

2SK1151(L)(S), 2SK1152(L)(S)

Silicon N-Channel MOS FET

HITACHI

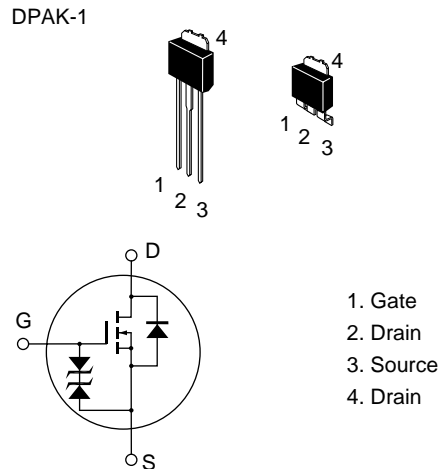
Application

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



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Absolute Maximum Ratings (T_a = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1151	V _{DSS}	450	V
	2SK1152		500	
Gate to source voltage		V _{GSS}	±30	V
Drain current		I _D	1.5	A
Drain peak current		I _{D(pulse)} ^{*1}	6	A
Body to drain diode reverse drain current		I _{DR}	1.5	A
Channel dissipation		P _{ch} ^{*2}	20	W
Channel temperature		T _{ch}	150	°C
Storage temperature		T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

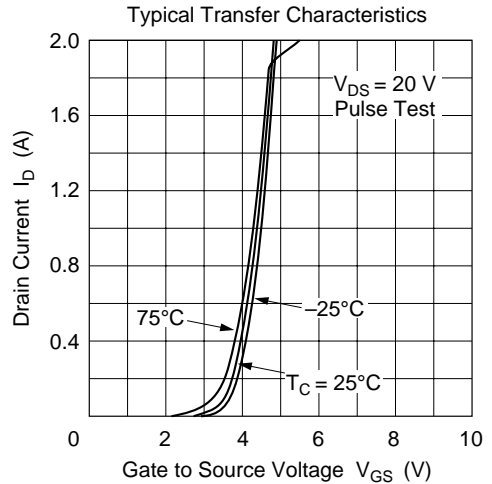
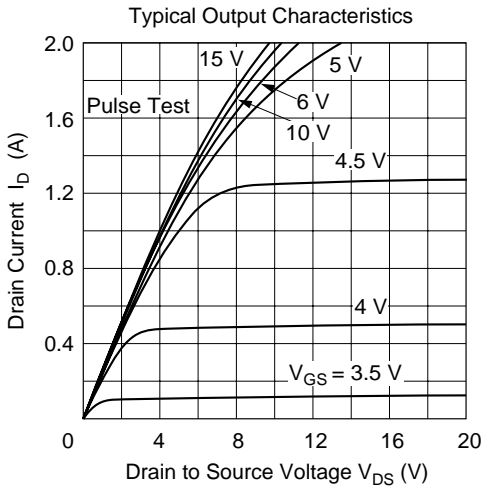
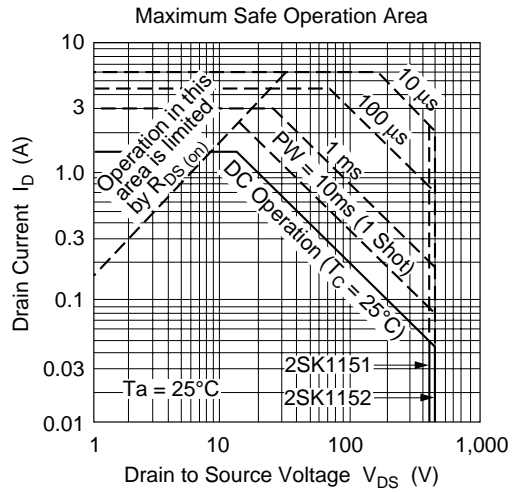
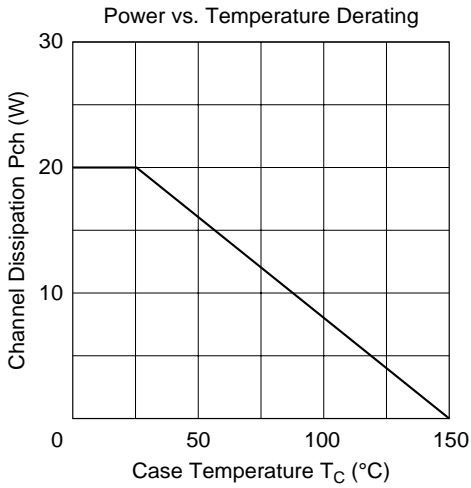
2. Value at T_c = 25°C

Electrical Characteristics (Ta = 25°C)

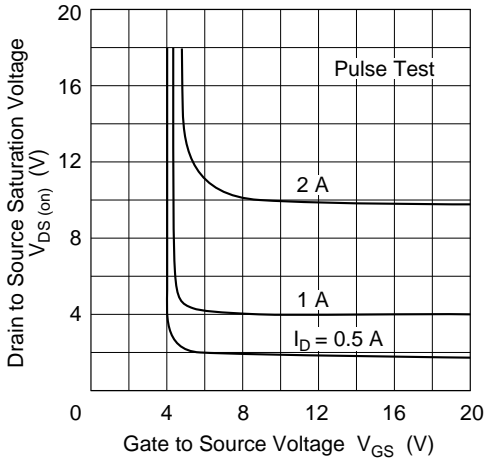
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1151 $V_{(BR)DSS}$ 2SK1152	450 500	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 30	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}, V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	2SK1151 I_{DSS} 2SK1152	—	—	100	μA	$V_{DS} = 360 \text{ V}, V_{GS} = 0$ $V_{DS} = 400 \text{ V}, V_{GS} = 0$
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 statesresistance	2SK1151 $R_{DS(on)}$ 2SK1152	— —	3.5 4.0	5.5 6.0	Ω	$I_D = 1 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	0.6	1.1	—	S	$I_D = 1 \text{ A}, V_{DS} = 20 \text{ V}^{*1}$
Input capacitance	C_{iss}	—	160	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$
Output capacitance	C_{oss}	—	45	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	C_{rss}	—	5	—	pF	
Turn-on delay time	$t_{d(on)}$	—	5	—	ns	$I_D = 1 \text{ A}, V_{GS} = 10 \text{ V},$
Rise time	t_r	—	10	—	ns	$R_L = 30 \text{ }\Omega$
Turn-off delay time	$t_{d(off)}$	—	20	—	ns	
Fall time	t_f	—	10	—	ns	
Body to drain diode forward voltage	V_{DF}	—	1.0	—	V	$I_F = 1.5 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	220	—	ns	$I_F = 1.5 \text{ A}, V_{GS} = 0,$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

Note: 1. Pulse test

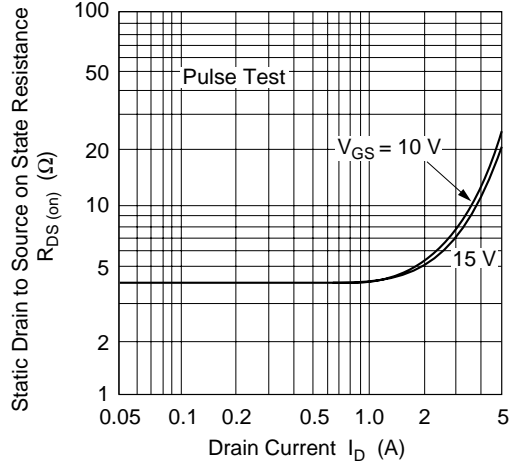
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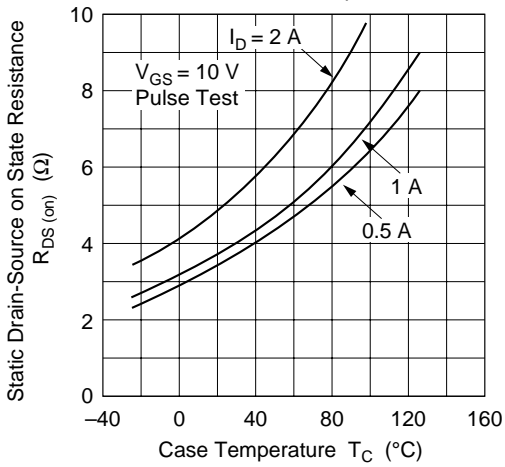
Drain to Source Saturation Voltage vs. Gate to Source Voltage



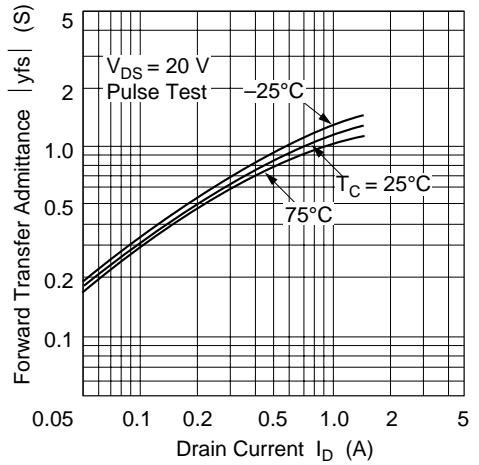
Static Drain to Source on State Resistance vs. Drain Current



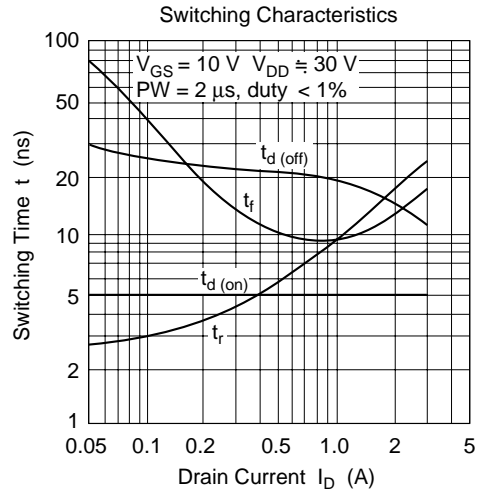
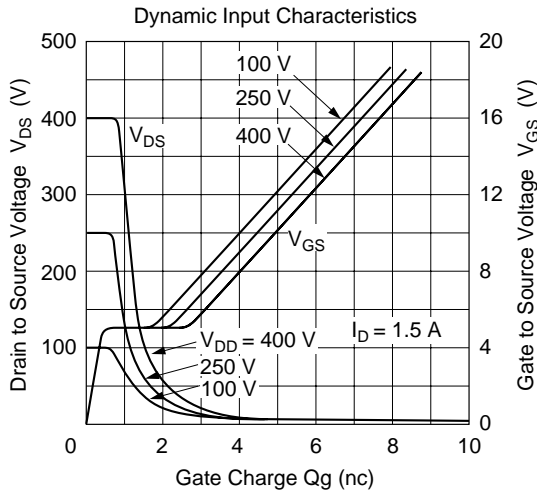
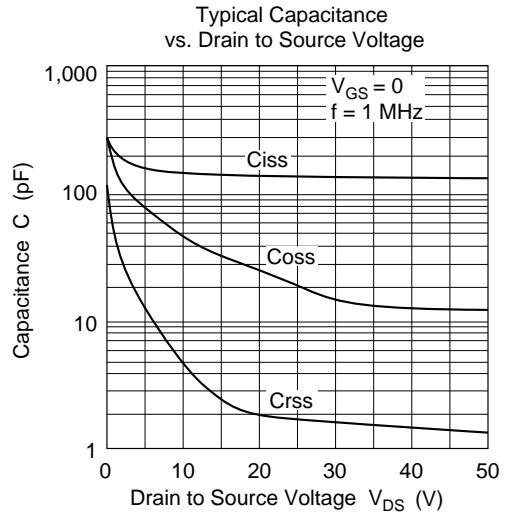
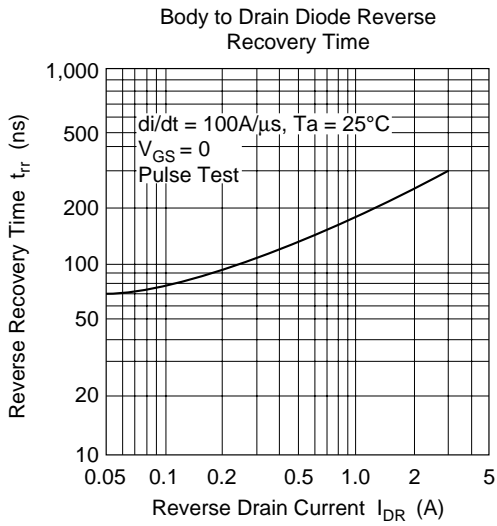
Static Drain to Source on State Resistance vs. Temperature

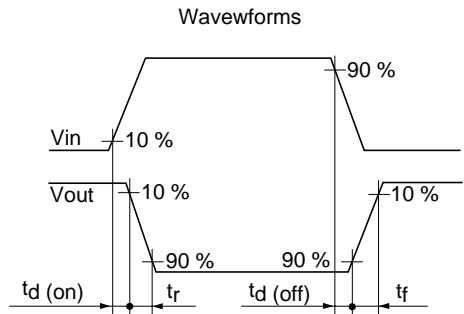
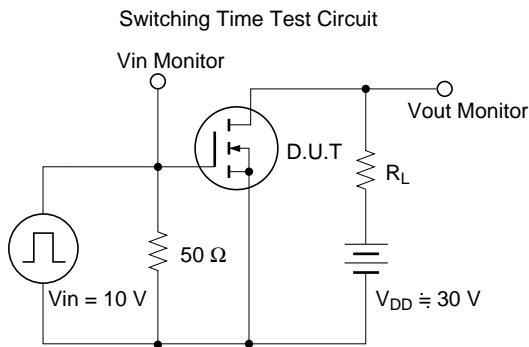
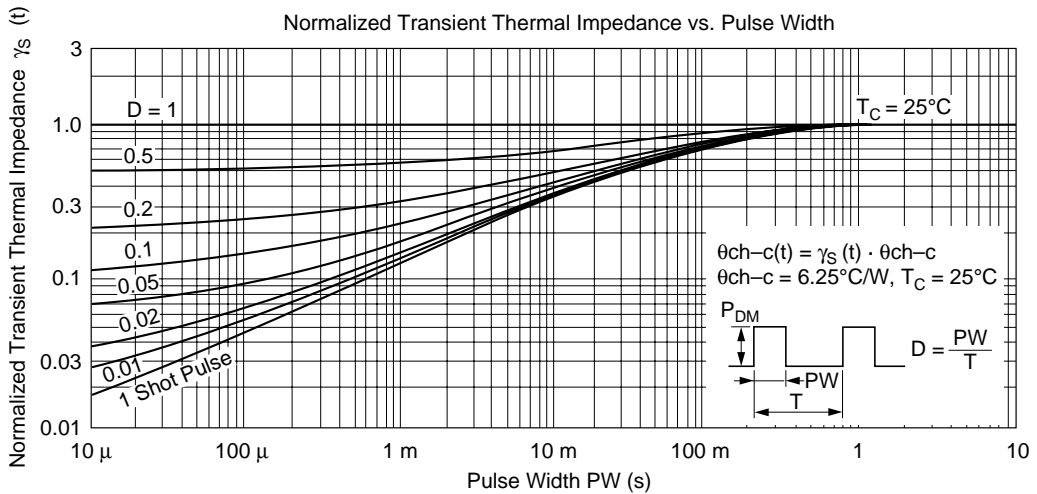
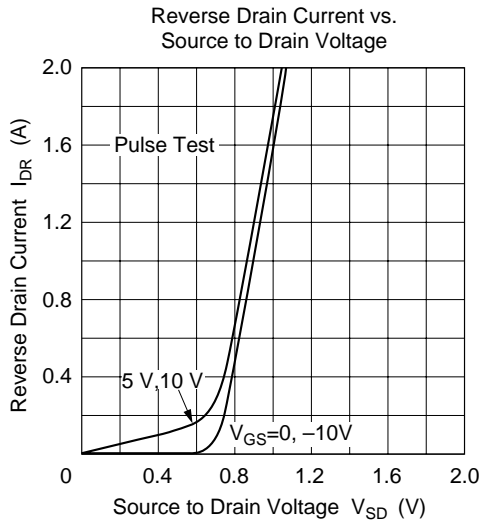


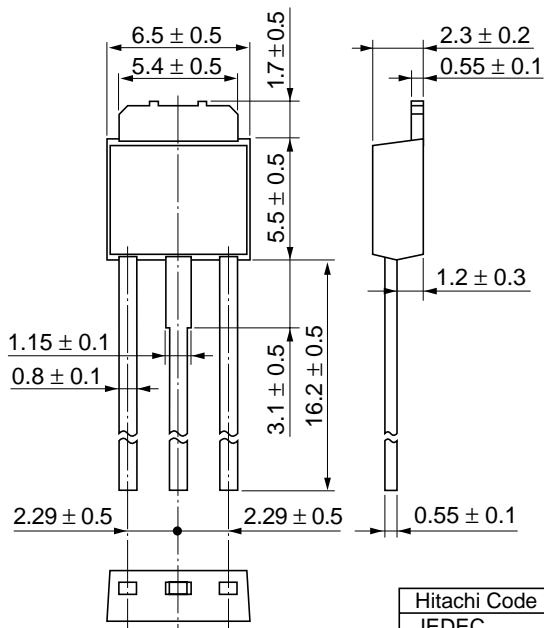
Forward Transfer Admittance vs. Drain Current



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Hitachi Code	DPAK (L)-(1)
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.42 g

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