
2SK1526, 2SK1527

Silicon N-Channel MOS FET

HITACHI

Application

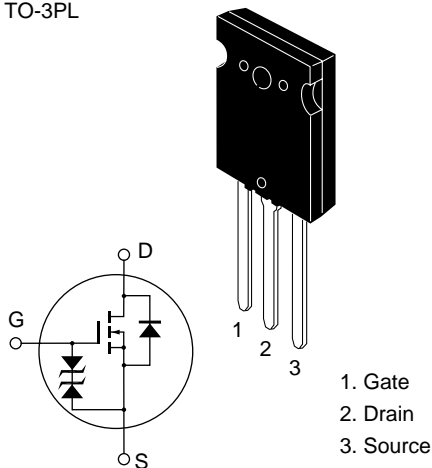
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator and DC-DC converter

Outline

TO-3PL



2SK1526, 2SK1527

Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1526	V_{DSS}	450	V
	2SK1527		500	
Gate to source voltage		V_{GSS}	±30	V
Drain current		I_D	40	A
Drain peak current		$I_{D(pulse)}^{*1}$	160	A
Body to drain diode reverse drain current		I_{DR}	40	A
Channel dissipation		Pch^{*2}	250	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

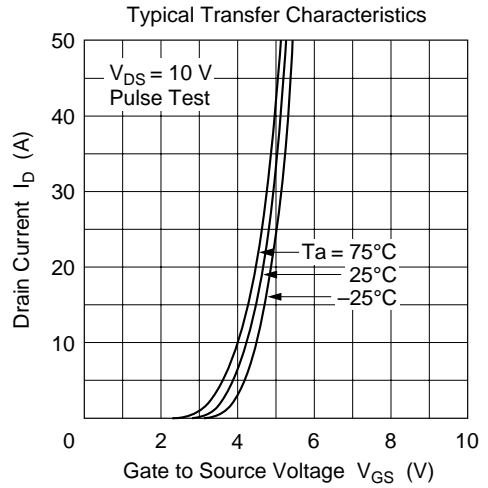
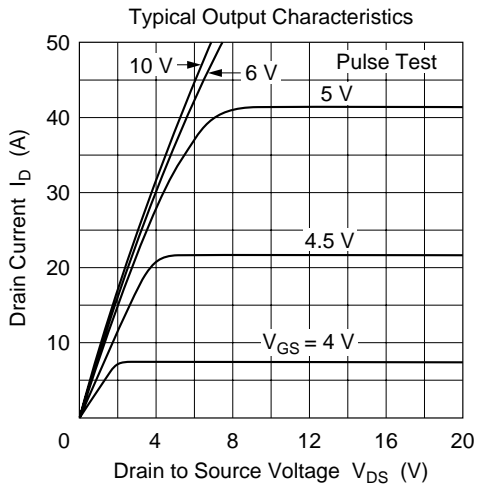
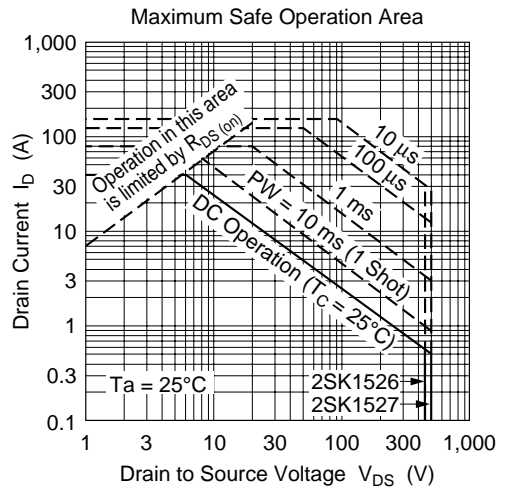
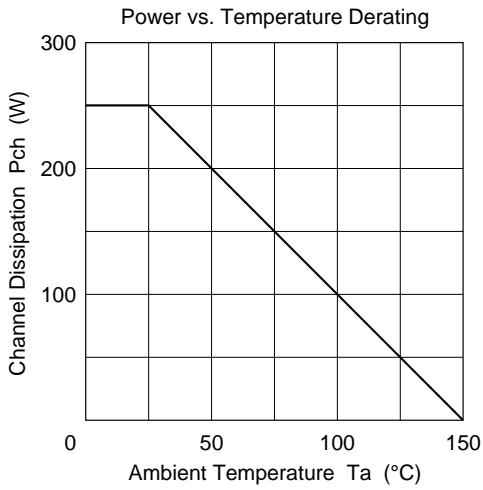
Notes: 1. PW 10 μs, duty cycle 1%

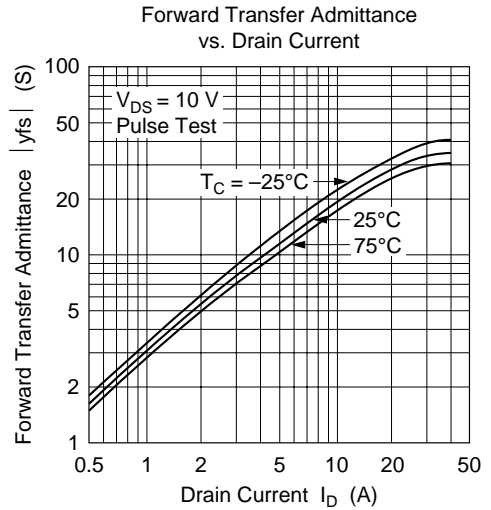
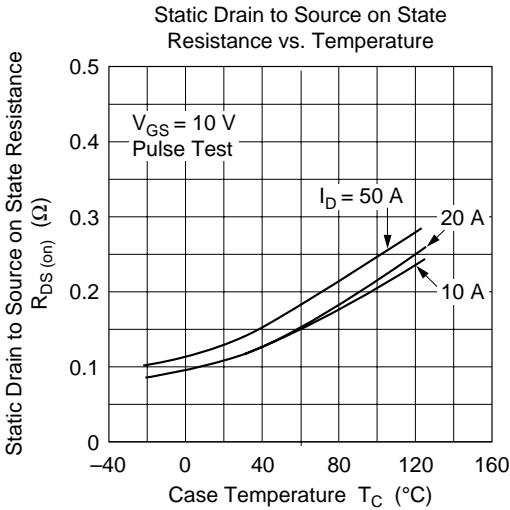
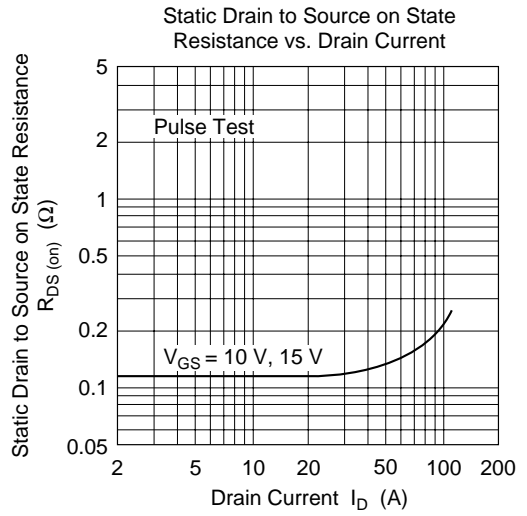
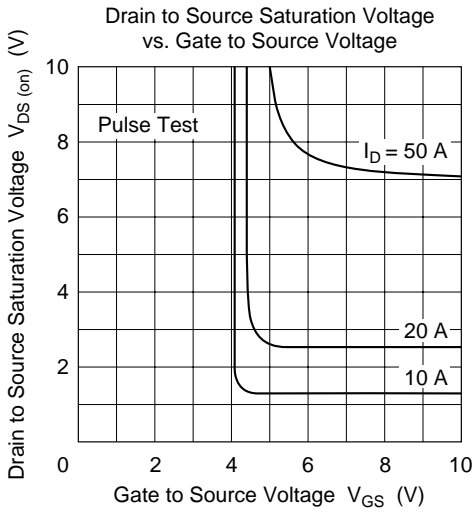
2. Value at T_c = 25°C

Electrical Characteristics (Ta = 25°C)

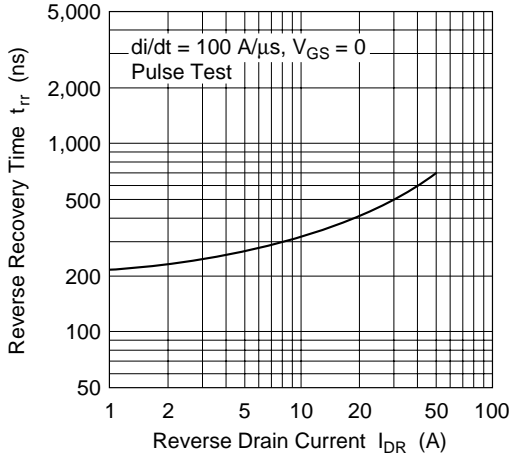
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1526 $V_{(BR)DSS}$	450	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
	2SK1527	500				
Gate to source breakdown voltage	$V_{(BR)GSS}$	±30	—	—	V	$I_G = \pm 100 \mu\text{A}, V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	2SK1526 I_{DSS}	—	—	250	μA	$V_{DS} = 360 \text{ V}, V_{GS} = 0$
	2SK1527					$V_{DS} = 400 \text{ V}, V_{GS} = 0$
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	2SK1526 $R_{DS(on)}$	—	0.11	0.15		$I_D = 20 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$
	2SK1527	—	0.12	0.16		
Forward transfer admittance	yfs	20	30	—	S	$I_D = 20 \text{ A}, V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	Ciss	—	5800	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$
Output capacitance	Coss	—	1430	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	Crss	—	150	—	pF	
Turn-on delay time	$t_{d(on)}$	—	60	—	ns	$I_D = 20 \text{ A}, V_{GS} = 10 \text{ V},$
Rise time	t_r	—	175	—	ns	$R_L = 1.5$
Turn-off delay time	$t_{d(off)}$	—	420	—	ns	
Fall time	t_f	—	160	—	ns	
Body to drain diode forward voltage	V_{DF}	—	1.2	—	V	$I_F = 40 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	600	—	ns	$I_F = 40 \text{ A}, V_{GS} = 0,$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

Note: 1. Pulse test

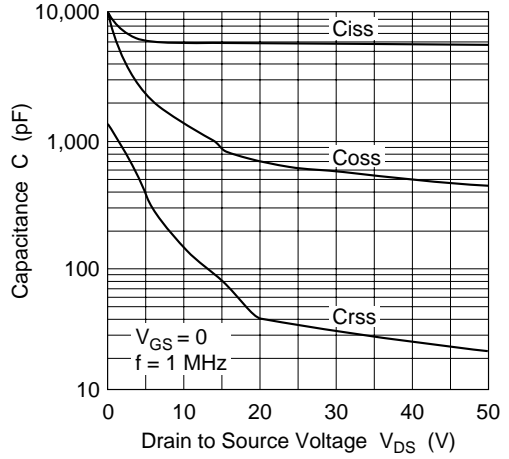




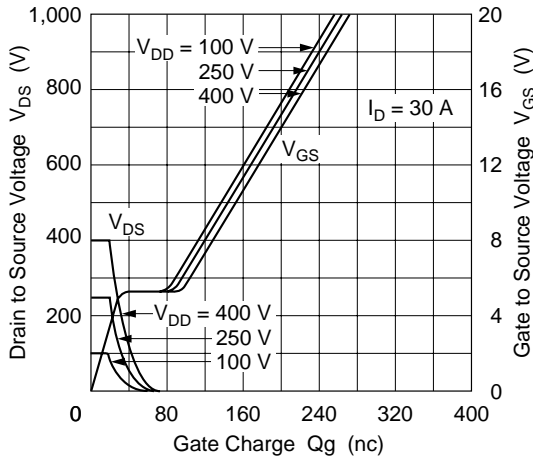
Body to Drain Diode Reverse Recovery Time



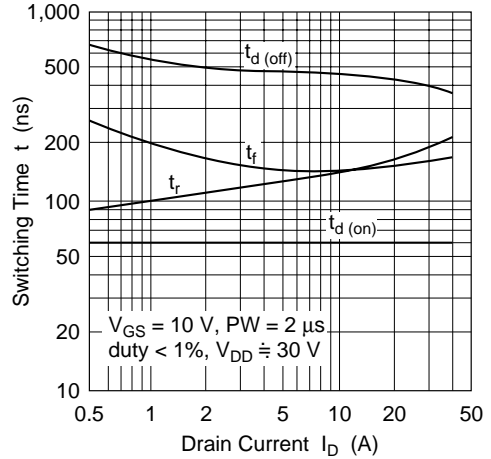
Typical Capacitance vs. Drain to Source Voltage

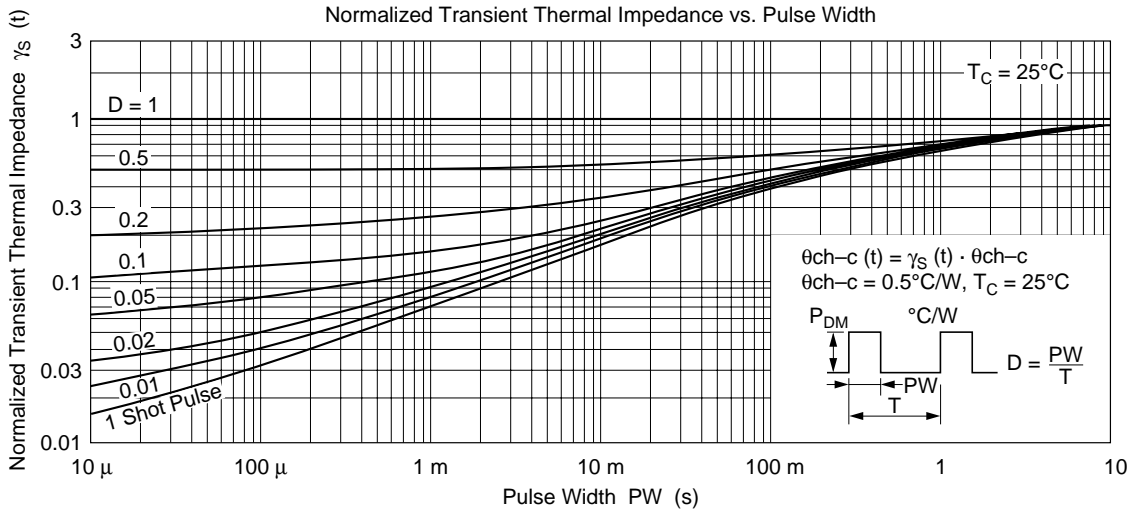
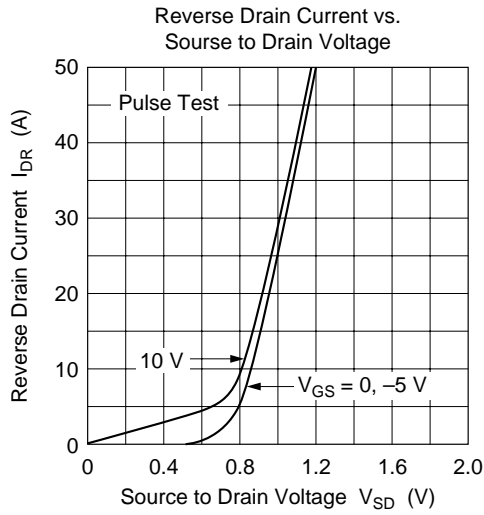


Dynamic Input Characteristics

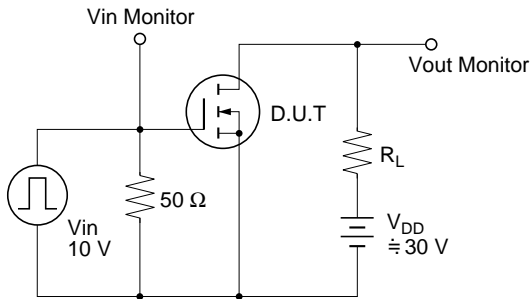


Switching Characteristics

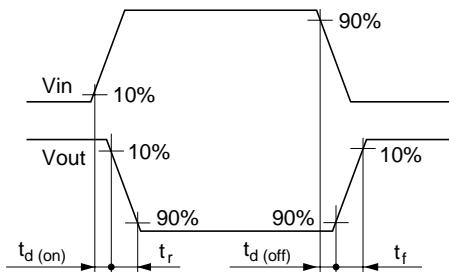




Switching Time Test Circuit



Waveforms



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