

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

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EOL announced Product

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# 2SK1519, 2SK1520

Silicon N Channel MOS FET

REJ03G0948-0400

Rev.4.00

May 13, 2009

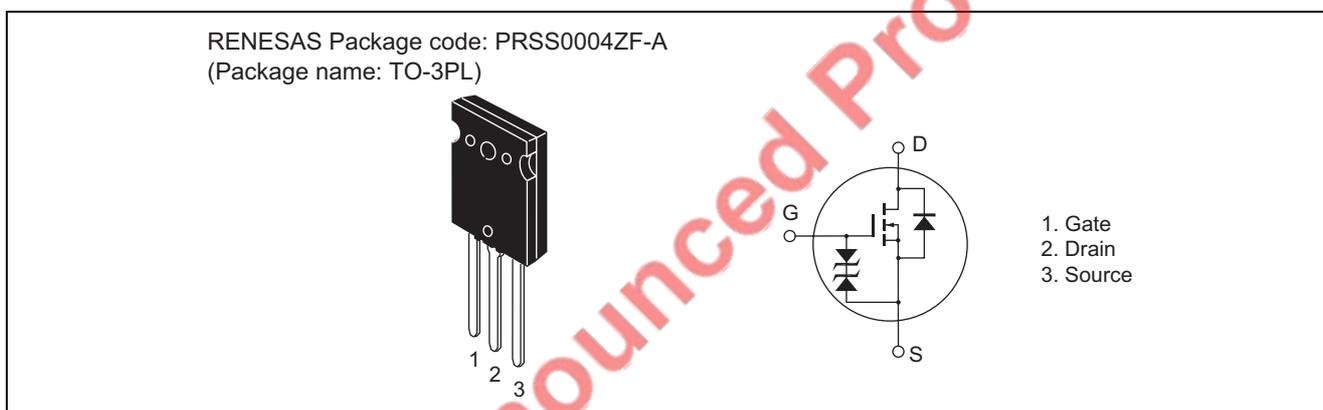
## Application

High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- Built-in fast recovery diode ( $t_{tr} = 120 \text{ ns}$ )
- Suitable for motor control, switching regulator, DC-DC converter

## Outline



## Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	450	V
		500	
Gate to source voltage	$V_{GSS}$	$\pm 30$	V
Drain current	$I_D$	30	A
Drain peak current	$I_{D(pulse)}^{*1}$	120	A
Body to drain diode reverse drain current	$I_{DR}$	30	A
Channel dissipation	$P_{ch}^{*2}$	200	W
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Notes: 1.  $PW \leq 10 \mu\text{s}$ , duty cycle  $\leq 1\%$

2. Value at  $T_C = 25^\circ\text{C}$

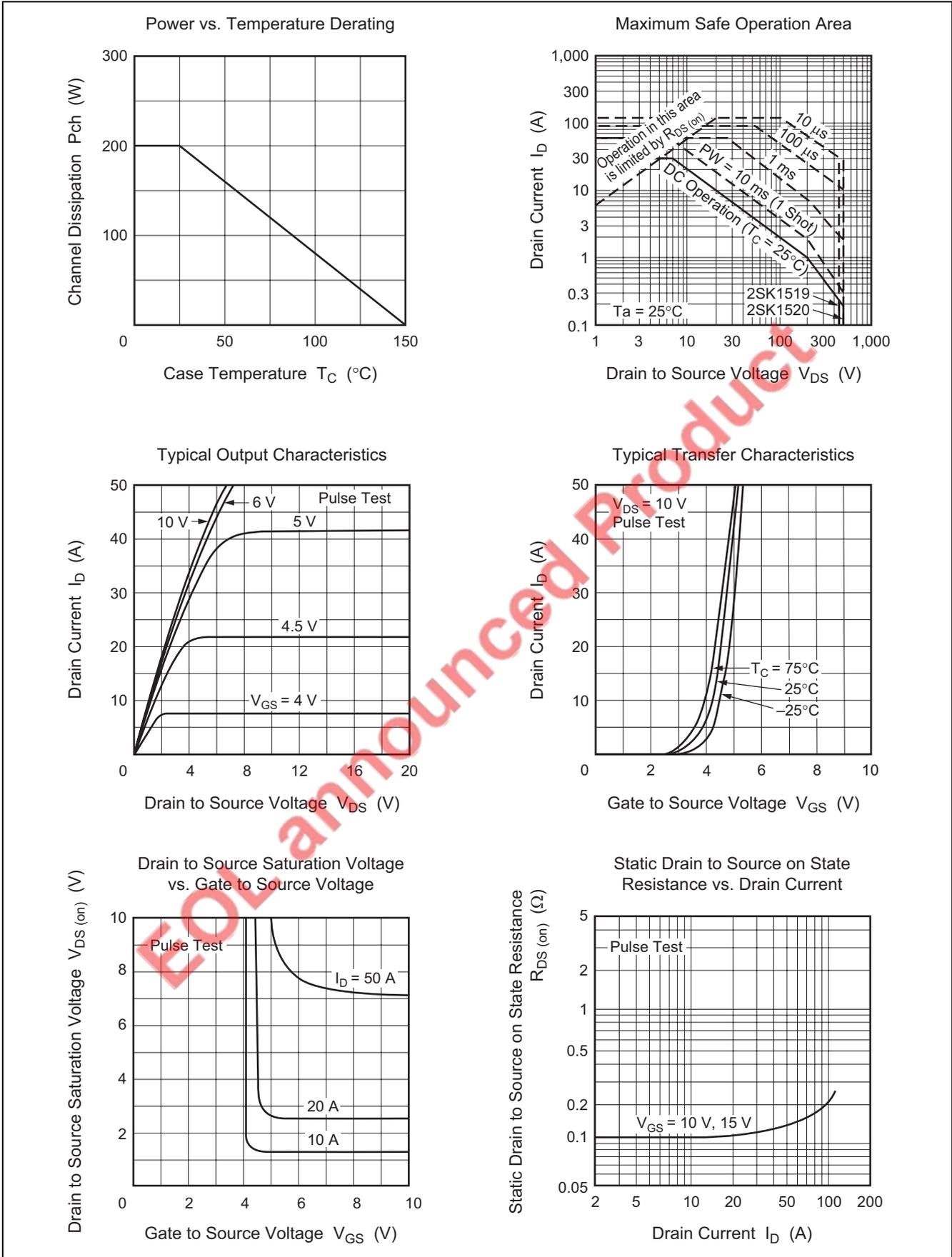
## Electrical Characteristics

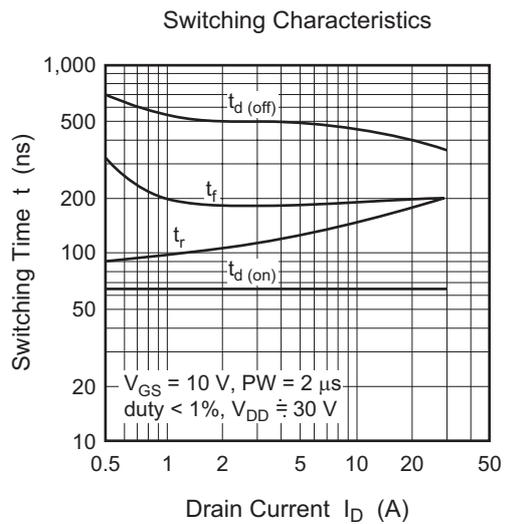
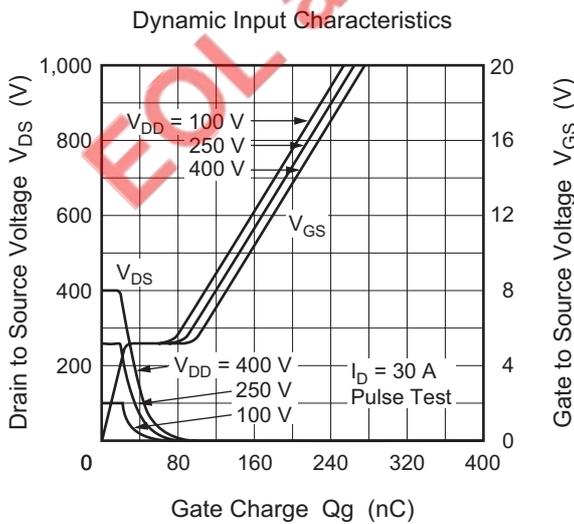
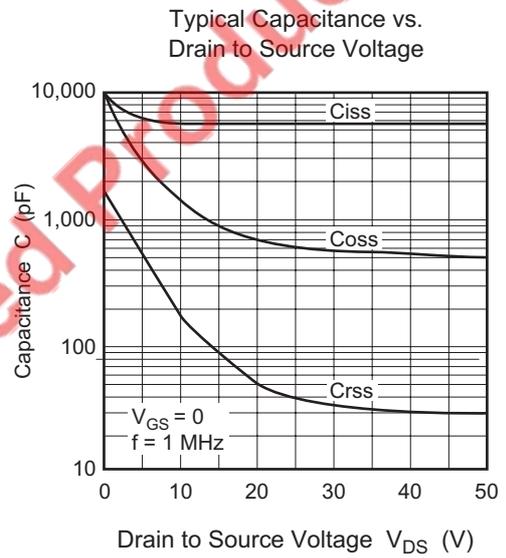
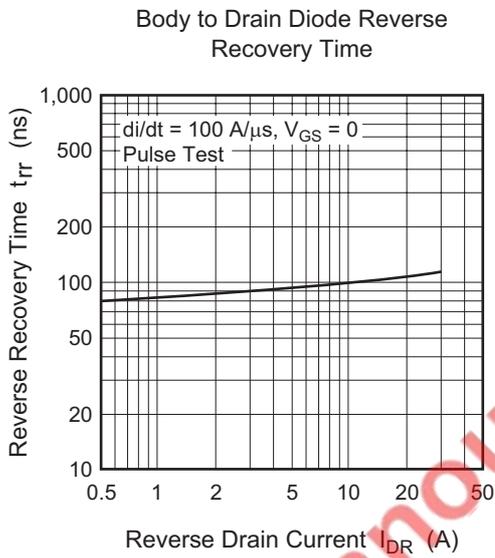
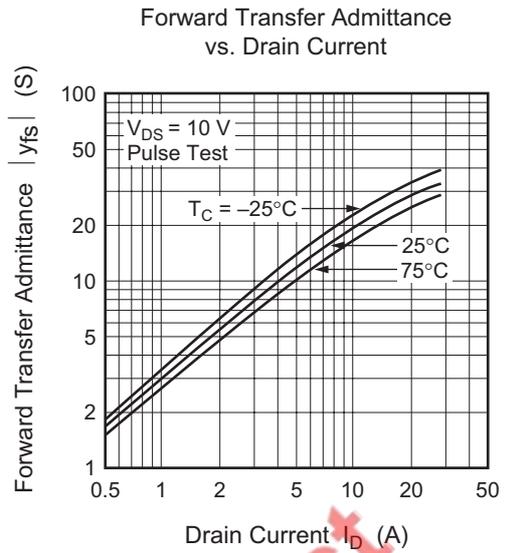
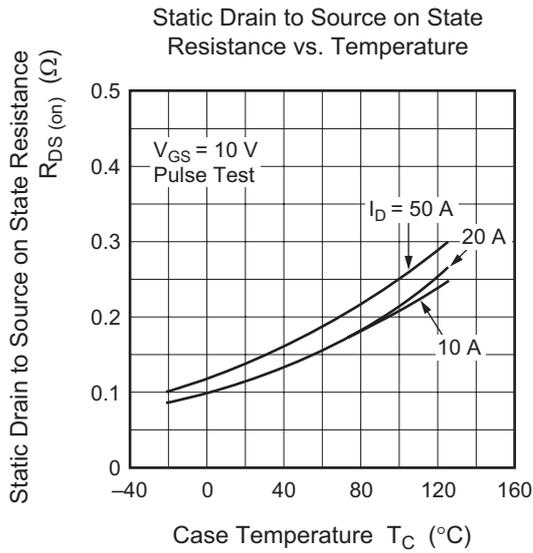
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1519	450	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
	2SK1520	500	—	—	V	
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 30$	—	—	V	$I_G = \pm 100 \mu\text{A}, V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	2SK1519	—	—	250	$\mu\text{A}$	$V_{DS} = 360 \text{ V}, V_{GS} = 0$
	2SK1520	—	—	—	$\mu\text{A}$	$V_{DS} = 400 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	3.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	2SK1519	—	0.11	0.15	$\Omega$	$I_D = 15 \text{ A}, V_{GS} = 10 \text{ V}^{*3}$
	2SK1520	—	0.12	0.16	$\Omega$	
Forward transfer admittance	$ y_{fs} $	15	25	—	S	$I_D = 15 \text{ A}, V_{DS} = 10 \text{ V}^{*3}$
Input capacitance	$C_{iSS}$	—	5800	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$ $f = 1 \text{ MHz}$
Output capacitance	$C_{oSS}$	—	1550	—	pF	
Reverse transfer capacitance	$C_{rSS}$	—	170	—	pF	
Turn-on delay time	$t_{d(on)}$	—	65	—	ns	$I_D = 15 \text{ A}, V_{GS} = 10 \text{ V},$ $R_L = 2 \Omega$
Rise time	$t_r$	—	170	—	ns	
Turn-off delay time	$t_{d(off)}$	—	415	—	ns	
Fall time	$t_f$	—	200	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	1.1	—	V	$I_F = 30 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	120	—	ns	$I_F = 30 \text{ A}, V_{GS} = 0,$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

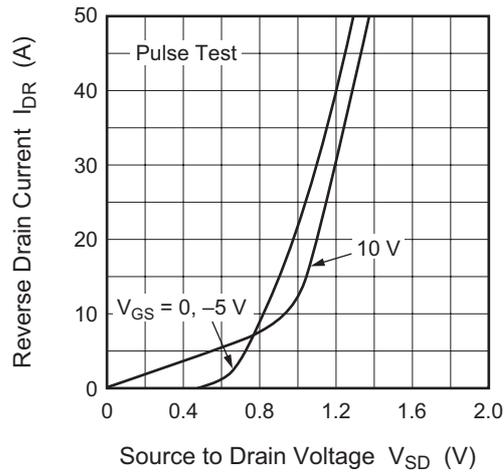
Note: 3. Pulse test

### Main Characteristics

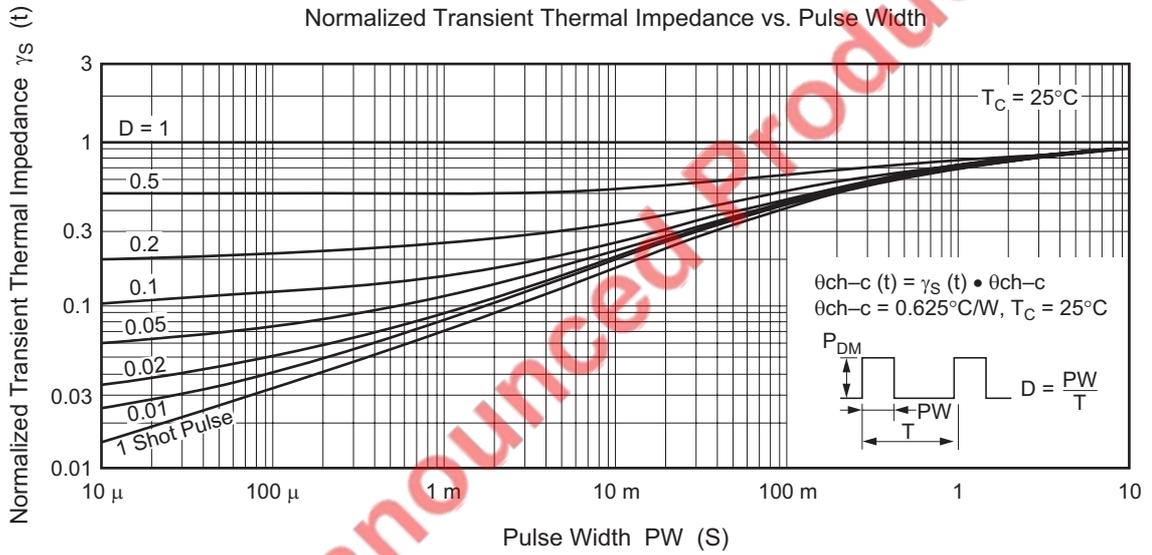




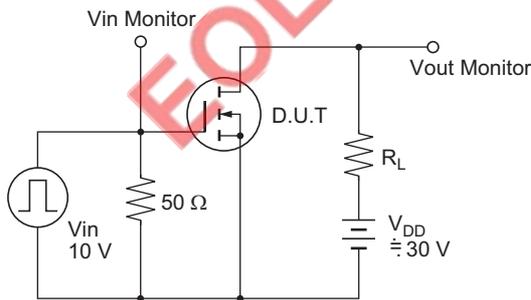
Reverse Drain Current vs. Source to Drain Voltage



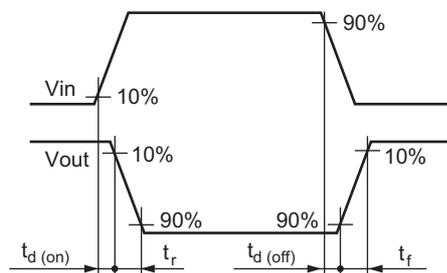
Normalized Transient Thermal Impedance vs. Pulse Width



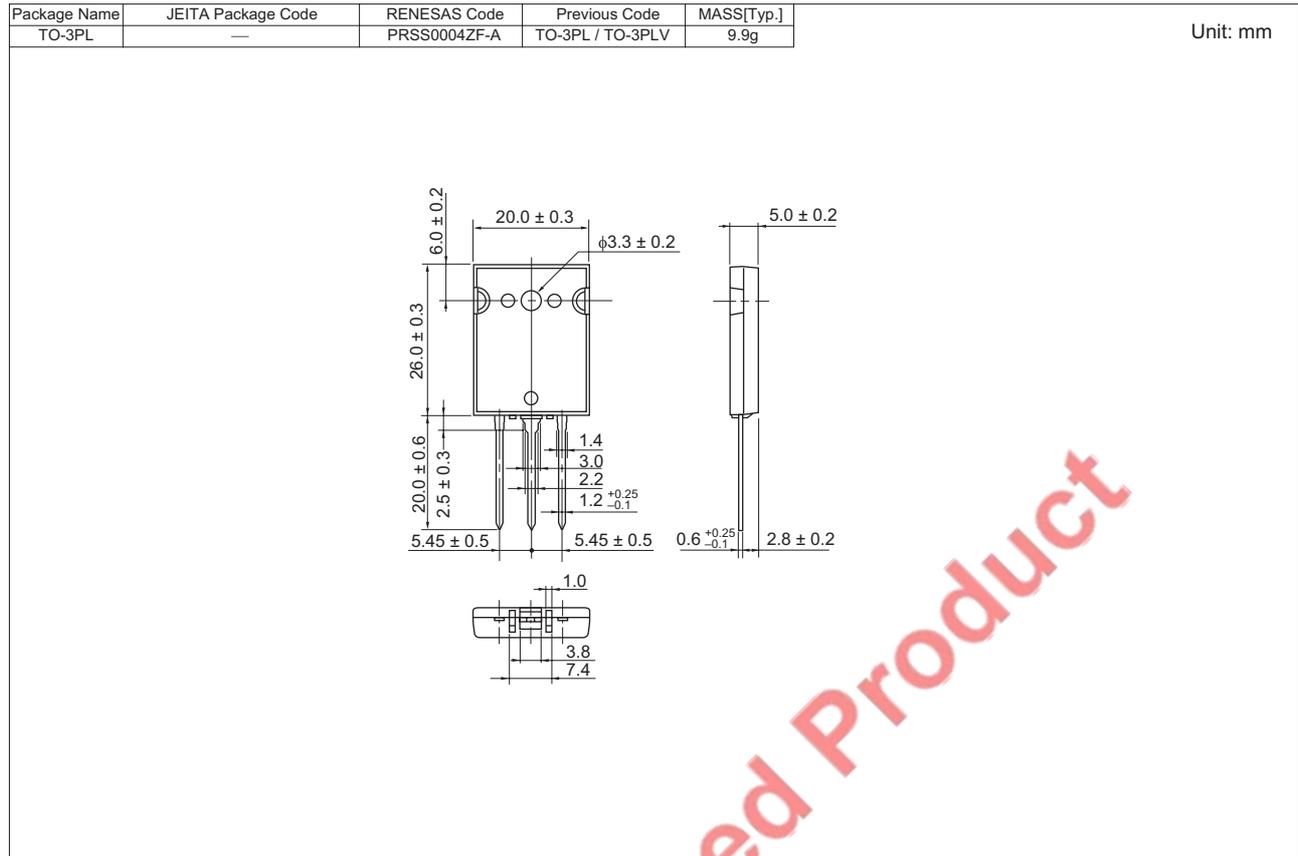
Switching Time Test Circuit



Waveforms



### Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
2SK1519-E	250 pcs	Box (Tube)
2SK1520-E	250 pcs	Box (Tube)

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Notes:

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