

2SK1519, 2SK1520

Silicon N Channel MOS FET

REJ03G0948-0300
(Previous: ADE-208-1288)
Rev.3.00
Apr 27, 2006

Application

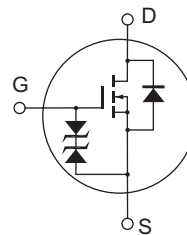
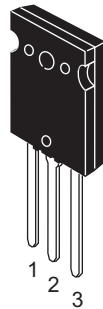
High speed power switching

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

RENESAS Package code: PRSS0004ZF-A
(Package name: TO-3PL)



1. Gate
2. Drain
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	2SK1519	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	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

2. Value at T_C = 25°C

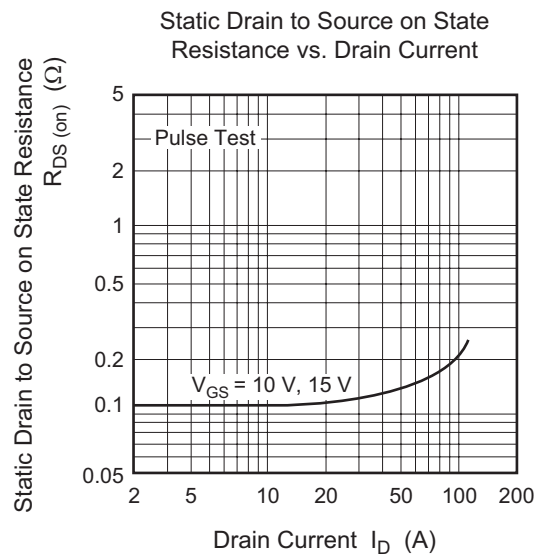
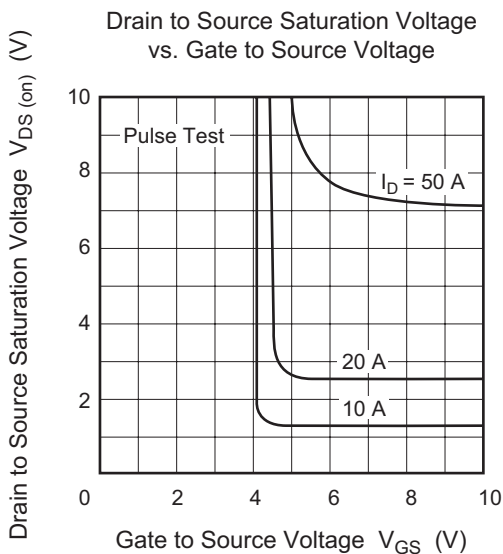
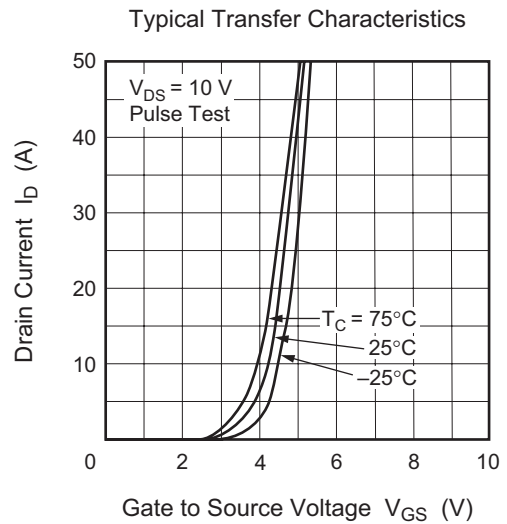
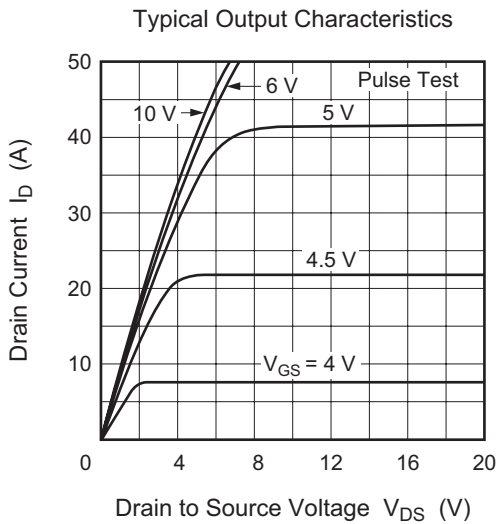
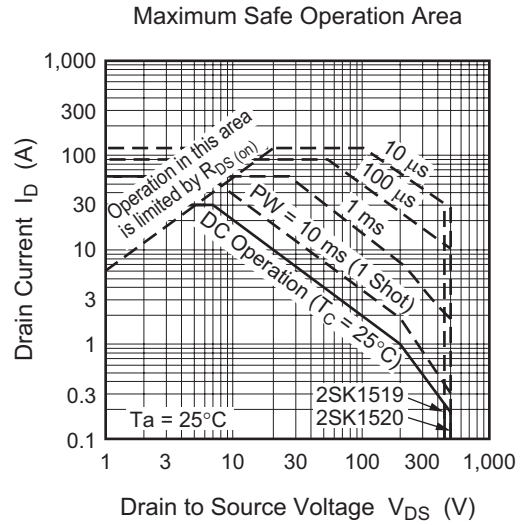
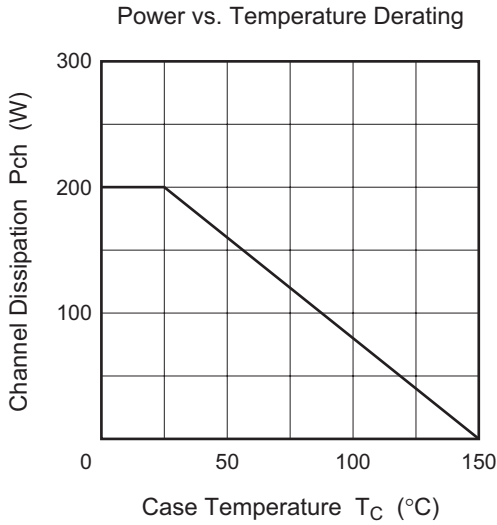
Electrical Characteristics

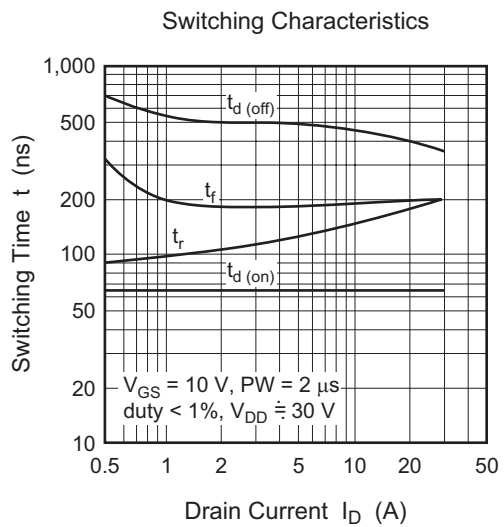
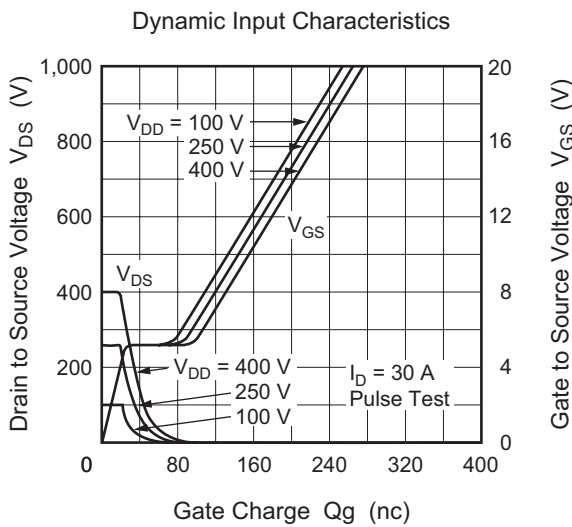
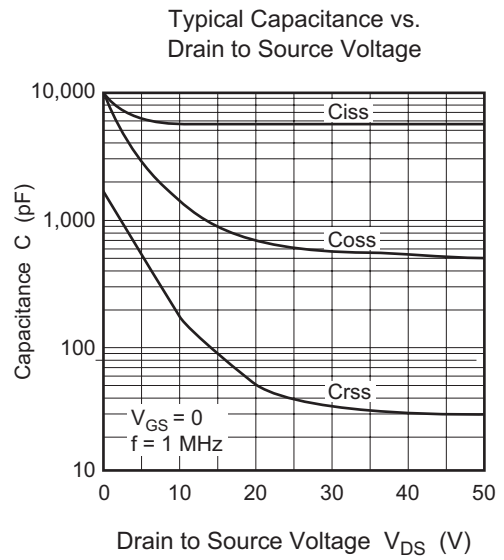
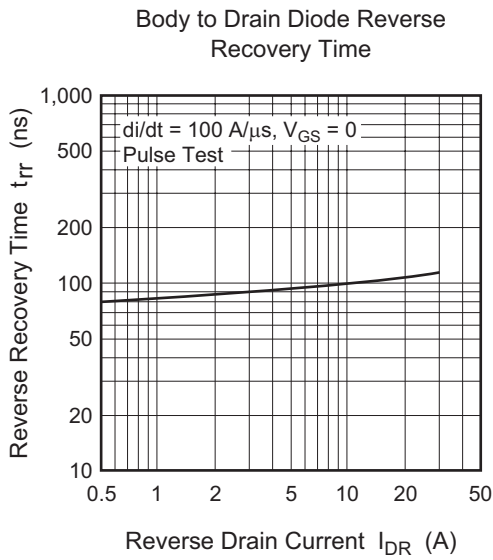
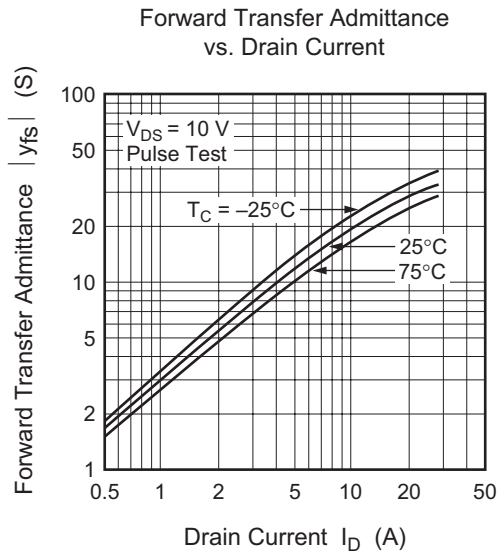
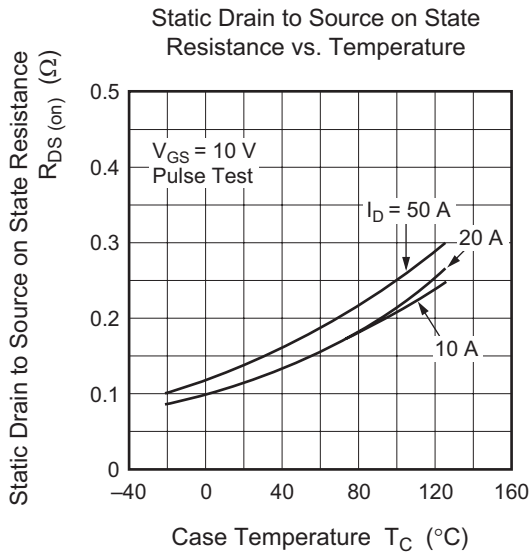
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1519	450	—	—	V	I _D = 10 mA, V _{GS} = 0
	2SK1520	500				
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	2SK1519	—	—	250	μA	V _{DS} = 360 V, V _{GS} = 0
	2SK1520					V _{DS} = 400 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	2.0	—	3.0	V	I _D = 1 mA, V _{DS} = 10 V
Static drain to source on state resistance	2SK1519	—	0.11	0.15	Ω	I _D = 15 A, V _{GS} = 10 V *3
	2SK1520		—	0.12		
Forward transfer admittance	y _{fs}	15	25	—	S	I _D = 15 A, V _{DS} = 10 V *3
Input capacitance	C _{iss}	—	5800	—	pF	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz
Output capacitance	C _{oss}	—	1550	—	pF	
Reverse transfer capacitance	C _{rss}	—	170	—	pF	
Turn-on delay time	t _{d(on)}	—	65	—	ns	
Rise time	t _r	—	170	—	ns	I _D = 15 A, V _{GS} = 10 V, R _L = 2 Ω
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 A, V _{GS} = 0
Body to drain diode reverse recovery time	t _{rr}	—	120	—	ns	I _F = 30 A, V _{GS} = 0, di _F /dt = 100 A/μs

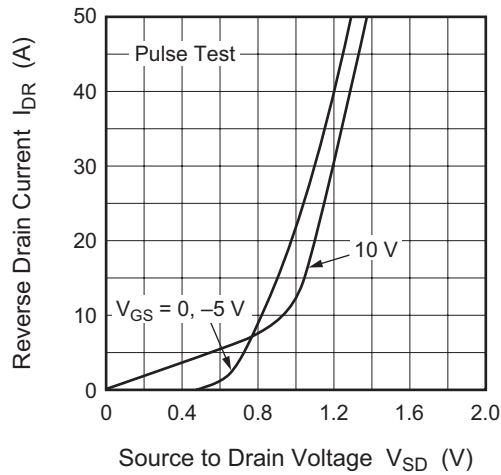
Note: 3. Pulse test

Main Characteristics

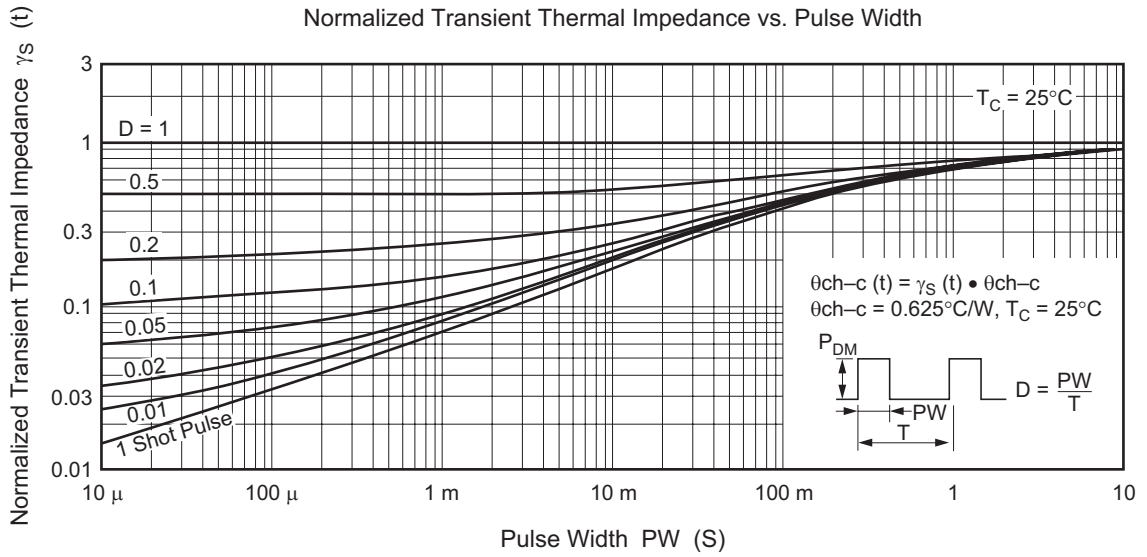




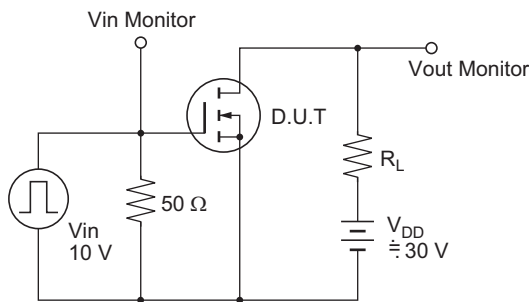
Reverse Drain Current vs. Source to Drain Voltage



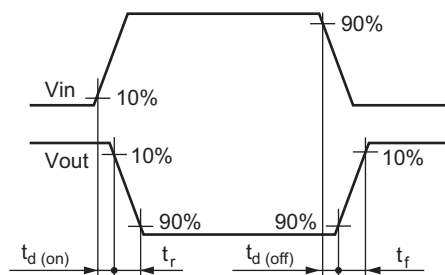
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



Waveforms



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-3PL	—	PRSS0004ZF-A	TO-3PL / TO-3PLV	9.9g

Unit: mm

The technical drawing illustrates the TO-3PL package dimensions. The top view shows a square body with a width of 20.0 ± 0.3 mm and a height of 26.0 ± 0.3 mm. The distance from the top edge to the center of the mounting holes is 6.0 ± 0.2 mm. The diameter of the mounting holes is $\phi 3.3 \pm 0.2$ mm. The side view shows a total height of 5.0 ± 0.2 mm. The bottom view shows a width of 5.45 ± 0.5 mm and a height of 2.8 ± 0.2 mm. The distance from the bottom edge to the center of the mounting holes is 2.5 ± 0.3 mm. The distance from the bottom edge to the center of the mounting holes is 2.0 ± 0.6 mm. The distance from the bottom edge to the center of the mounting holes is 1.2 ± 0.1 mm. The distance from the bottom edge to the center of the mounting holes is 1.4 mm. The distance from the bottom edge to the center of the mounting holes is 3.0 mm. The distance from the bottom edge to the center of the mounting holes is 2.2 mm. The distance from the bottom edge to the center of the mounting holes is $0.6^{+0.25}_{-0.1}$ mm. The distance from the bottom edge to the center of the mounting holes is 1.0 mm. The distance from the bottom edge to the center of the mounting holes is 3.8 mm. The distance from the bottom edge to the center of the mounting holes is 7.4 mm.

Ordering Information

Part Name	Quantity	Shipping Container
2SK1519-E	360 pcs	Box (Tube)
2SK1520-E	360 pcs	Box (Tube)

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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