

HAT2045T

Silicon N Channel Power MOS FET
High Speed Power Switching

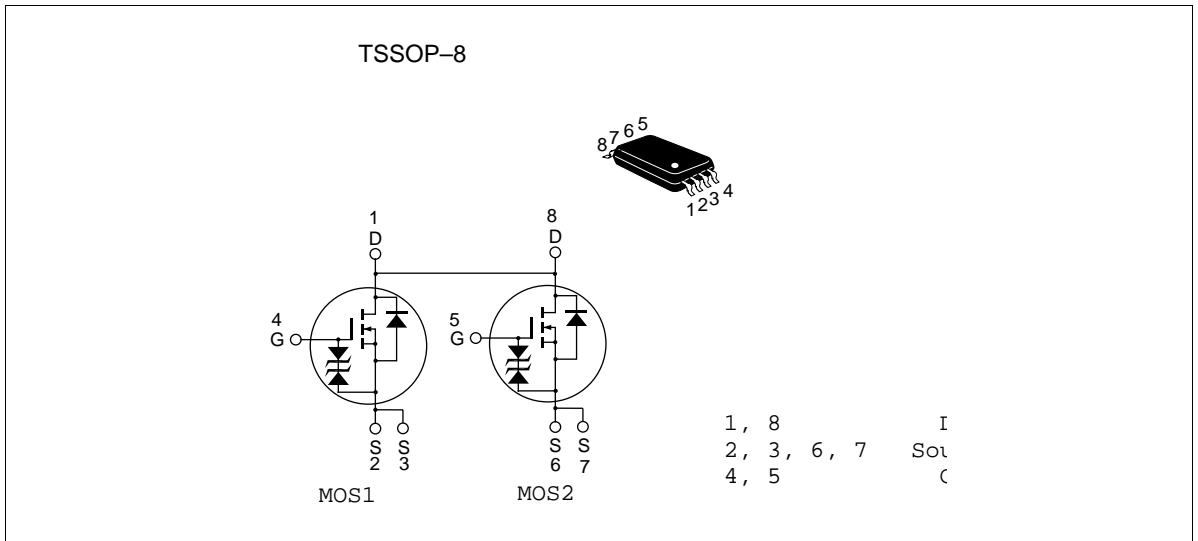
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Target Specification
5th. Edition
February 1999

Features

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

Outline



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	P_{ch} ^{Note2}	1.0	W
Channel dissipation	P_{ch} ^{Note3}	1.5	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Note: 1. $PW \leq 10\mu s$, duty cycle $\leq 1\%$

2. 1 Drive operation ; When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), $PW \leq 10s$

3. 2 Drive operation ; When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), $PW \leq 10s$

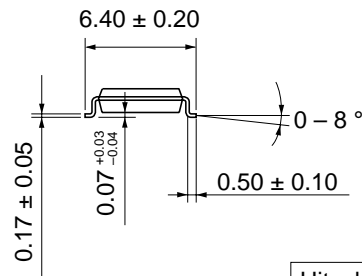
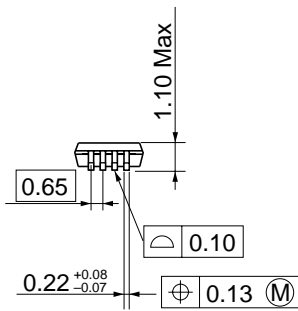
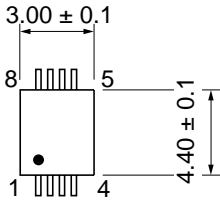
Electrical Characteristics (Ta = 25°C)

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

Note: 4. Pulse test

Package Dimensions

Unit: mm



Hitachi code	TTP-8D
EIAJ	—
JEDEC	—

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