HAT2031T

Silicon N Channel Power MOS FET
High Speed Power Switching

HITACHI

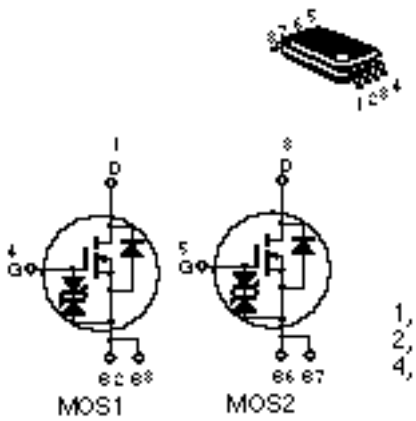
ADE-208-529 D (Z)
5th. Edition
July 1997

Features

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

Outline

TSSOP-8



1, 8	Drain
2, 3, 6, 7	Source
4, 5,	Gate

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	20	V
Gate to source voltage	V_{GSS}	±12	V
Drain current	I_D	3.5	A
Drain peak current	$I_{D(pulse)}$ Note1	28	A
Body-drain diode reverse drain current	I_{DR}	3.5	A
Channel dissipation	Pch Note2	1	W
Channel dissipation	Pch Note3	1.5	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

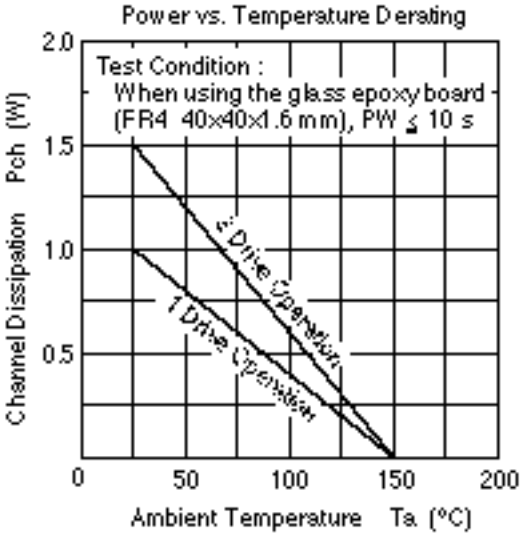
Note: 1. PW ≤ 10µs, duty cycle ≤ 1 %
2. 1 Drive operation : When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW≤ 10s
3. 2 Drive operation : When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW≤ 10s

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	20	—	—	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} = 20 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	0.5	—	1.5	V	V_{DS} = 10V, I_D = 1mA
Static drain to source on state resistance	$R_{DS(on)}$	—	0.054	0.070	Ω	I_D = 2A, V_{GS} = 4V Note4
	$R_{DS(on)}$	—	0.074	0.098	Ω	I_D = 2A, V_{GS} = 2.5V Note4
Forward transfer admittance	$\|y_{fs}\|$	4.5	7	—	S	I_D = 2A, V_{DS} = 10V Note4
Input capacitance	Ciss	—	300	—	pF	V_{DS} = 10V
Output capacitance	Coss	—	185	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	90	—	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	—	13	—	ns	V_{GS} = 4V, I_D = 2A
Rise time	t_r	—	75	—	ns	V_{DD} ÷ 10V
Turn-off delay time	$t_{d(off)}$	—	60	—	ns	
Fall time	t_f	—	75	—	ns	
Body–drain diode forward voltage	V_{DF}	—	0.85	1.11	V	IF =3.5A, V_{GS} = 0 Note4
Body–drain diode reverse recovery time	t_{rr}	—	35	—	ns	IF = 3.5A, V_{GS} = 0 diF/ dt =20A/µs

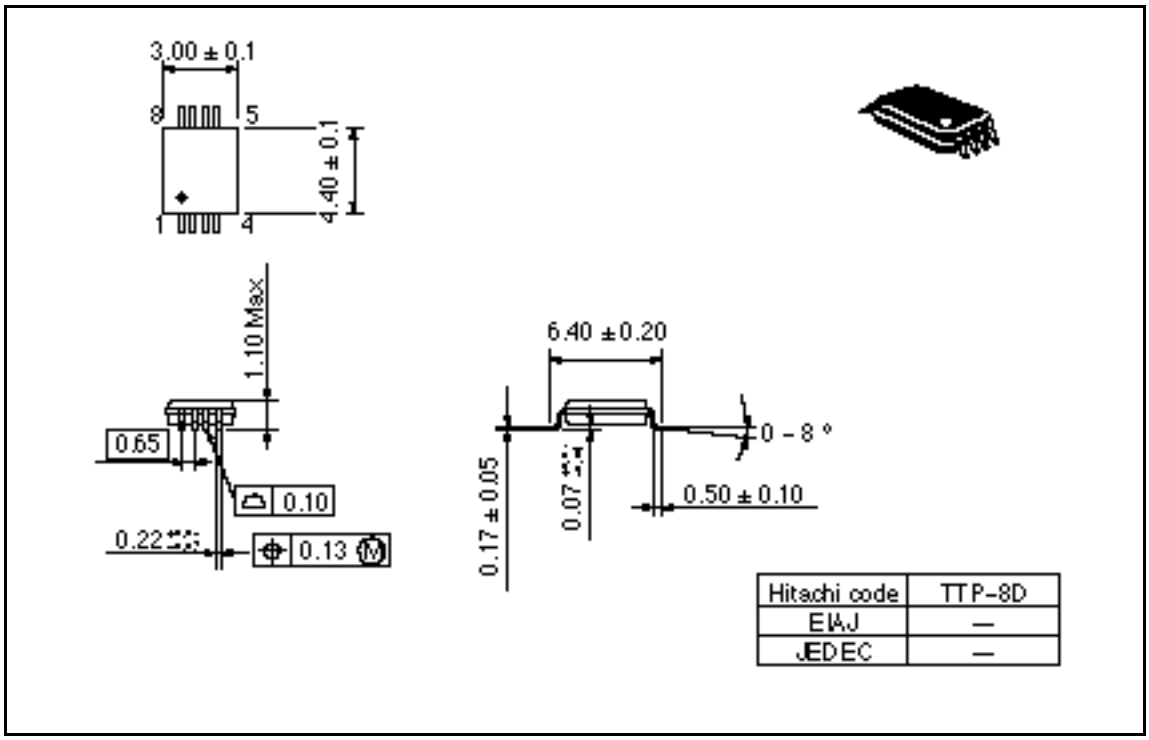
Note: 4. Pulse test

Main Characteristics



Package Dimensions

Unit: mm



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