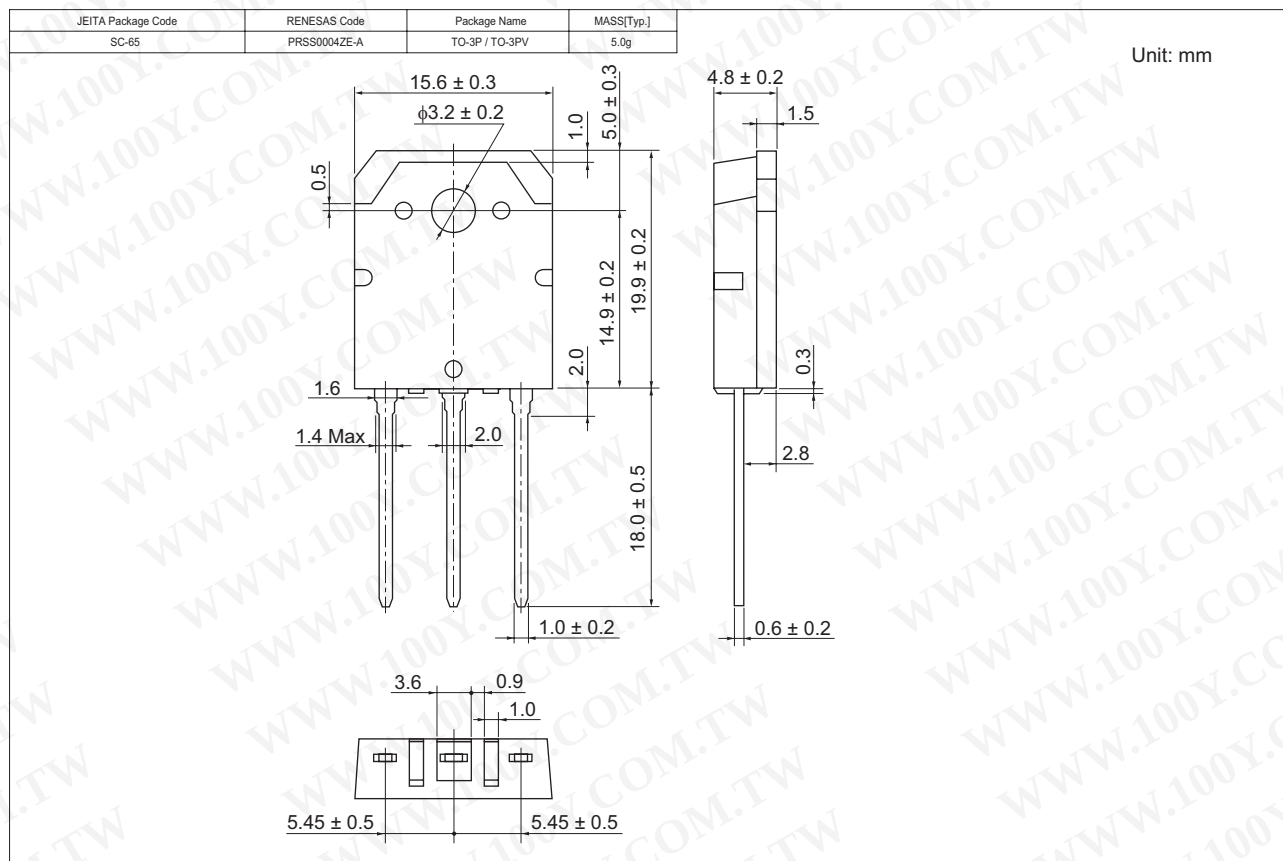
Avalanche Test Circuit and Waveform



$$E_{AR} = \frac{1}{2} \cdot L \cdot I_{AP}^2 \cdot \frac{V_{DSS}}{V_{DSS} - V_{DD}}$$



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK2586-E	30 pcs	Plastic magazine

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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