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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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EOL announced Product

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2SK1519, 2SK1520

Silicon N Channel MOS FET

REJ03G0948-0400

Rev.4.00

May 13, 2009

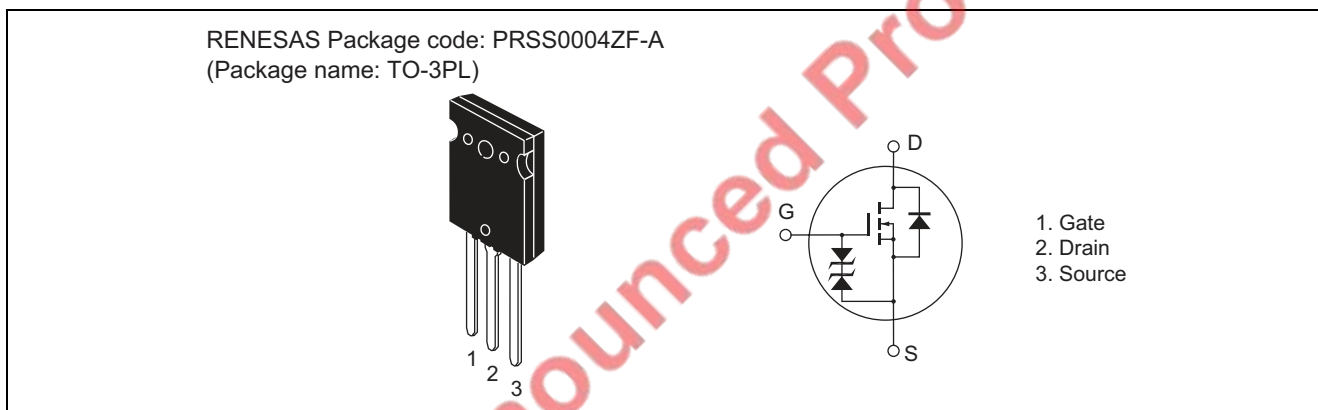
Application

High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- Built-in fast recovery diode ($t_{tr} = 120$ 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	2SK1519	V_{DSS}	450	V
	2SK1520		500	
Gate to source voltage		V_{GSS}	± 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. $PW \leq 10$ μs , duty cycle $\leq 1\%$

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

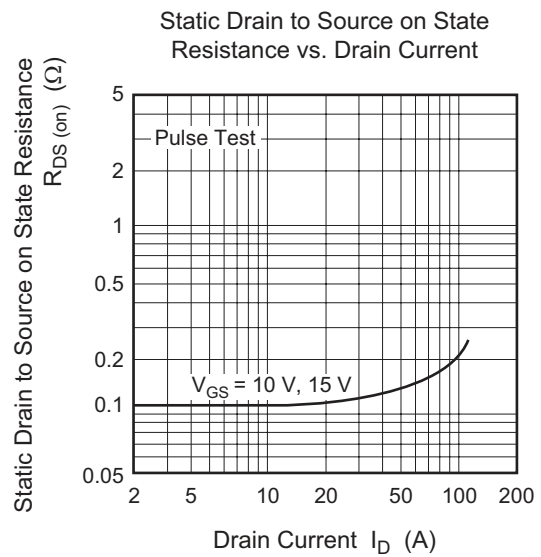
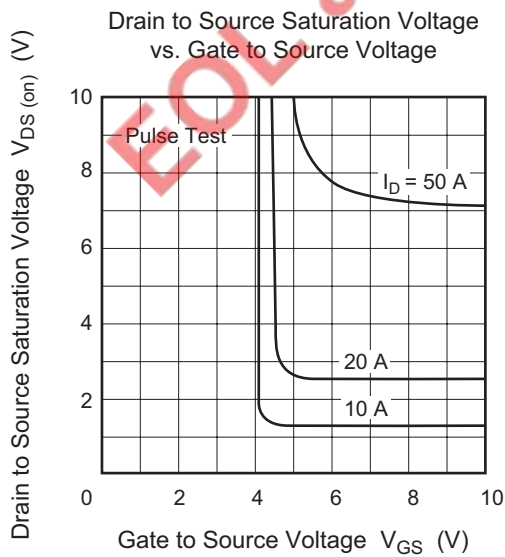
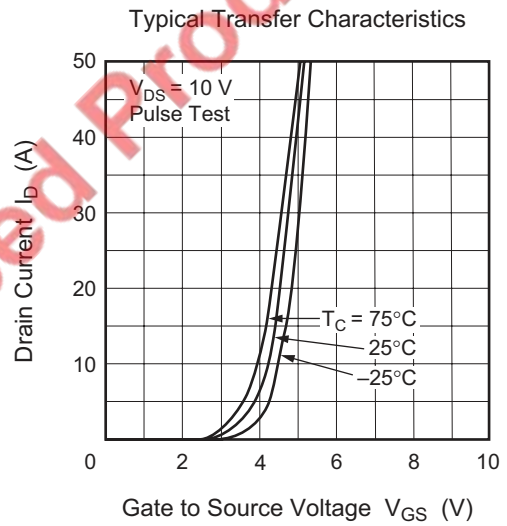
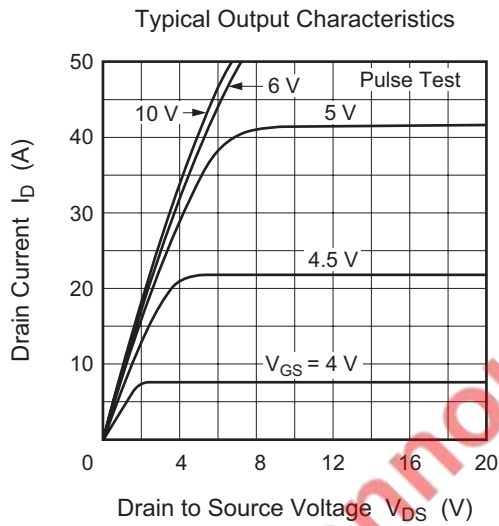
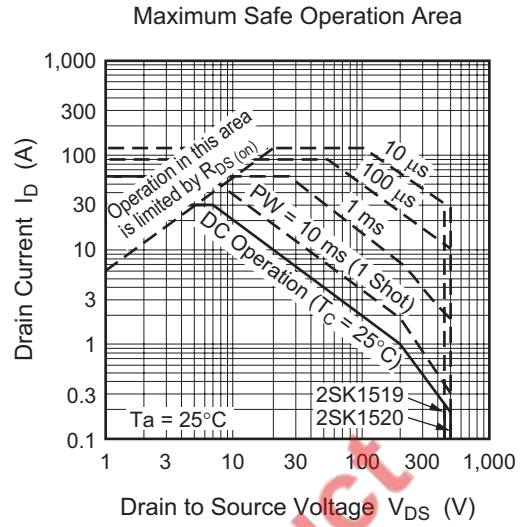
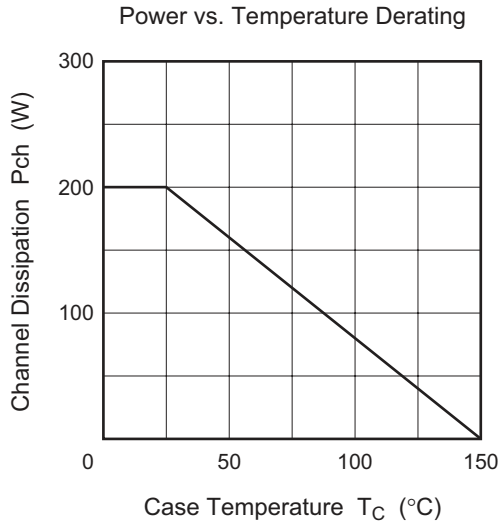
Electrical Characteristics

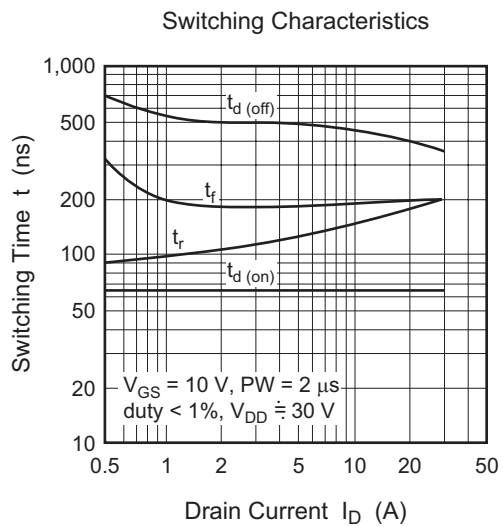
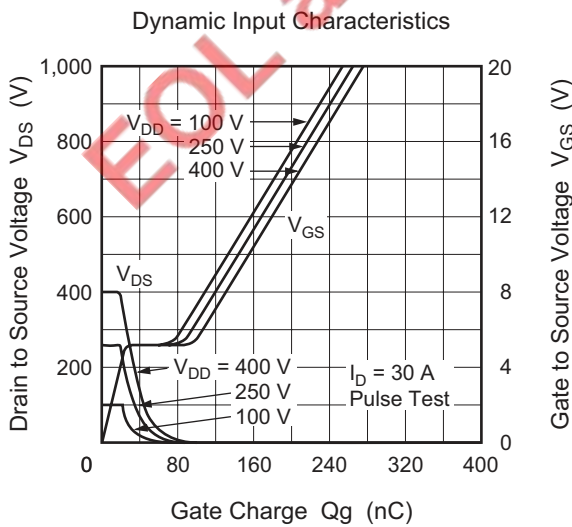
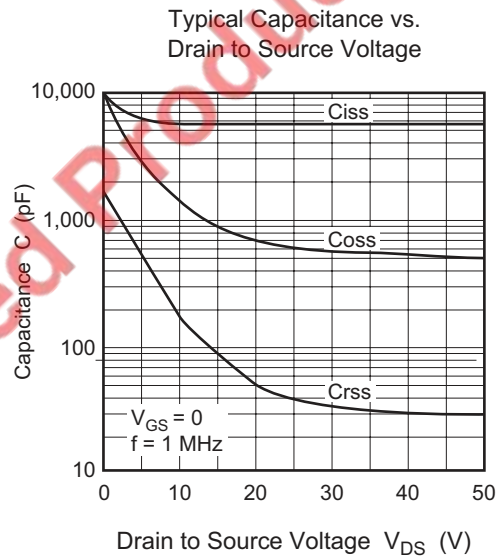
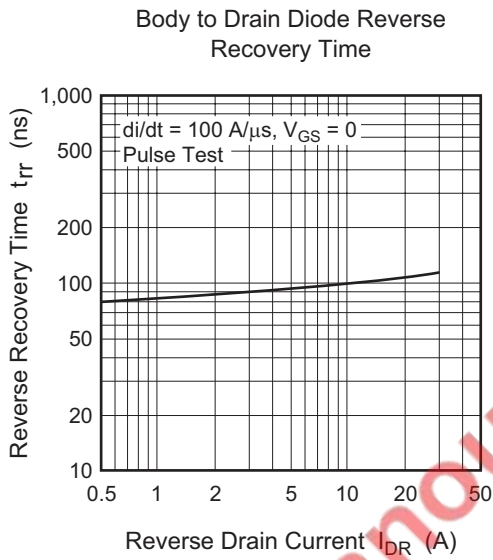
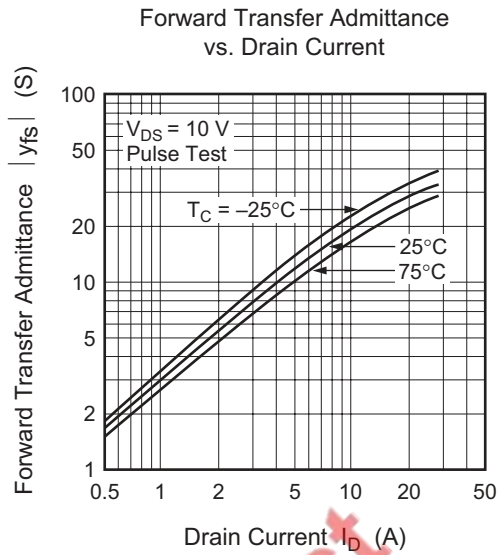
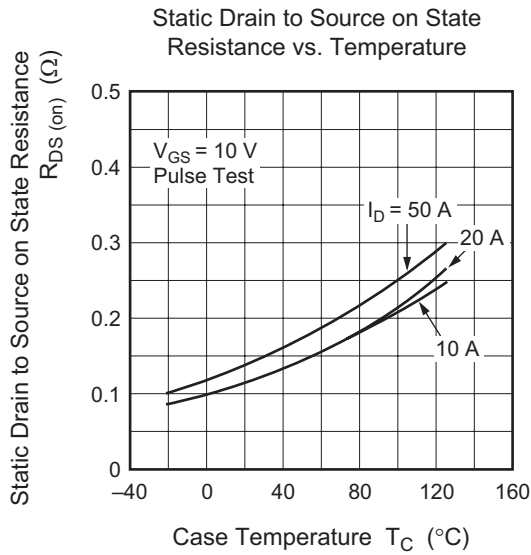
(Ta = 25°C)

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	$V_{(BR)GSS}$	± 30	—	—	V	$I_G = \pm 100 \text{ } \mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 25 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	2SK1519	—	—	250	μA	$V_{DS} = 360 \text{ V}$, $V_{GS} = 0$
	2SK1520	—	—	—	μA	$V_{DS} = 400 \text{ V}$, $V_{GS} = 0$
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	Ω	$I_D = 15 \text{ A}$, $V_{GS} = 10 \text{ V}$ *3
	2SK1520	—	0.12	0.16	Ω	
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	$I_D = 15 \text{ A}$, $V_{GS} = 10 \text{ V}$, $R_L = 2 \text{ } \Omega$
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	$I_F = 30 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 100 \text{ A}/\mu\text{s}$

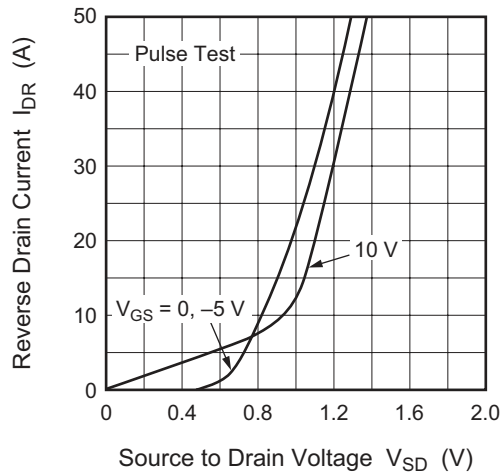
Note: 3. Pulse test

Main Characteristics

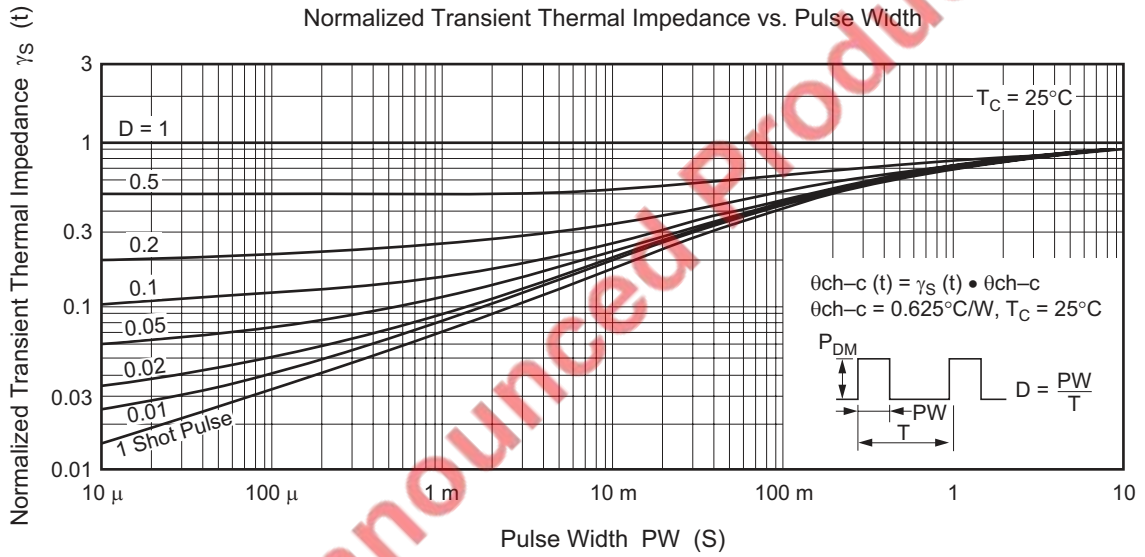




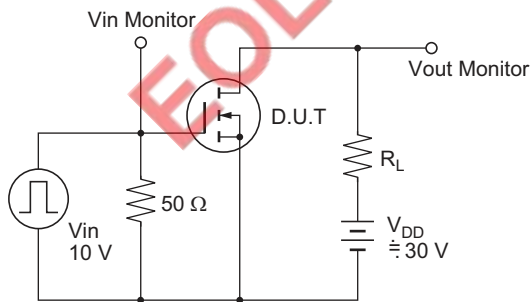
Reverse Drain Current vs. Source to Drain Voltage



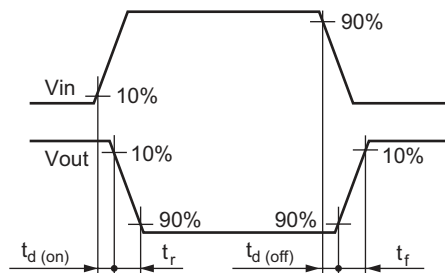
Normalized Transient Thermal Impedance vs. Pulse Width



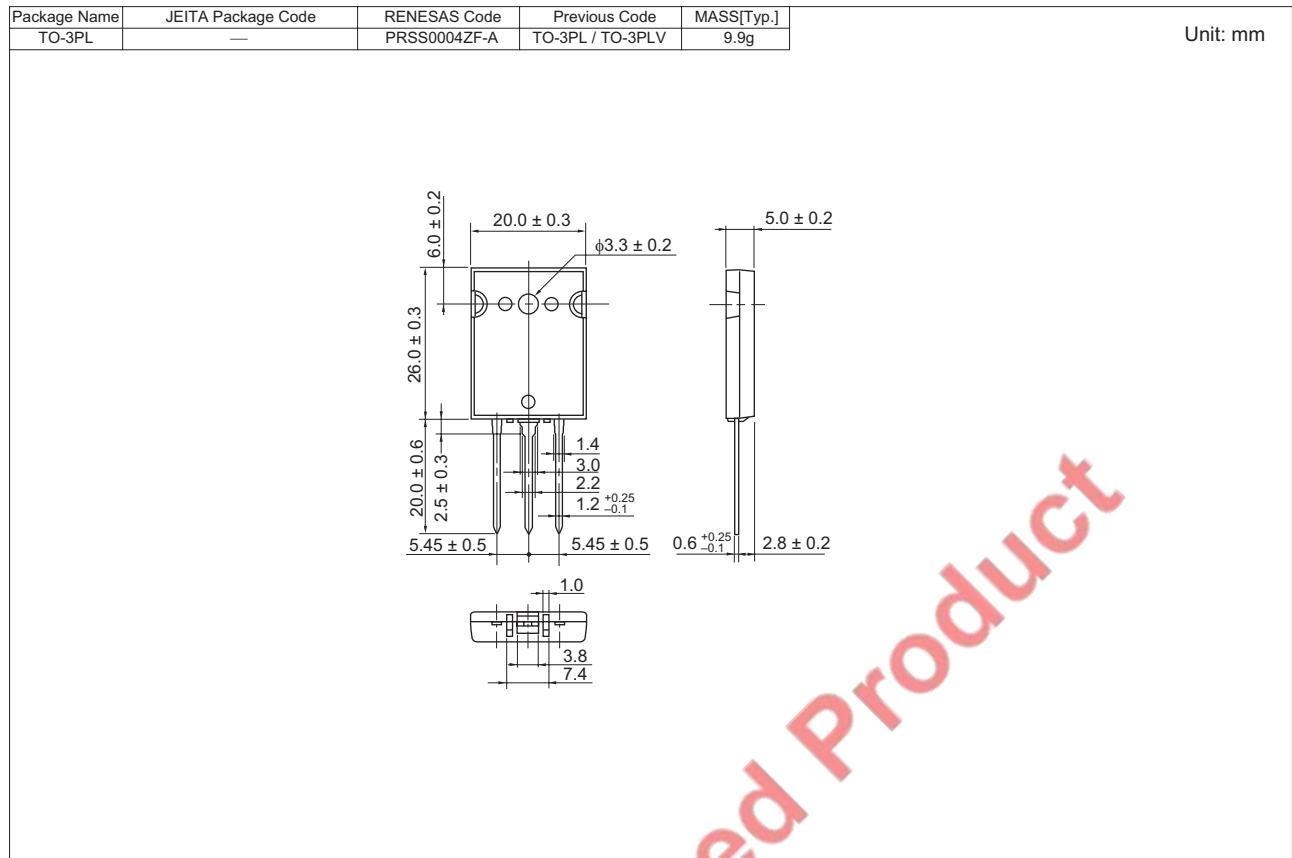
Switching Time Test Circuit



Waveforms



Package Dimensions



Ordering Information

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

Notes:

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