

Silicon N Channel MOS FET

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

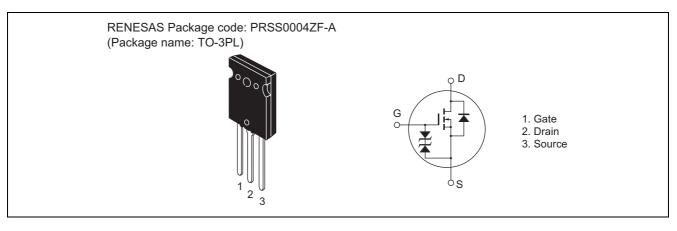
Application

High speed power switching

Features

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

Outline





Absolute Maximum Ratings

			$(Ta = 25^{\circ}C)$
Item		Ratings	Unit
2SK1521	V _{DSS}	450	V
2SK1522		500	
Gate to source voltage		±30	V
Drain current		50	A
Drain peak current		200	A
Body to drain diode reverse drain current		50	А
Channel dissipation		250	W
Channel temperature		150	°C
	Tstg	-55 to +150	°C
	2SK1521 2SK1522	2SK1521 VDSS 2SK1522 VGSS ID ID ID(pulse)*1 IDR Pch*2 Tch	$\begin{tabular}{ c c c c c c } \hline 2SK1521 & V_{DSS} & 450 \\ \hline 2SK1522 & 500 \\ \hline V_{GSS} & \pm 30 \\ \hline & & I_D & 50 \\ \hline & & & I_{D(pulse)}^{*1} & 200 \\ \hline & & & & I_{DR} & 50 \\ \hline & & & & Pch^{*2} & 250 \\ \hline & & & & & 150 \\ \hline \end{tabular}$

Notes: 1. PW \leq 10 μ s, duty cycle \leq 1%

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

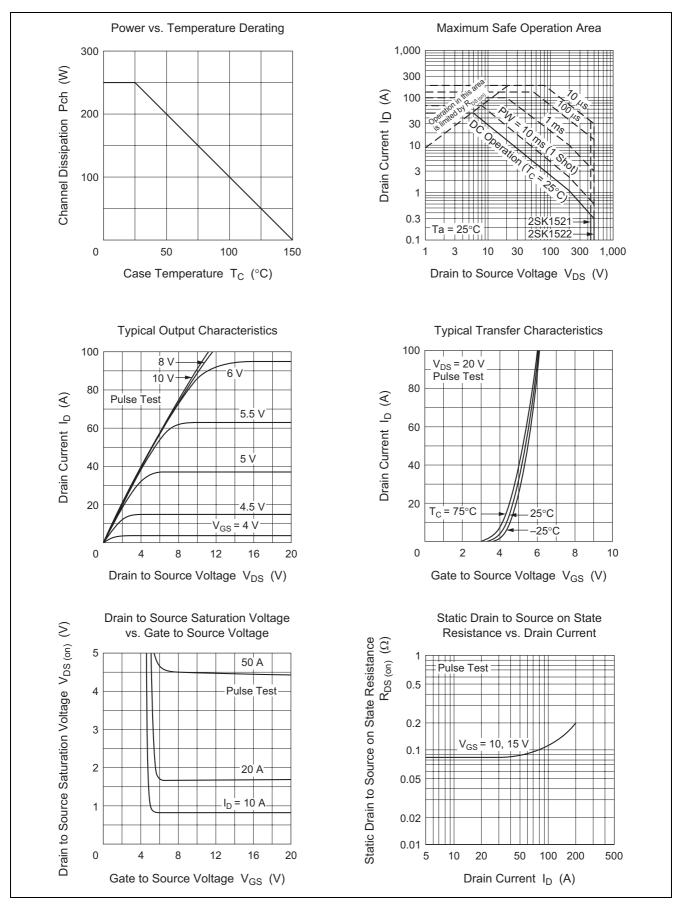
Electrical Characteristics

							$(Ta = 25^{\circ}C)$
ltem		Symbol	Min	Тур	Max	Unit	Test conditions
Drain to source	2SK1521	V _{(BR)DSS}	450	_	_	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
breakdown voltage	2SK1522		500				
Gate to source breakdown voltage		V _{(BR)GSS}	±30	_	_	V	$I_G = \pm 100 \ \mu A, \ V_{DS} = 0$
Gate to source leak curre	ent	I _{GSS}	_	—	±10	μΑ	$V_{GS} = \pm 25 \text{ V}, \text{ V}_{DS} = 0$
Zero gate voltage drain	2SK1521	I _{DSS}	_	_	250	μΑ	$V_{DS} = 360 \text{ V}, V_{GS} = 0$
	2SK1522						$V_{DS} = 400 \text{ V}, \text{ V}_{GS} = 0$
Gate to source cutoff vol	tage	V _{GS(off)}	2.0	_	3.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static drain to source on	2SK1521	R _{DS(on)}	_	0.08	0.10	Ω	$I_D = 25 \text{ A}, V_{GS} = 10 \text{ V}^{*3}$
state resistance	2SK1522			0.085	0.11		
Forward transfer admittance		y _{fs}	22	35	_	S	$I_D = 25 \text{ A}, V_{DS} = 10 \text{ V}^{*3}$
Input capacitance		Ciss		8700	_	pF	$V_{DS} = 10 V, V_{GS} = 0,$
Output capacitance		Coss		2400	_	pF	f = 1 MHz
Reverse transfer capacitance		Crss	_	235	_	pF	
Turn-on delay time		t _{d(on)}	_	85	_	ns	$I_D = 25 \text{ A}, V_{GS} = 10 \text{ V},$
Rise time		tr		250	_	ns	R _L = 1.2 Ω
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	$I_F = 50 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time		t _{rr}	—	120	—	ns	$I_F = 50 \text{ A}, \text{ V}_{GS} = 0,$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

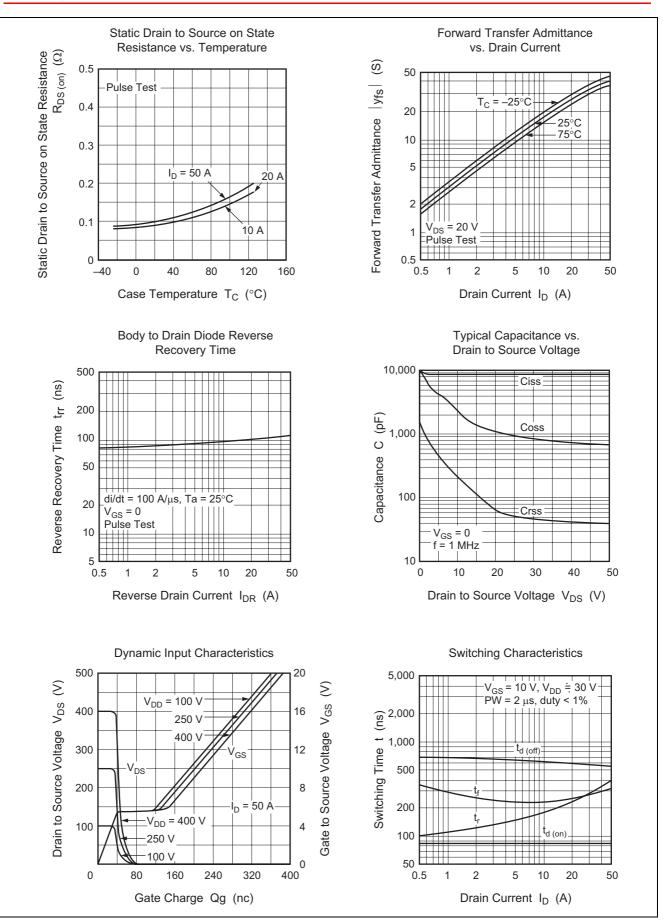
Note: 3. Pulse test



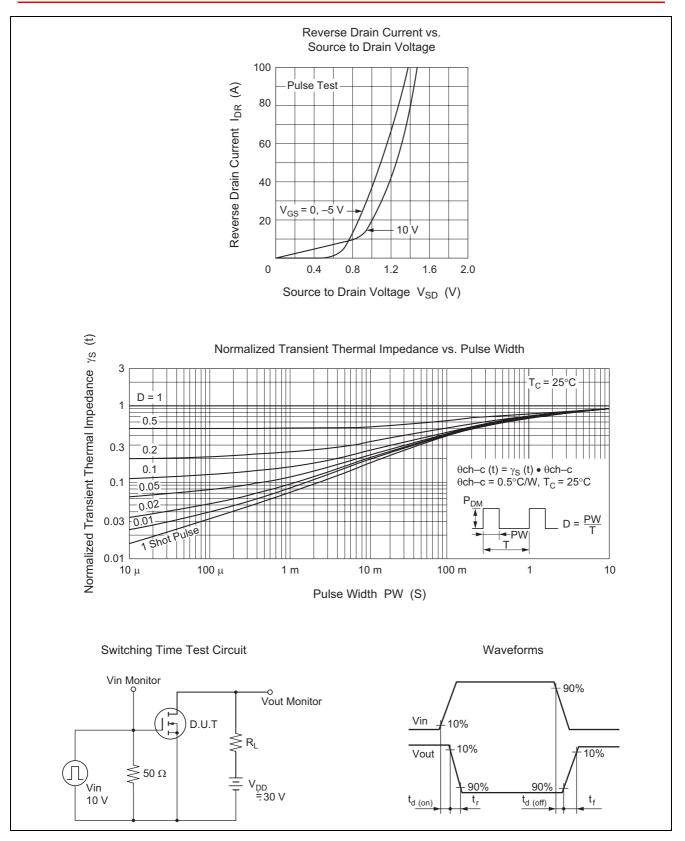
Main Characteristics



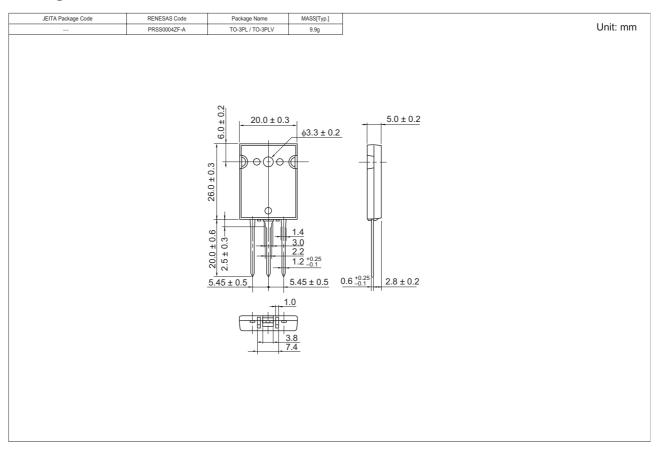








Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK1521-E	500 pcs	Box (Case)
2SK1522-E	500 pcs	Box (Case)

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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