2SK2568

Silicon N-Channel MOS FET

HITACHI

Preliminary

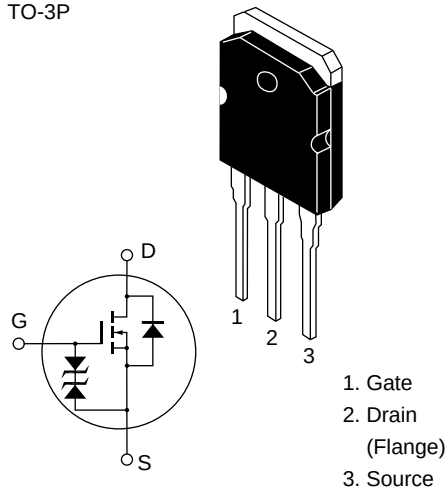
Application

High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- Suitable for switching regulator and DC-DC converter

Outline



1. Gate
2. Drain (Flange)
3. Source

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Absolute Maximum Ratings (Ta = 25°C)

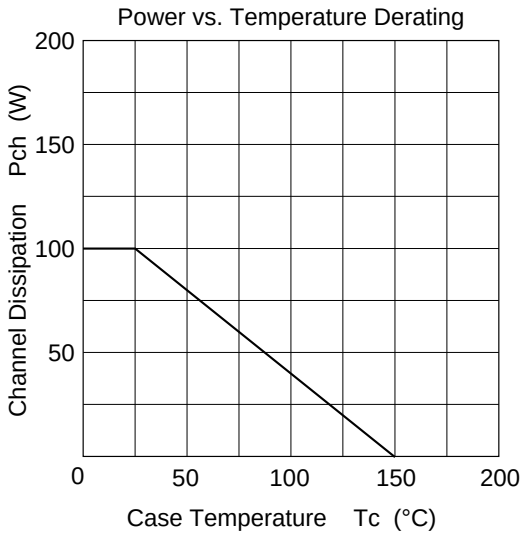
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	500	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D*2	12	A
Drain peak current	$I_{D(pulse)}$*1	48	A
Body to drain diode reverse drain current	I_{DR}*2	12	A
Channel dissipation	Pch*2	100	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

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

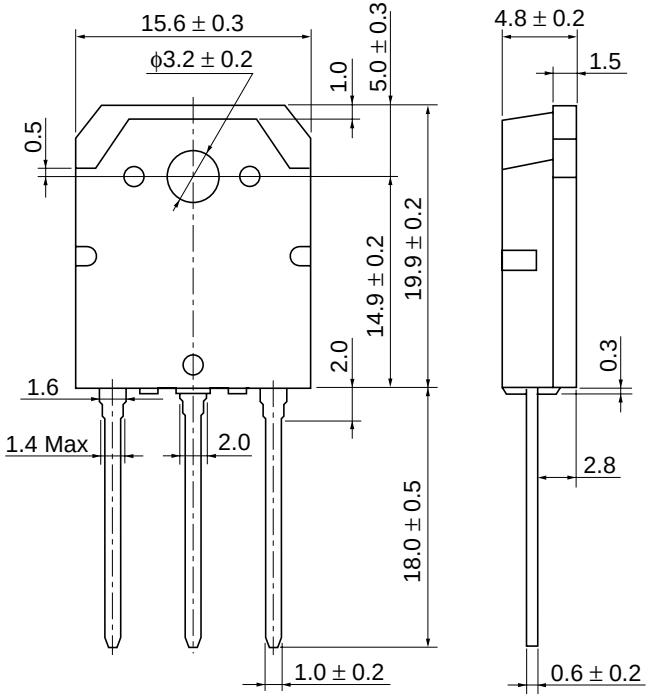
Electrical Characteristics (Ta = 25°C)

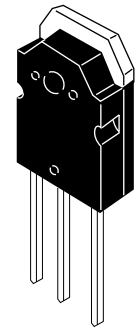
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	500	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±30	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±25 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	250	µA	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	$R_{DS(on)}$	—	0.5	0.6	Ω	I_D = 6 A V_{GS} = 10 V*[1]
Forward transfer admittance	$\|y_{fs}\|$	6.0	10	—	S	I_D = 6 A V_{DS} = 10 V*[1]
Input capacitance	Ciss	—	1560	—	pF	V_{DS} = 10 V
Output capacitance	Coss	—	450	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	72	—	pF	f = 1 MHz
Turn-on delay time	$t_{d(on)}$	—	22	—	ns	I_D = 6 A
Rise time	t_r	—	78	—	ns	V_{GS} = 10 V
Turn-off delay time	$t_{d(off)}$	—	140	—	ns	R_L = 5 Ω
Fall time	t_f	—	60	—	ns	
Body to drain diode forward voltage	V_{DF}	—	1.1	—	V	I_F = 12 A, V_{GS} = 0
Body to drain diode reverse recovery time	t_{rr}	—	105	—	ns	I_F = 12 A, V_{GS} = 0 diF / dt = 100 A / µs

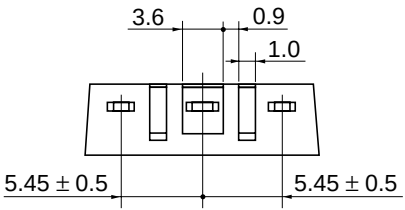
Note: 1. Pulse Test


Power vs. Temperature Derating
Channel Dissipation Pch (W)
200
150
100
50
0
50
100
150
200
Case Temperature Tc (°C)

Unit: mm







Hitachi Code	TO-3P
JEDEC	—
EIAJ	Conforms
Weight (reference value)	5.0 g

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