2SK1764

Silicon N-Channel MOS FET

HITACHI

Application

Low frequency amplifier

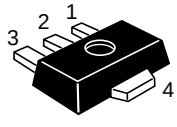
High speed switching

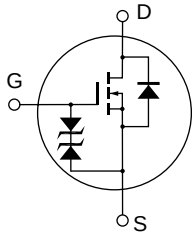
Features

- Low on-resistance
- High speed switching
- 4 V Gate drive device can be driven from 5 V source
- Suitable for switchingregulator, DC-DC converter

Outline

UPAK





1. Gate
2. Drain
3. Source
4. Drain

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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	2	A
Drain peak current	$I_{D(pulse)}$*[1]	4	A
Body to drain diode reverse drain current	I_{DR}	4	A
Channel power dissipation	Pch*[2]	1	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

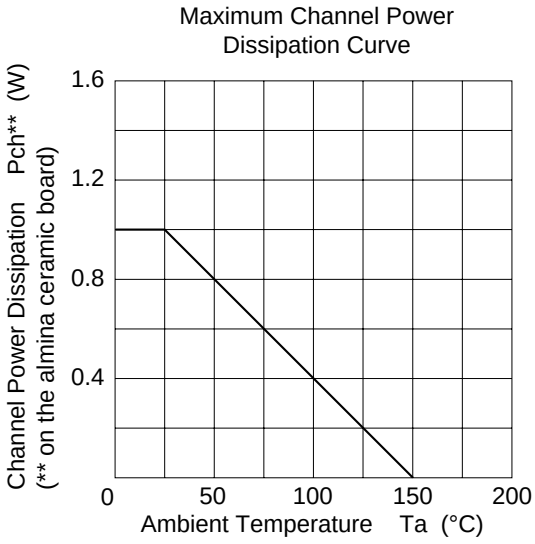
Notes 1. PW ≤ 100 µs, duty cycle ≤ 10 %
2. Value on the alumina ceramic board (12.5 x 20 x 0.7 mm)
3. Marking is "KY".

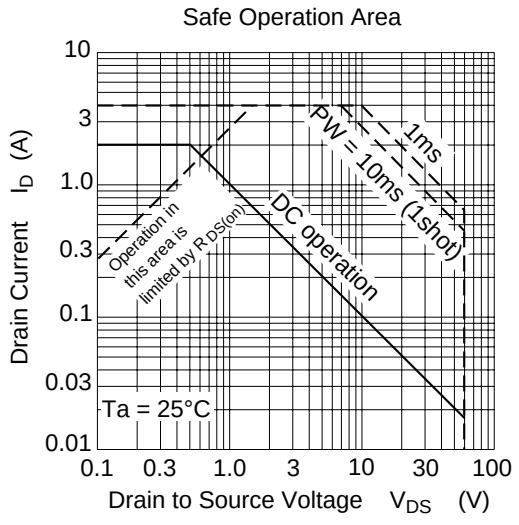
Electrical Characteristics (Ta = 25°C)

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 cutoff voltage	$V_{GS(off)}$	1	—	2	V	V_{DS} = 10 V, I_D = 1 mA
Drain to source cutoff current	I_{DSS}	—	—	10	µA	V_{DS} = 50 V, V_{GS} = 0
Gate to source cutoff current	I_{GSS}	—	—	±5	µA	V_{GS} = ±15 V, V_{DS} = 0
Static drain to source on state resistance	$R_{DS(on)1}$	—	0.3	0.45	Ω	V_{GS} = 10 V I_D = 1 A*[1]
Static drain to source on state resistance	$R_{DS(on)2}$	—	0.4	0.60	Ω	V_{GS} = 4 V I_D = 1 A*[1]
Forward transfer admittance	$\|y_{fs}\|$	0.9	1.7	—	S	V_{DS} = 10 V I_D = 1 A*[1]
Input capacitance	Ciss	—	140	—	pF	V_{DS} = 10 V
Output capacitance	Coss	—	75	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	20	—	pF	f = 1 MHz
Turn on time	t_{on}	—	18	—	ns	V_{DS} = 10 V, I_D = 1 A*[1]
Turn off time	t_{off}	—	80	—	ns	R_L = 30 Ω

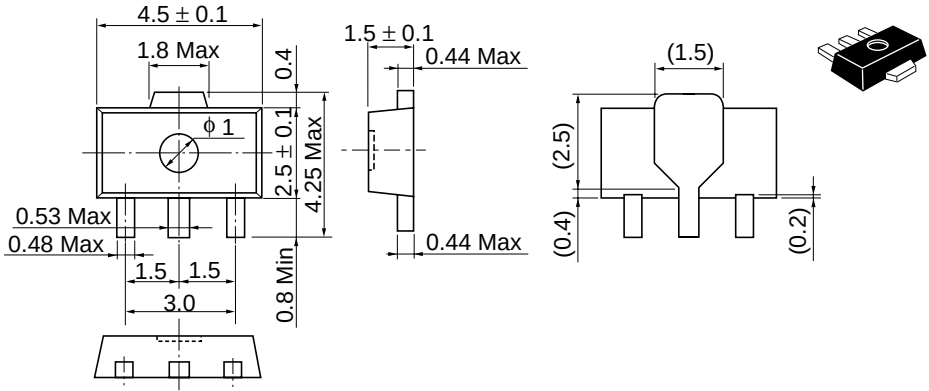
Note 1. Pulse Test

See characteristics curves of 2SK975


Maximum Channel Power Dissipation Curve
Channel Power Dissipation Pch** (W)
(** on the almina ceramic board)
1.6
1.2
0.8
0.4
0
50
100
150
200
Ambient Temperature Ta (°C)


Safe Operation Area
Drain Current I_D (A)
10
3
1.0
0.3
0.1
0.03
0.01
PW = 10ms (1shot)
1ms
DC operation
Operation in this area is limited by $R_{DS(on)}$
Ta = 25°C
0.1
0.3
1.0
3
10
30
100
Drain to Source Voltage V_{DS} (V)

Unit: mm



Hitachi Code	UPAK
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.050 g

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HITACHI

Hitachi, Ltd.
Semiconductor & Integrated Circuits.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL
NorthAmerica : http:semiconductor.hitachi.com/
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For further information write to:

Hitachi Semiconductor
(America) Inc.
179 East Tasman Drive,
San Jose,CA 95134
Tel: <1> (408) 433-1990
Fax: <1>(408) 433-0223

Hitachi Europe GmbH
Electronic components Group
Dornacher Straße 3
D-85622 Feldkirchen, Munich
Germany
Tel: <49> (89) 9 9180-0
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.
Electronic Components Group.
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA, United Kingdom
Tel: <44> (1628) 585000
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 049318
Tel: 535-2100
Fax: 535-1533

Hitachi Asia Ltd.
Taipei Branch Office
3F, Hung Kuo Building. No.167,
Tun-Hwa North Road, Taipei (105)
Tel: <886> (2) 2718-3666
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower, World Finance Centre,
Harbour City, Canton Road, Tsim Sha Tsui,
Kowloon, Hong Kong
Tel: <852> (2) 735 9218
Fax: <852> (2) 730 0281
Telex: 40815 HITEC HX