

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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

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EOL announced Product

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## 2SK1167, 2SK1168

Silicon N Channel MOS FET

REJ03G0915-0200  
(Previous: ADE-208-1253)  
Rev.2.00  
Sep 07, 2005

### Application

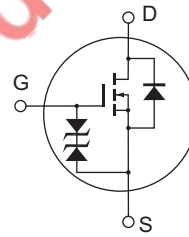
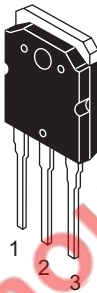
High speed power switching

### Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator and DC-DC converter

### 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	2SK1167	450	V
	2SK1168	500	
Gate to source voltage	V <sub>GSS</sub>	±30	V
Drain current	I <sub>D</sub>	15	A
Drain peak current	I <sub>D(pulse)</sub> <sup>*1</sup>	60	A
Body to drain diode reverse drain current	I <sub>DR</sub>	15	A
Channel dissipation	P <sub>ch</sub> <sup>*2</sup>	100	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

2. Value at T<sub>C</sub> = 25°C

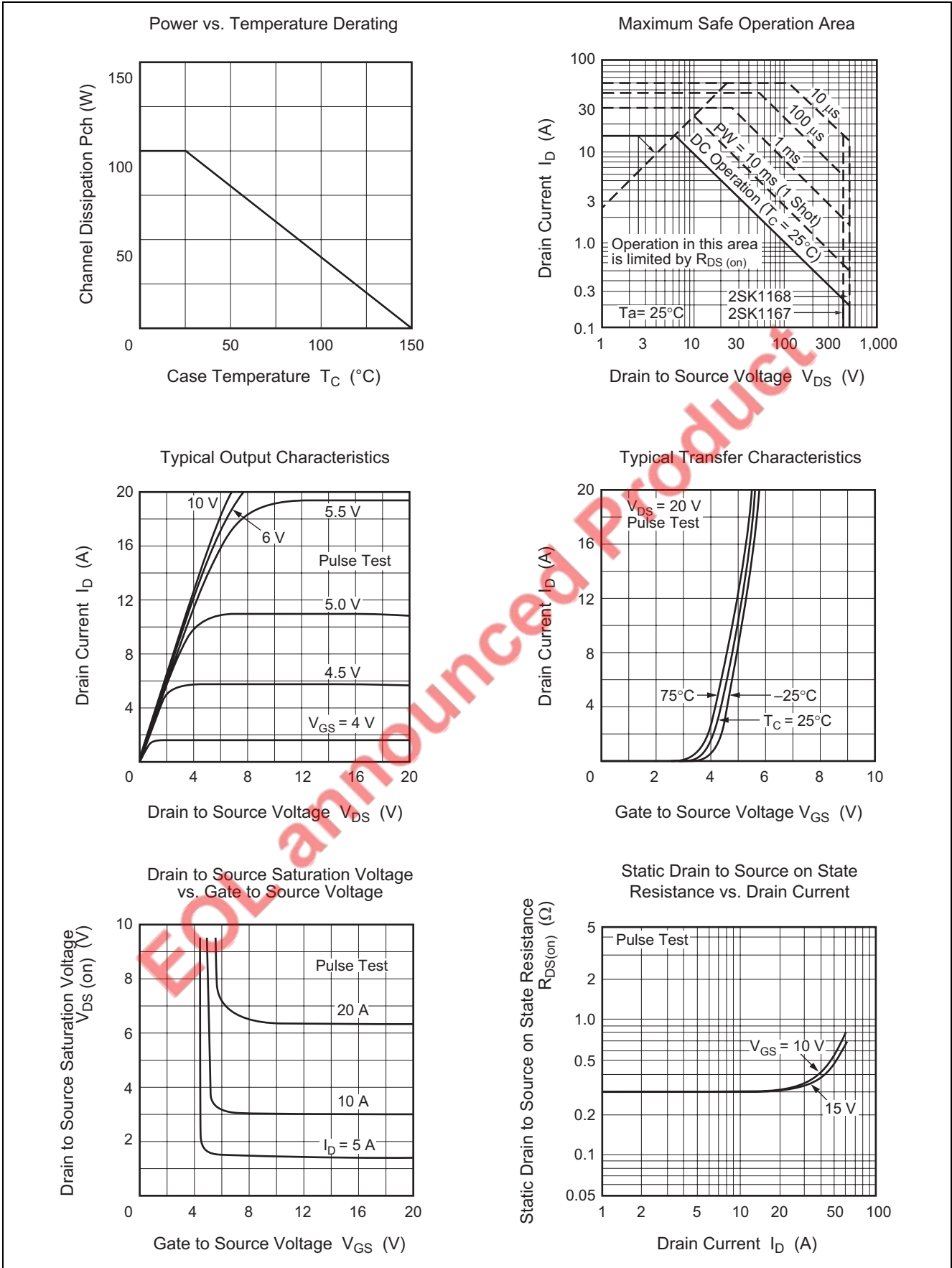
## Electrical Characteristics

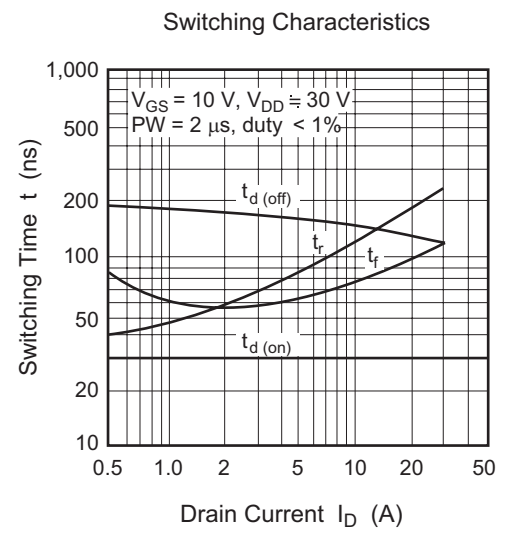
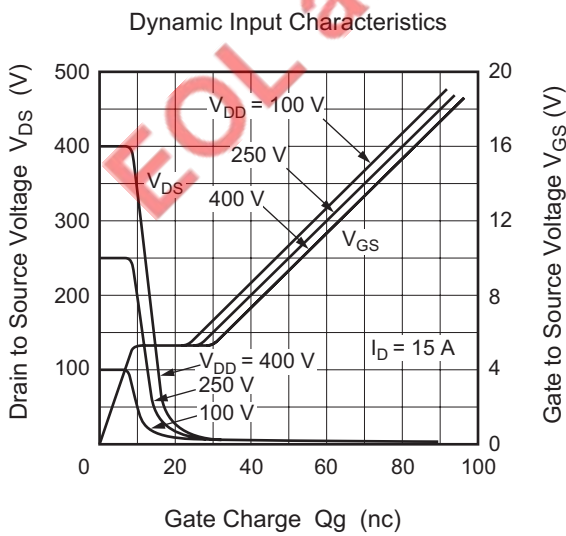
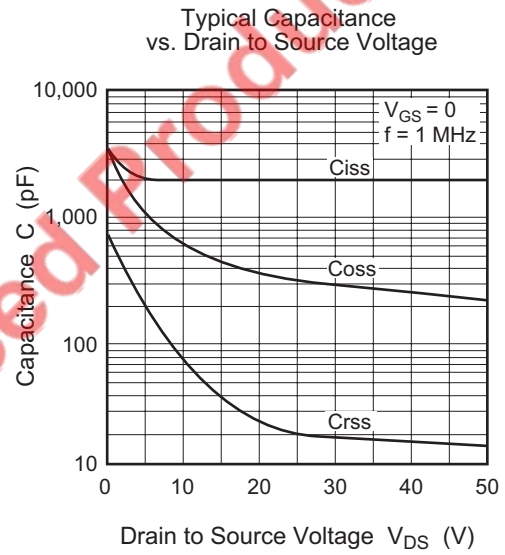
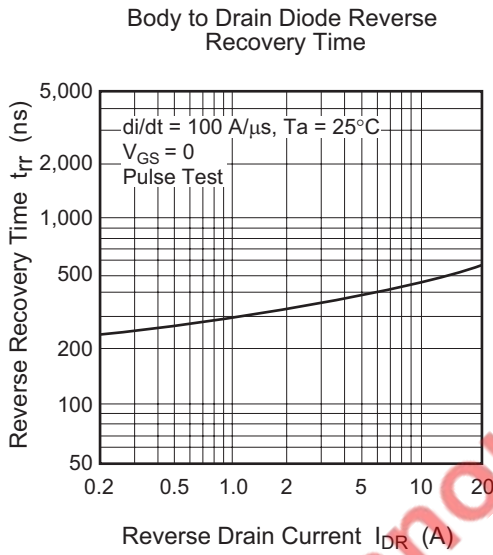
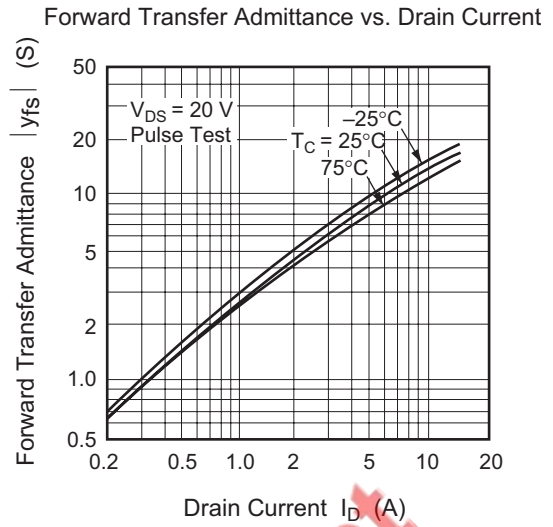
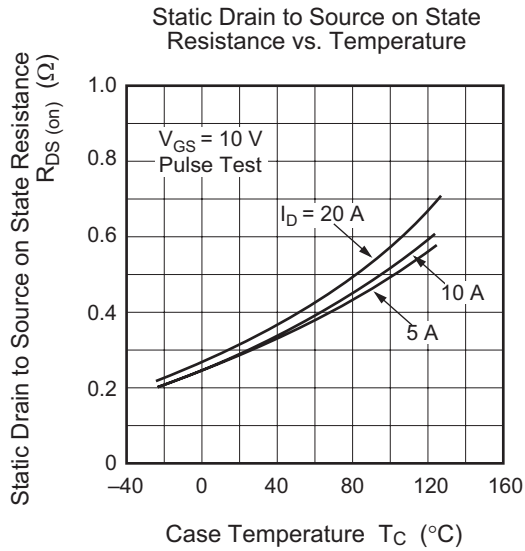
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1167	450	—	—	V	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0
	2SK1168	500				
Gate to source breakdown voltage	V <sub>(BR)GSS</sub>	±30	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±25 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	2SK1167	—	—	250	μA	V <sub>DS</sub> = 360 V, V <sub>GS</sub> = 0
	2SK1168					V <sub>DS</sub> = 400 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	2.0	—	3.0	V	I <sub>D</sub> = 1 mA, V <sub>DS</sub> = 10 V
Static drain to source on state resistance	2SK1167	—	0.25	0.36	Ω	I <sub>D</sub> = 8 A, V <sub>GS</sub> = 10 V <sup>*3</sup>
	2SK1168	—	0.30	0.40		
Forward transfer admittance	y <sub>fs</sub>	8	13	—	S	I <sub>D</sub> = 8 A, V <sub>DS</sub> = 10 V <sup>*3</sup>
Input capacitance	C <sub>iss</sub>	—	2050	—	pF	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0, f = 1 MHz
Output capacitance	C <sub>oss</sub>	—	600	—	pF	
Reverse transfer capacitance	C <sub>rss</sub>	—	75	—	pF	
Turn-on delay time	t <sub>d(on)</sub>	—	30	—	ns	I <sub>D</sub> = 8 A, V <sub>GS</sub> = 10 V, R <sub>L</sub> = 3.75 Ω
Rise time	t <sub>r</sub>	—	110	—	ns	
Turn-off delay time	t <sub>d(off)</sub>	—	150	—	ns	
Fall time	t <sub>f</sub>	—	70	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	1.0	—	V	I <sub>F</sub> = 15 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	500	—	ns	I <sub>F</sub> = 15 A, V <sub>GS</sub> = 0, di <sub>F</sub> /dt = 100 A/μs

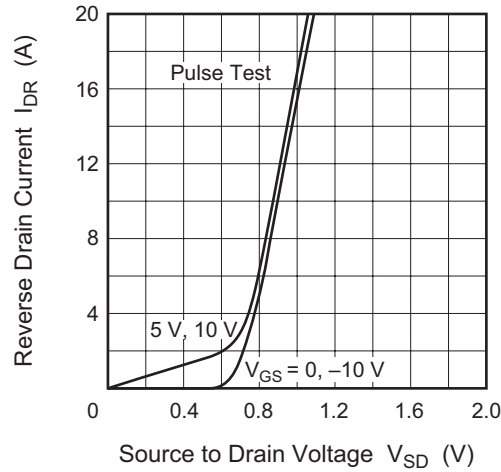
Note: 3. Pulse test

Main Characteristics

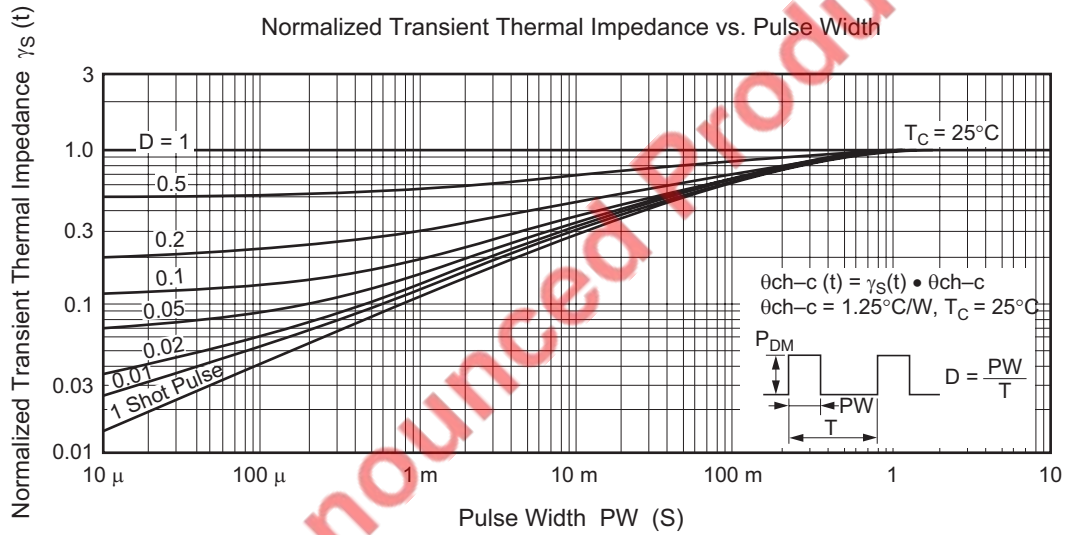




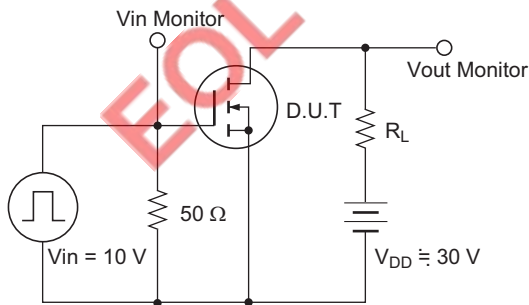
Reverse Drain Current vs. Source to Drain Voltage



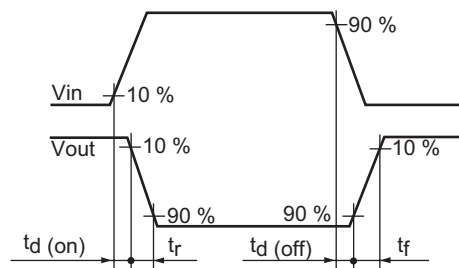
Normalized Transient Thermal Impedance vs. Pulse Width



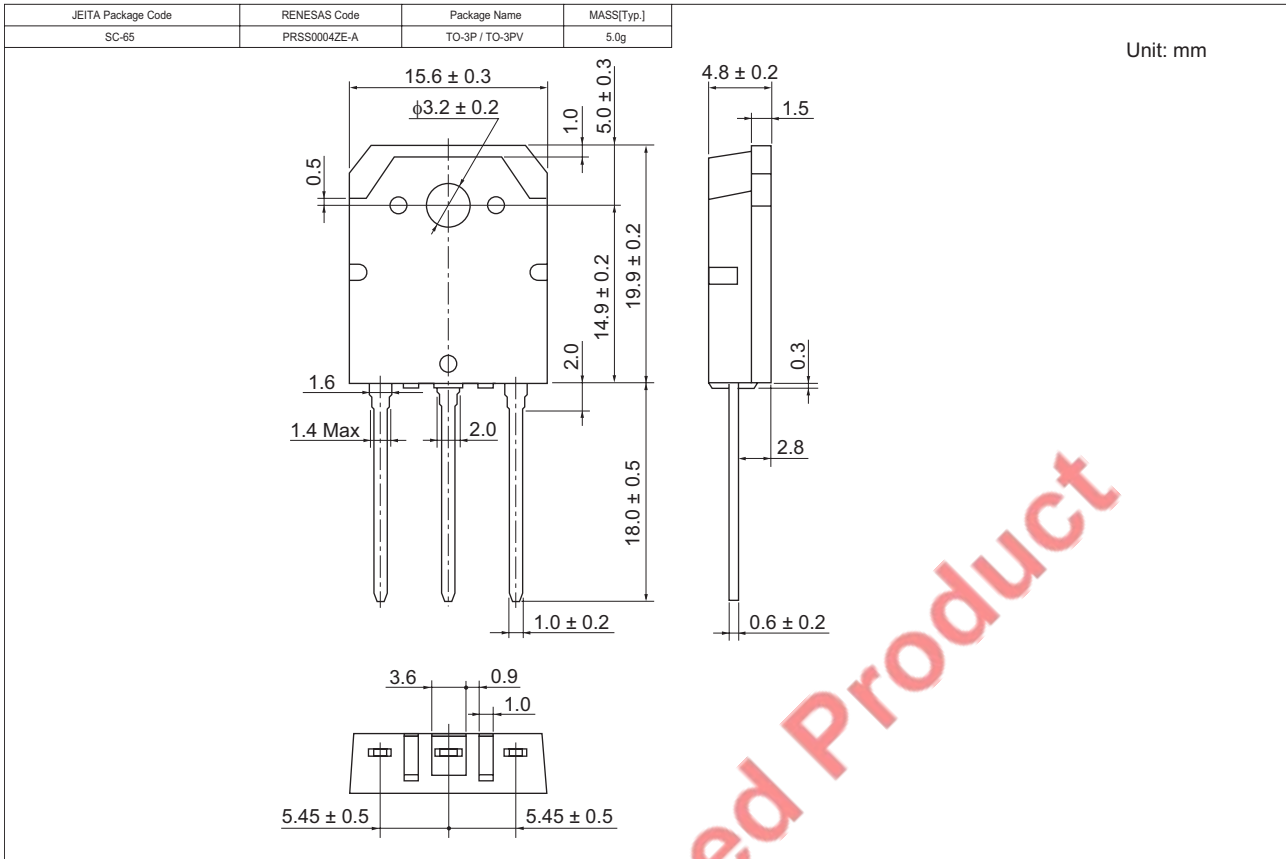
Switching Time Test Circuit



Waveforms



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK1167-E	360 pcs	Box (Tube)
2SK1168-E	360 pcs	Box (Tube)

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