
2SK1521, 2SK1522

Silicon N-Channel MOS FET

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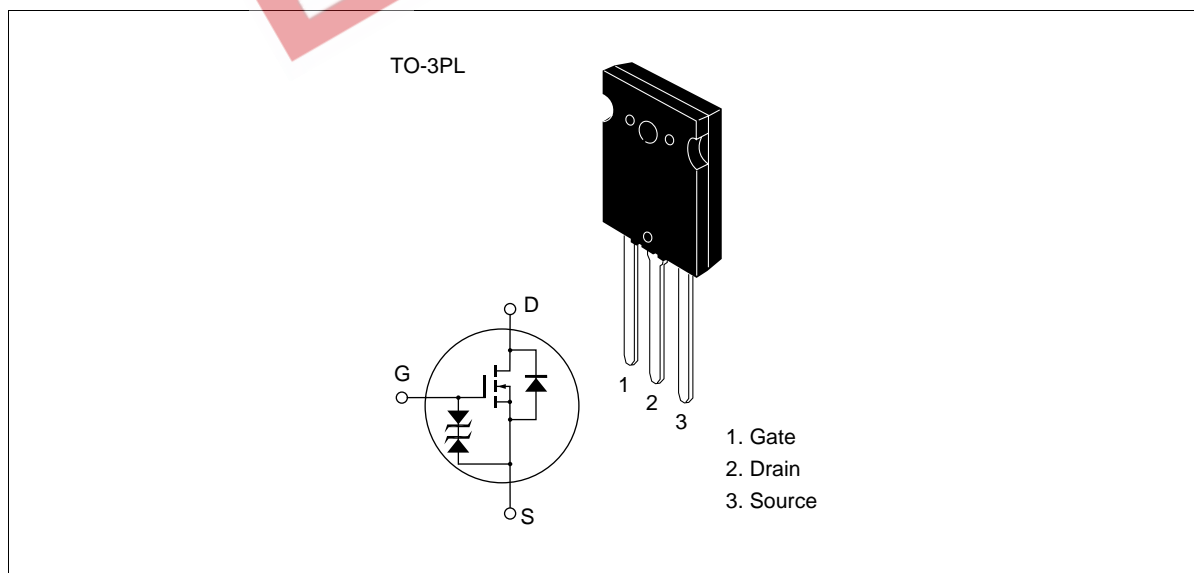
Application

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



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Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1521	V_{DSS}	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		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

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

2. Value at $T_c = 25^\circ C$

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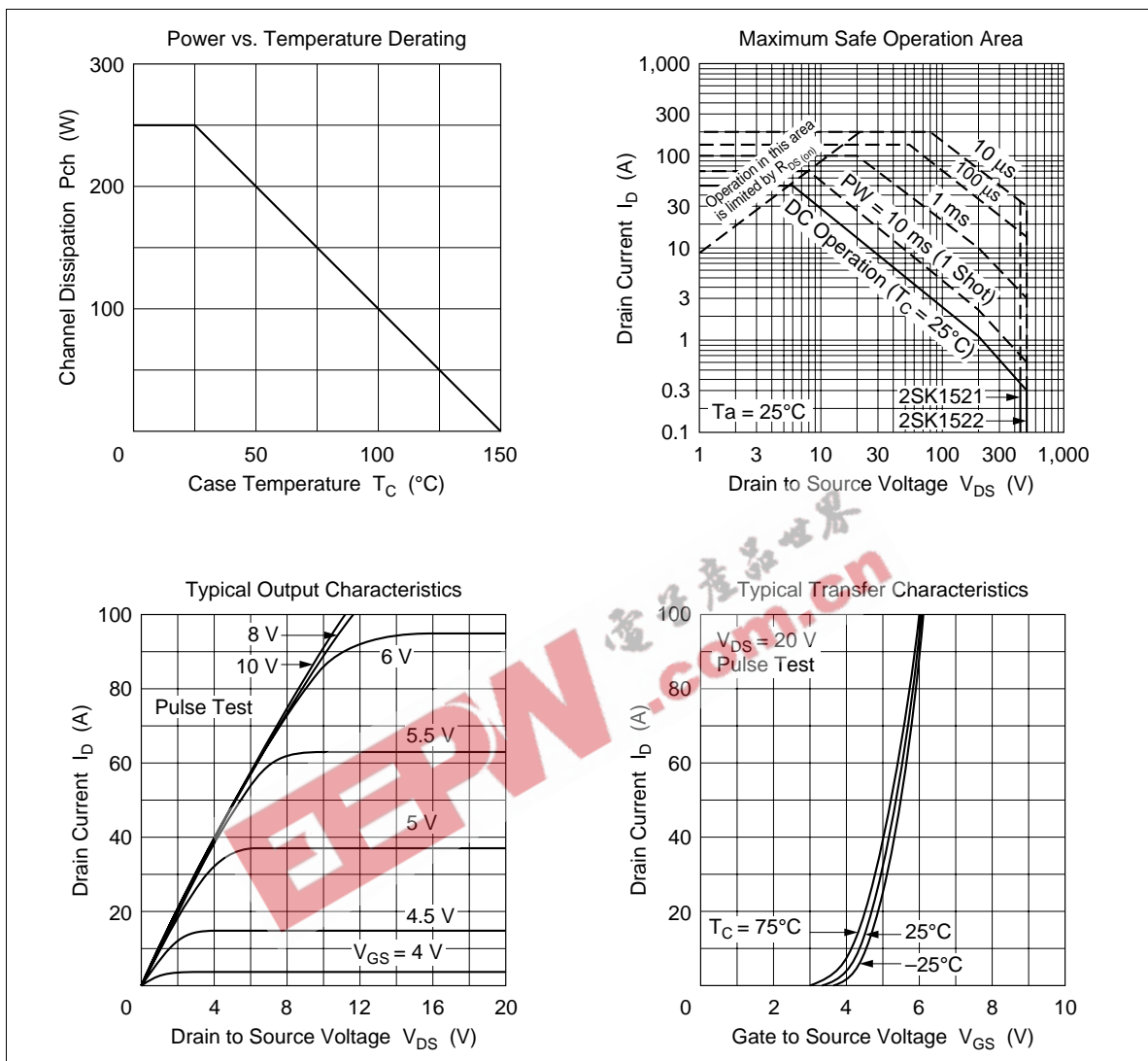
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Electrical Characteristics (T_a = 25°C)

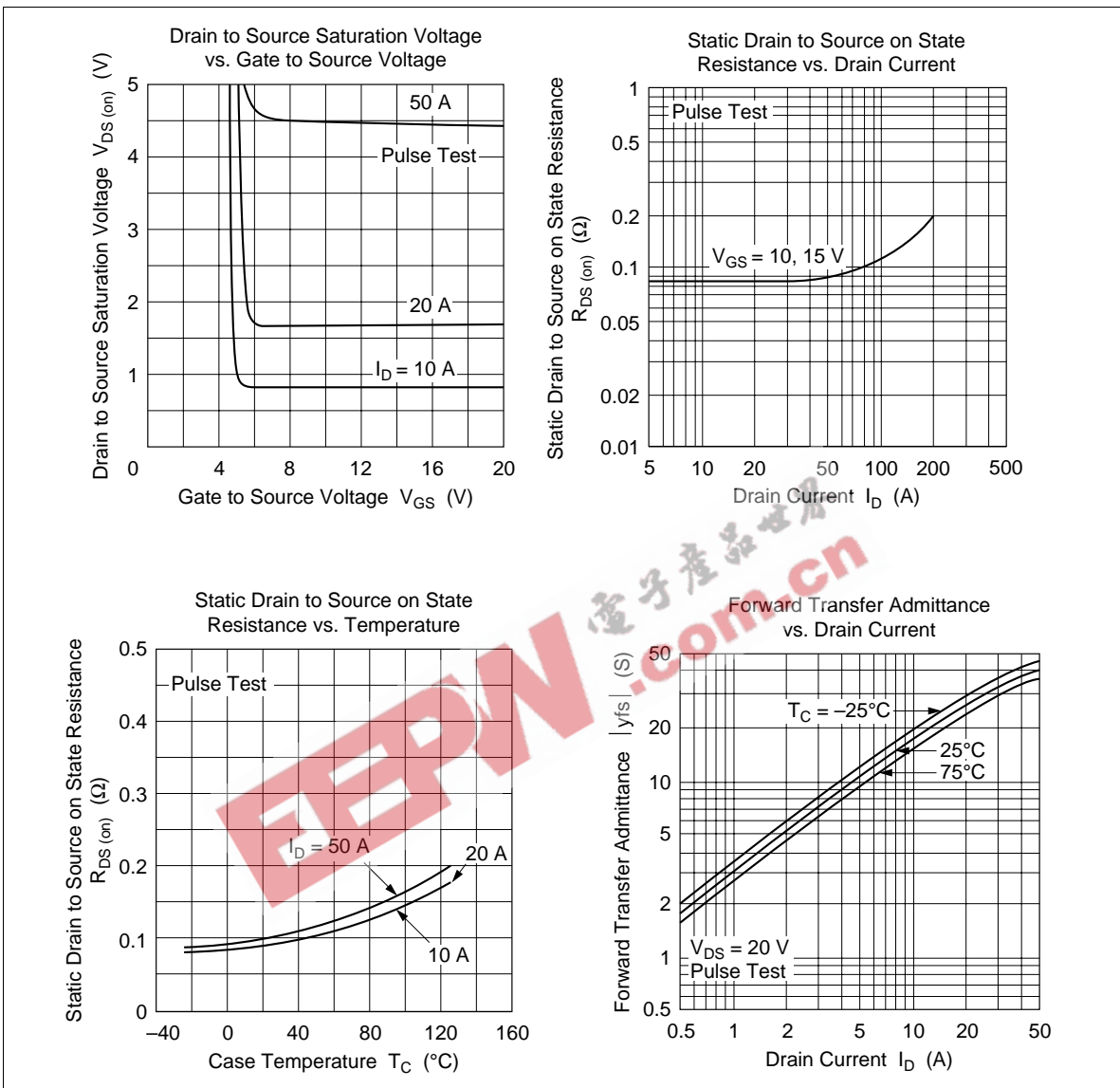
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1521 V _{(BR)DSS} 2SK1522	450	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±30	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±25 V, V _{DS} = 0
Zero gate voltage drain current	2SK1521 I _{DSS} 2SK1522	—	—	250	μA	V _{DS} = 360 V, V _{GS} = 0 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	2SK1521 R _{DS(on)} 2SK1522	—	0.08	0.10	Ω	I _D = 25 A, V _{GS} = 10 V *1 — 0.085 0.11
Forward transfer admittance	y _{fs}	22	35	—	S	I _D = 25 A, V _{DS} = 10 V *1
Input capacitance	C _{iss}	—	8700	—	pF	V _{DS} = 10 V, V _{GS} = 0,
Output capacitance	C _{oss}	—	2400	—	pF	f = 1 MHz
Reverse transfer capacitance	C _{rss}	—	235	—	pF	
Turn-on delay time	t _{d(on)}	—	85	—	ns	I _D = 25 A, V _{GS} = 10 V,
Rise time	t _r	—	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 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: 1. Pulse test

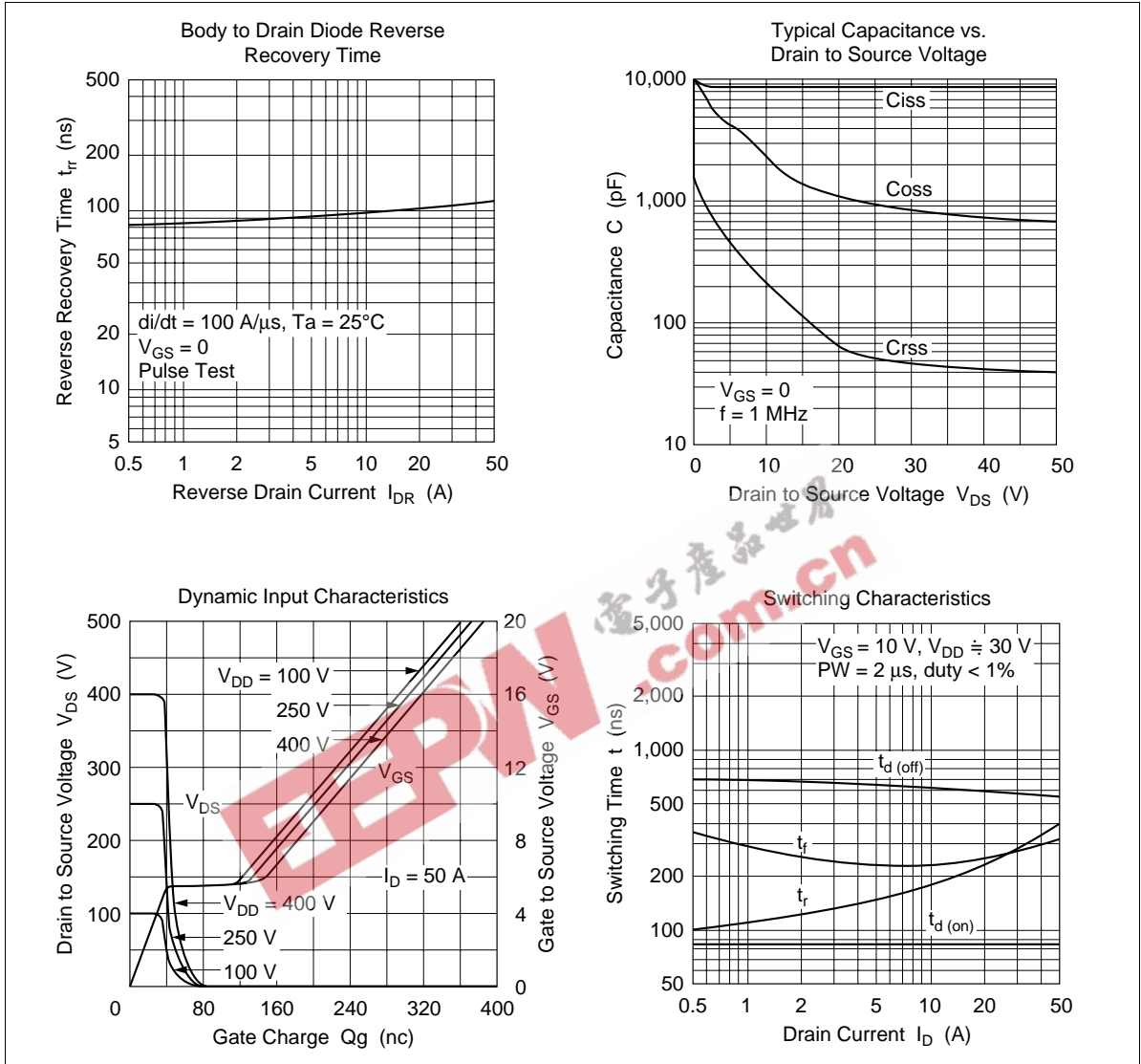
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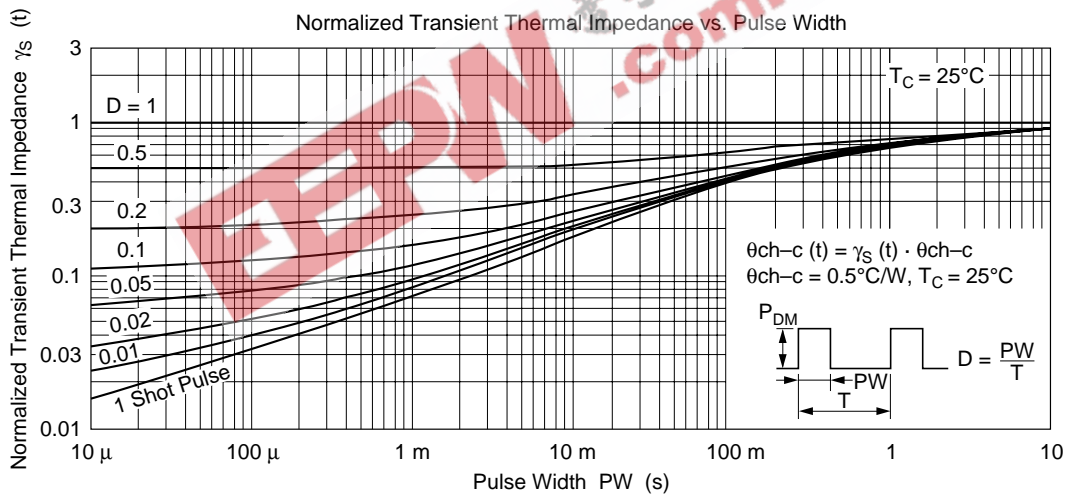
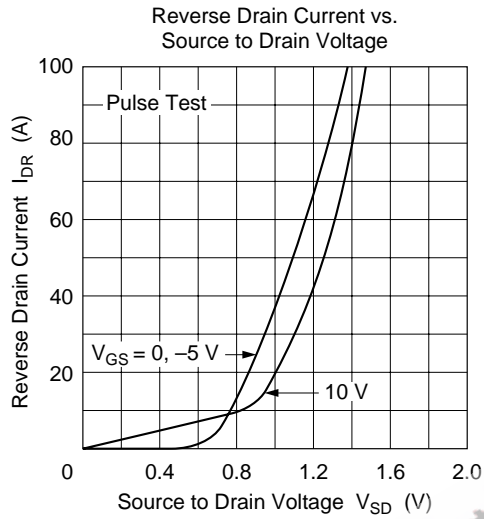
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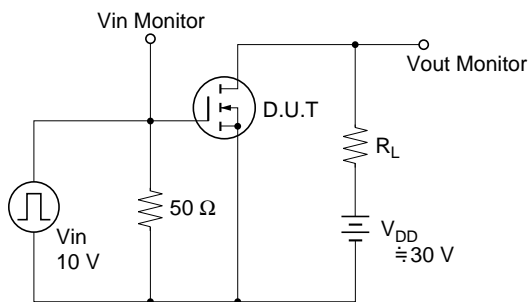
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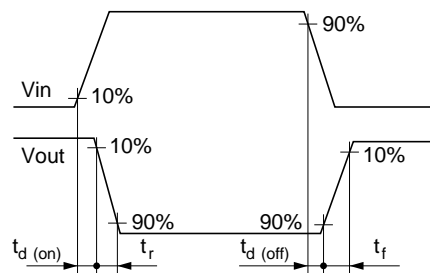
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Switching Time Test Circuit

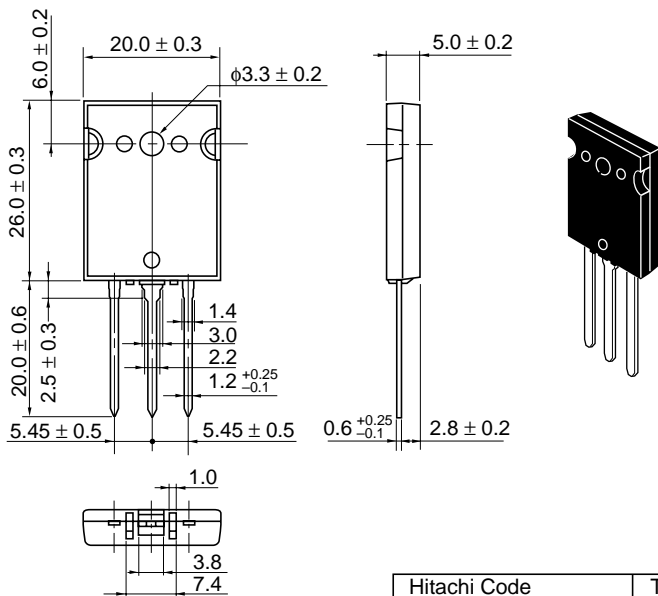


Waveforms



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Unit: mm



Hitachi Code	TO-3PL
JEDEC	—
EIAJ	—
Weight (reference value)	9.9 g

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