2SK1950(L), 2SK1950(S)

Silicon N-Channel MOS FET

HITACHI

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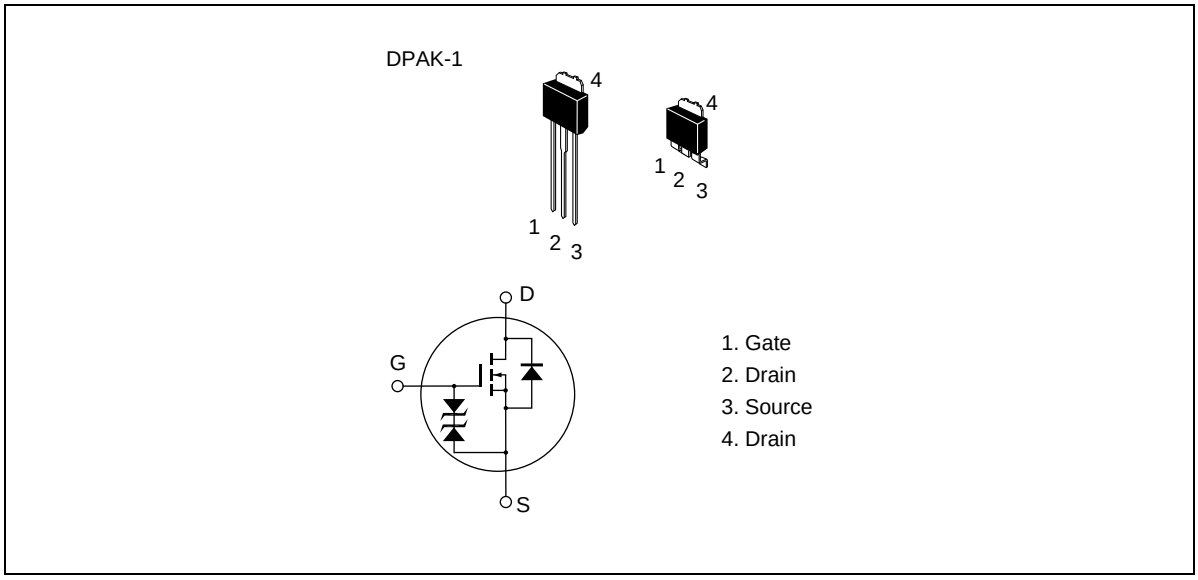
Application

High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- 2.5 V gate drive device can be driven from 3 V source
- Suitable for Switching regulator, DC - DC converter

Outline



Absolute Maximum Ratings (Ta = 25°C)

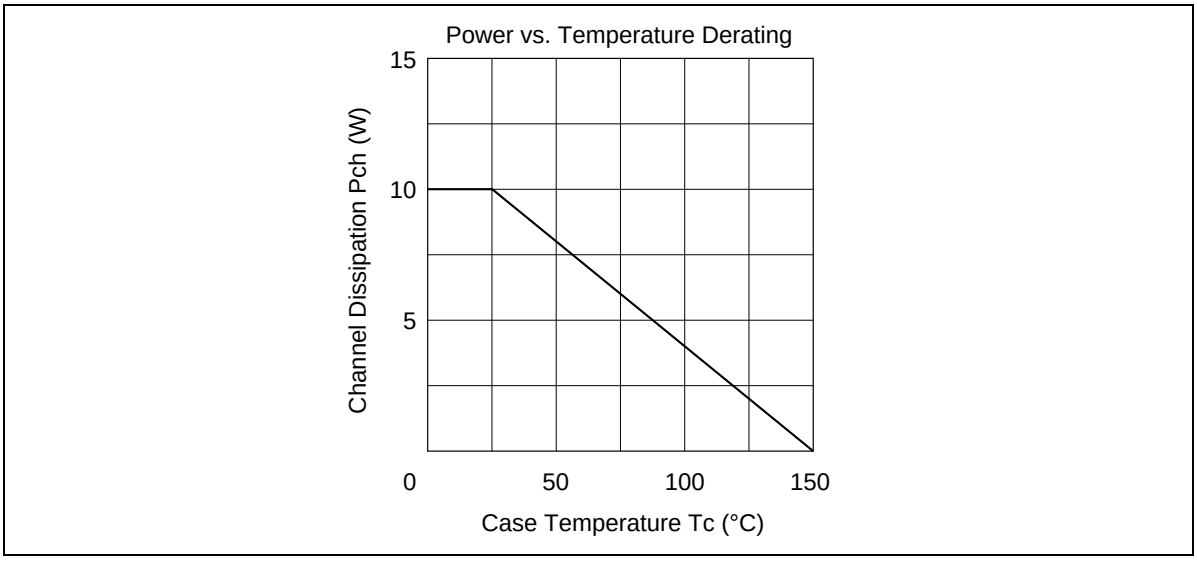
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	60	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	3	A
Drain peak current	$I_{D(pulse)}$*[1]	12	A
Body to drain diode reverse drain current	I_{DR}	3	A
Channel dissipation	Pch*[2]	10	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes 1. PW ≤ 10 µs, duty cycle ≤ 1 %
2. Value at Tc = 25°C

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±16 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	100	µA	V_{DS} = 50 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	0.5	—	1.5	V	I_D = 1 mA, V_{DS} = 10 V
Static drain to source on state resistance	$R_{DS(on)}$	—	0.2	0.25	Ω	I_D = 2 A V_{GS} = 10 V*[1]
		—	0.3	0.45	Ω	I_D = 0.6 A V_{GS} = 2.5 V*[1]
Forward transfer admittance	$\|y_{fs}\|$	(6)	(10)	—	S	I_D = 2 A V_{DS} = 10 V*[1]
Input capacitance	Ciss	—	(350)	—	pF	V_{DS} = 10 V V_{GS} = 0 f = 1 MHz
Output capacitance	Coss	—	(200)	—	pF	
Reverse transfer capacitance	Crss	—	(80)	—	pF	
Turn-on delay time	$t_{d(on)}$	—	(10)	—	ns	I_D = 2 A V_{GS} = 10 V R_L = 15 Ω
Rise time	t_r	—	(50)	—	ns	
Turn-off delay time	$t_{d(off)}$	—	(100)	—	ns	
Fall time	t_f	—	(60)	—	ns	
Body to drain diode forward voltage	V_{DF}	—	(1.2)	—	V	I_F = 3 A, V_{GS} = 0
Body to drain diode reverse recovery time	t_{rr}	—	(100)	—	ns	I_F = 3 A, V_{GS} = 0, diF / dt = 50 A / µs

Note 1. Pulse Test


Power vs. Temperature Derating
Channel Dissipation Pch (W)
15
10
5
0
50
100
150
Case Temperature Tc (°C)

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