

2SK1521, 2SK1522

Silicon N Channel MOS FET

REJ03G0949-0200
(Previous: ADE-208-1289)
Rev.2.00
Sep 07, 2005

Application

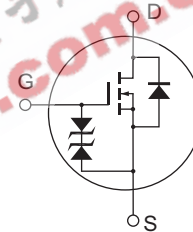
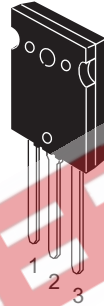
High speed power switching

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	2SK1521	450	V
	2SK1522	500	
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	50	A
Drain peak current	I _{D(pulse)} *1	200	A
Body to drain diode reverse drain current	I _{DR}	50	A
Channel dissipation	P _{ch} *2	250	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

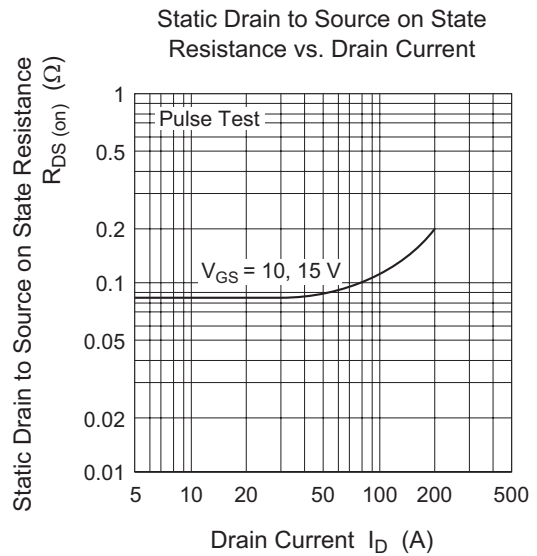
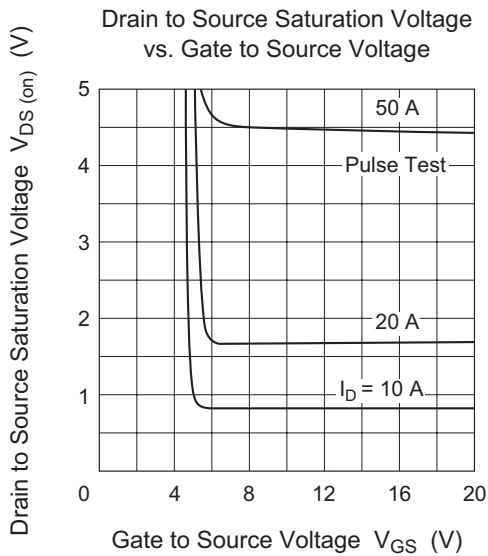
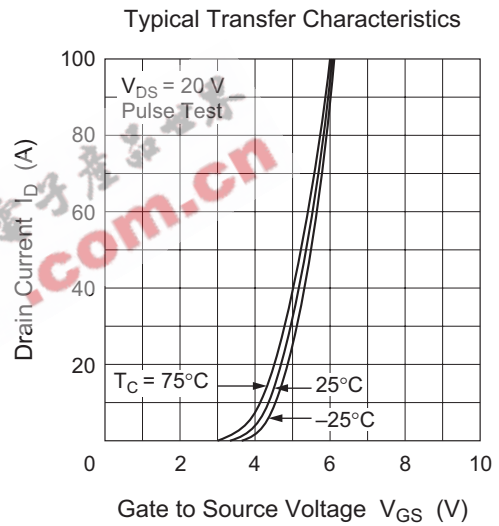
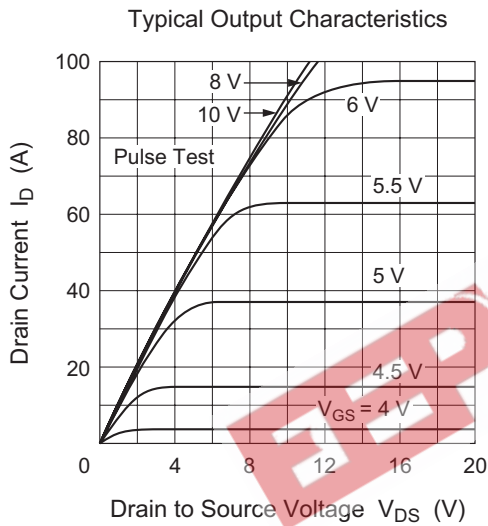
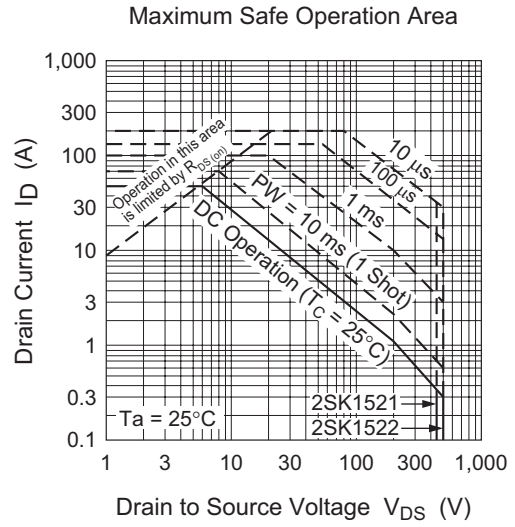
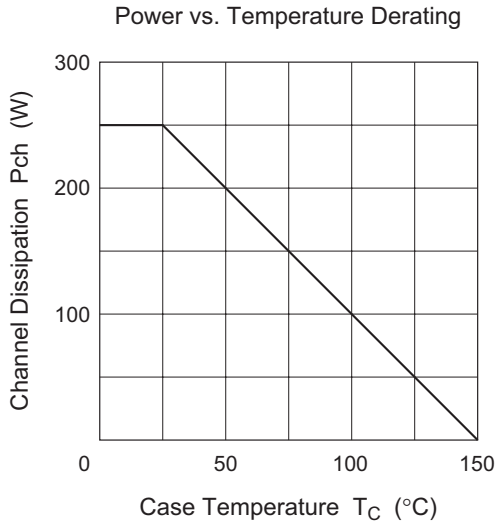
Electrical Characteristics

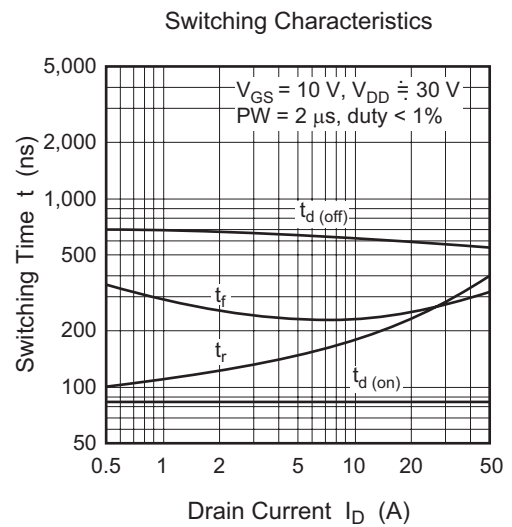
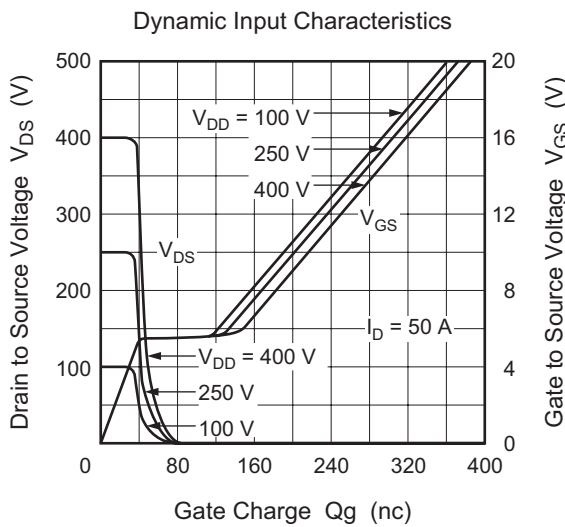
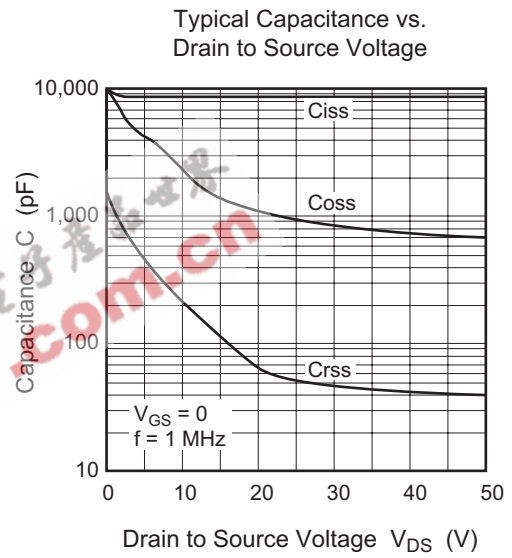
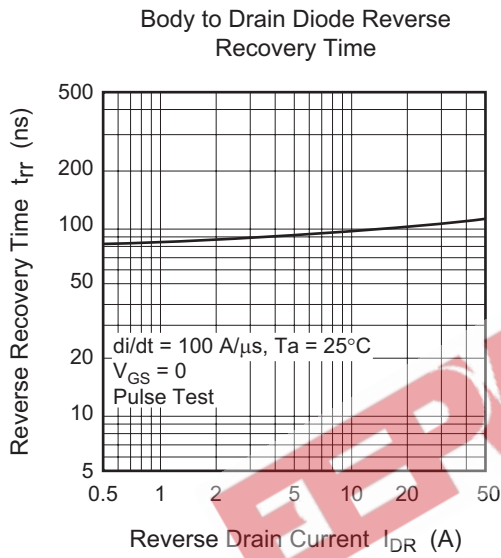
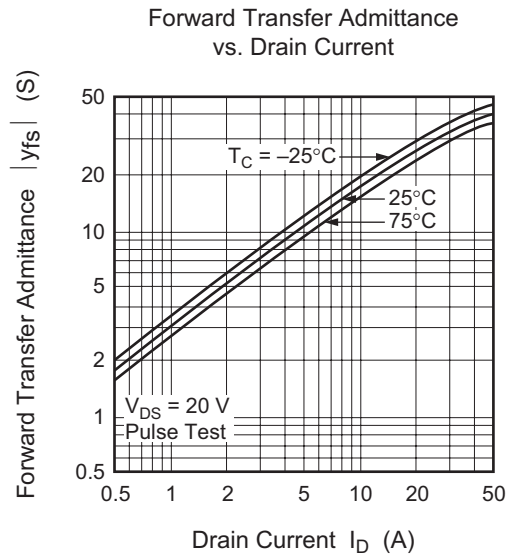
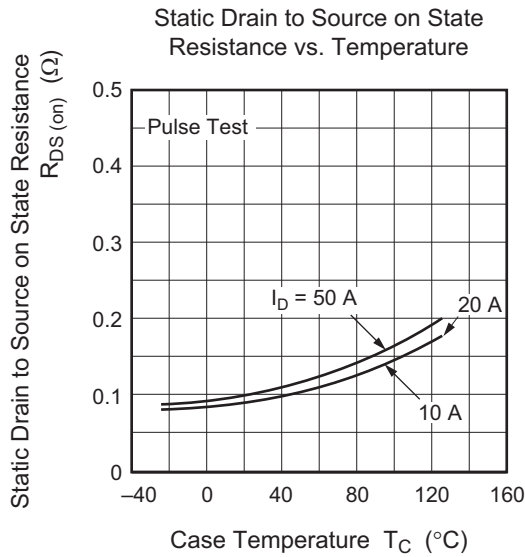
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1521	450	—	—	V	I _D = 10 mA, V _{GS} = 0
	2SK1522	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	2SK1521	—	—	250	μA	V _{DS} = 360 V, V _{GS} = 0
	2SK1522					
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	2SK1521	—	0.08	0.10	Ω	I _D = 25 A, V _{GS} = 10 V *3
	2SK1522		0.085	0.11		
Forward transfer admittance	y _{fs}	22	35	—	S	I _D = 25 A, V _{DS} = 10 V *3
Input capacitance	C _{iss}	—	8700	—	pF	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz
Output capacitance	C _{oss}	—	2400	—	pF	
Reverse transfer capacitance	C _{rss}	—	235	—	pF	
Turn-on delay time	t _{d(on)}	—	85	—	ns	I _D = 25 A, V _{GS} = 10 V, R _L = 1.2 Ω
Rise time	t _r	—	250	—	ns	
Turn-off delay time	t _{d(off)}	—	600	—	ns	
Fall time	t _f	—	250	—	ns	
Body to drain diode forward voltage	V _{DF}	—	1.1	—	V	I _F = 50 A, V _{GS} = 0
Body to drain diode reverse recovery time	t _{rr}	—	120	—	ns	I _F = 50 A, V _{GS} = 0, di _F /dt = 100 A/μs

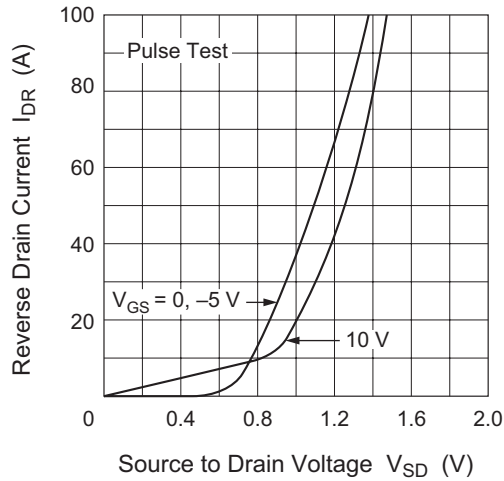
Note: 3. Pulse test

Main Characteristics

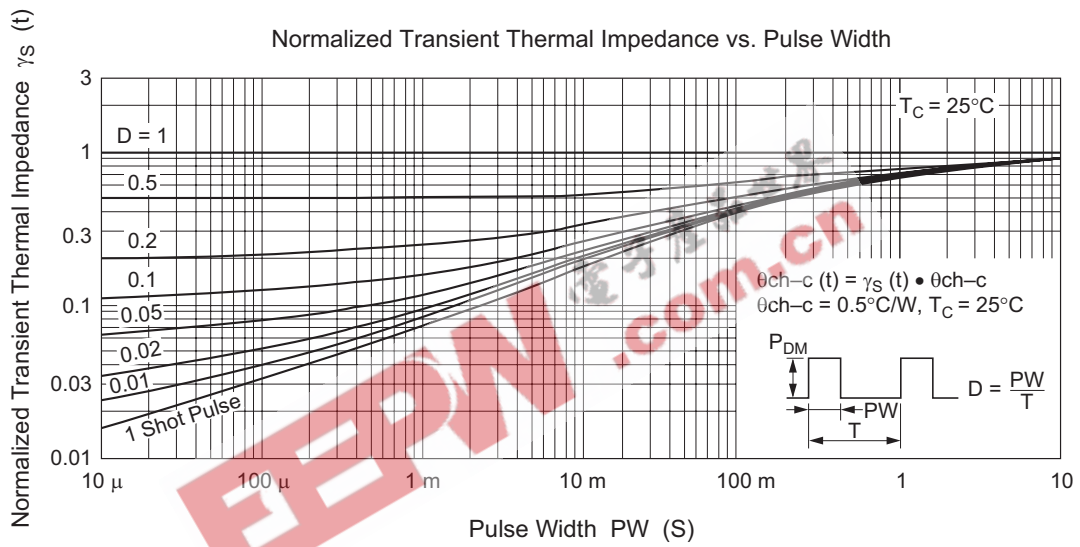




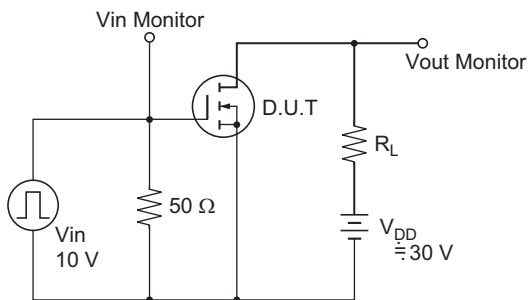
Reverse Drain Current vs. Source to Drain Voltage



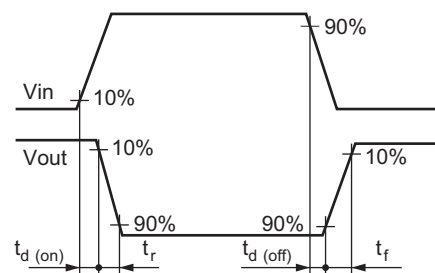
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



Waveforms



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