HAT2045T

Silicon N Channel Power MOS FET
High Speed Power Switching

HITACHI

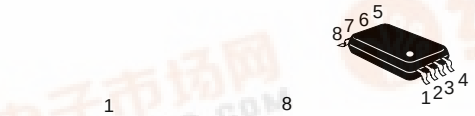
Target Specification
5th. Edition
February 1999

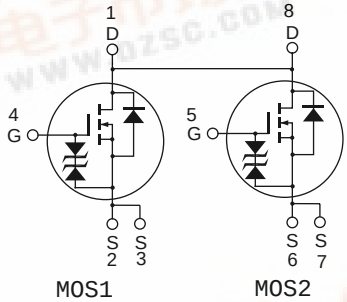
Features

- Low on-resistance
- Capable of 2.5 V gate drive
- Low drive current
- High density mounting

Outline

TSSOP–8





1, 8 D
2, 3, 6, 7 Sou
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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	28	V
Gate to source voltage	V_{GSS}	±12	V
Drain current	I_D	6.0	A
Drain peak current	$I_{D(pulse)}$ Note1	48	A
Body-drain diode reverse drain current	I_{DR}	6.0	A
Channel dissipation	Pch Note2	1.0	W
Channel dissipation	Pch Note3	1.5	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. PW ≤ 10µs, duty cycle ≤ 1 %
2. 1 Drive operation ; When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW ≤ 10s
3. 2 Drive operation ; When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW ≤ 10s

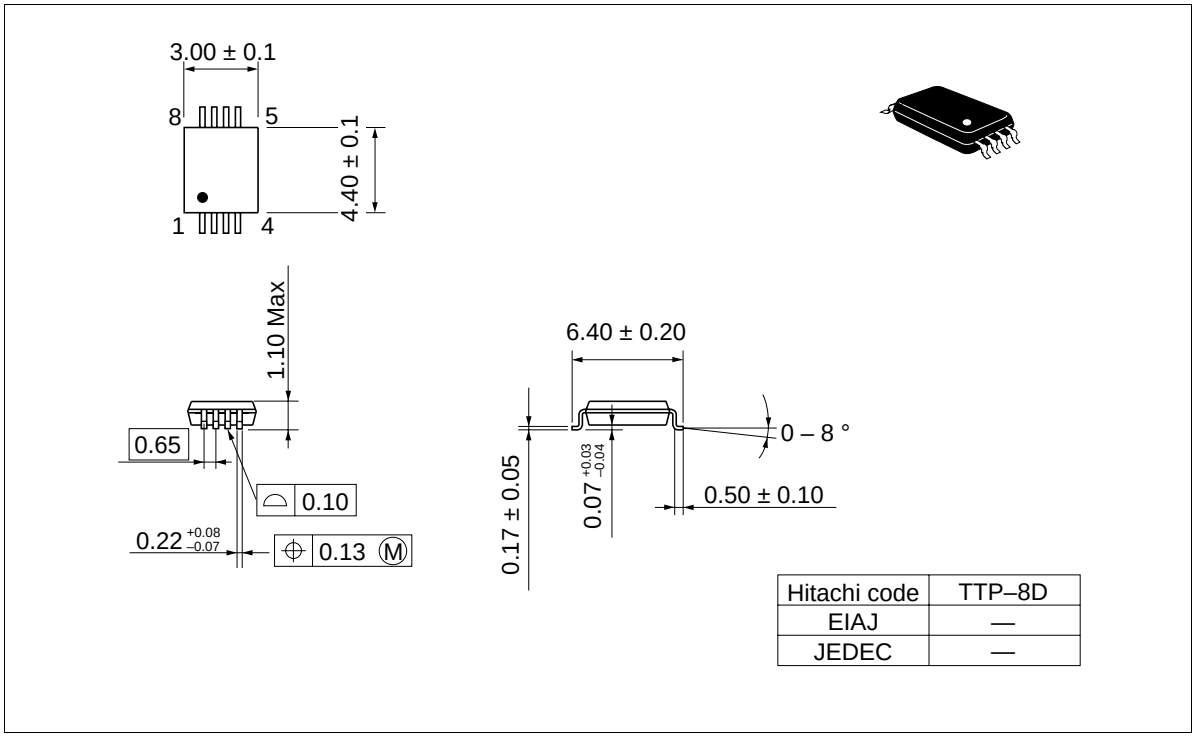
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	28	—	—	V	I_D = 10mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±12	—	—	V	I_G = ±100µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±10V, V_{DS} = 0
Zero gate voltege drain current	I_{DSS}	—	—	1	µA	V_{DS} = 28 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	0.4	—	1.4	V	V_{DS} = 10V, I_D = 1mA
Static drain to source on state resistance	$R_{DS(on)}$	—	0.020	0.025	Ω	I_D = 3A, V_{GS} = 4V Note4
	$R_{DS(on)}$	—	0.027	0.037	Ω	I_D = 3A, V_{GS} = 2.5V Note4
Forward transfer admittance	$\|y_{fs}\|$	8	13	—	S	I_D = 3A, V_{DS} = 10V Note4
Input capacitance	Ciss	—	680	—	pF	V_{DS} = 10V
Output capacitance	Coss	—	240	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	170	—	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	—	12	—	ns	V_{GS} = 4V, I_D = 3A
Rise time	t_r	—	110	—	ns	V_{DD} ≅ 10V
Turn-off delay time	$t_{d(off)}$	—	90	—	ns	
Fall time	t_f	—	100	—	ns	
Body–drain diode forward voltage	V_{DF}	—	0.85	1.1	V	IF =6.0A, V_{GS} = 0 Note4
Body–drain diode reverse recovery time	t_{rr}	—	40	—	ns	IF = 6.0A, V_{GS} = 0 diF/ dt =20A/µs

Note: 4. Pulse test

Package Dimensions

Unit: mm



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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