
HAT1051T

Silicon P Channel Power MOS FET
High Speed Power Switching

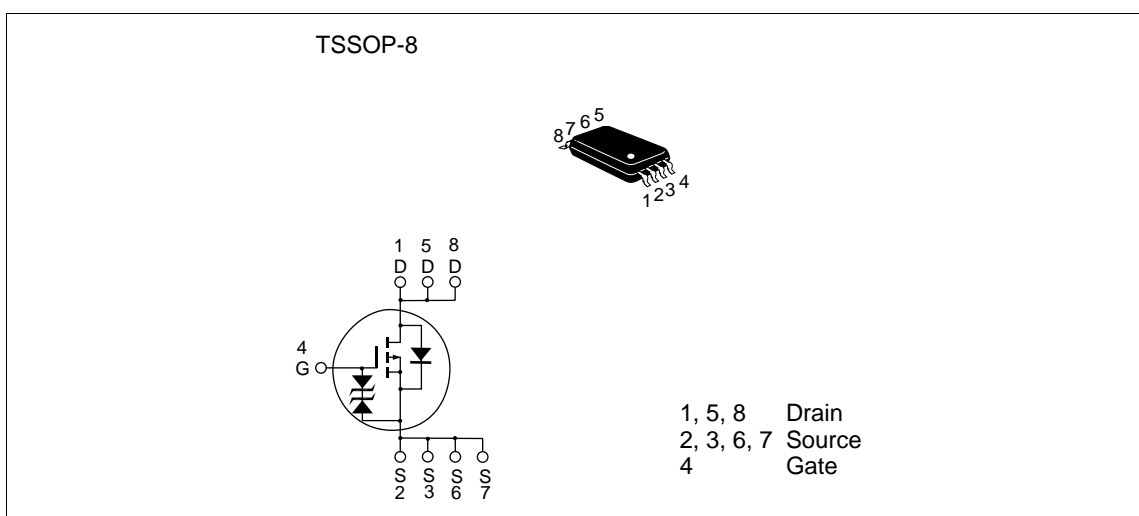
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Target specification
1st. Edition
Nov. 1999

Features

- Low on-resistance
- Capable of 4V gate drive
- Low drive current
- High density mounting

Outline



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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	-30	V
Gate to source voltage	V_{GSS}	± 20	V
Drain current	I_D	-9.0	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	-72	A
Body-drain diode reverse drain current	I_{DR}	-9.0	A
Channel dissipation	P_{ch} ^{Note2}	1.3	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. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), $PW \leq 10s$

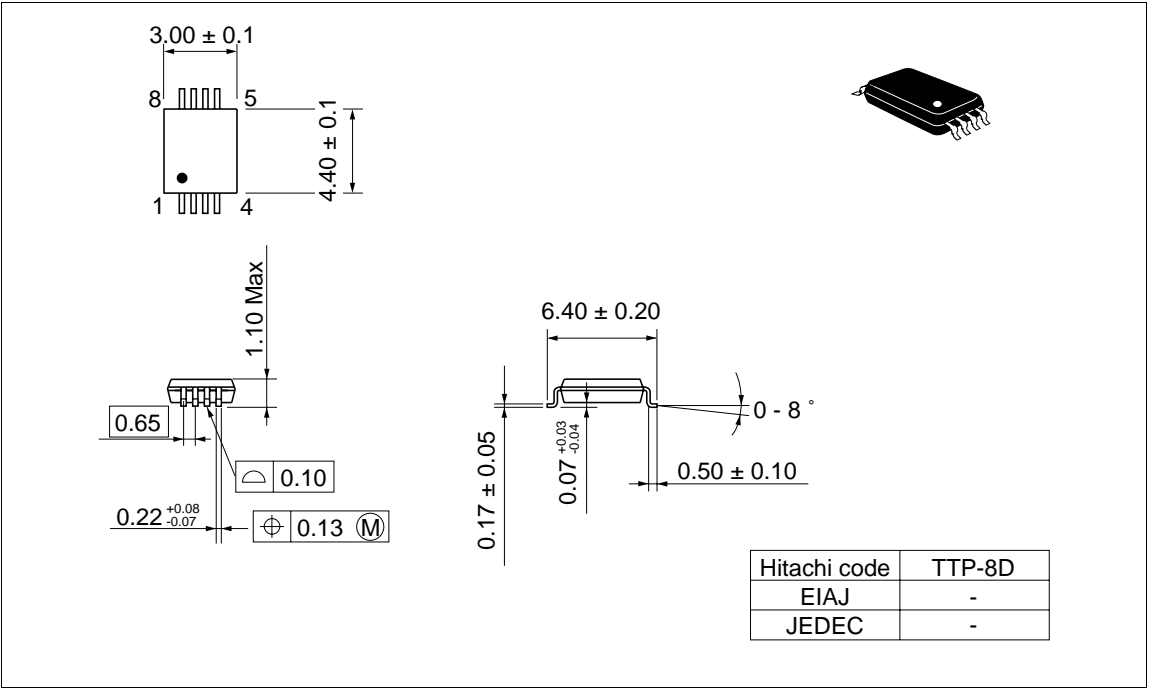
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-30	—	—	V	$I_D = -10mA$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100\mu A$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 16V$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-1	μA	$V_{DS} = -30V$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-1.0	—	-2.0	V	$V_{DS} = -10V$, $I_D = -1mA$
Static drain to source on state resistance	$R_{DS(on)}$	—	12	15	m Ω	$I_D = -4.5A$, $V_{GS} = -10V$ ^{Note3}
	$R_{DS(on)}$	—	20	28	m Ω	$I_D = -4.5A$, $V_{GS} = -4V$ ^{Note3}
Forward transfer admittance	$ y_{fs} $	TBD	TBD	—	S	$I_D = -4.5A$, $V_{DS} = -10V$ ^{Note3}
Input capacitance	C_{iss}	—	TBD	—	pF	$V_{DS} = -10V$
Output capacitance	C_{oss}	—	TBD	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	TBD	—	pF	$f = 1MHz$
Turn-on delay time	$t_{d(on)}$	—	TBD	—	ns	$V_{GS} = -10V$, $I_D = -4.5A$
Rise time	t_r	—	TBD	—	ns	$V_{DD} = -10V$
Turn-off delay time	$t_{d(off)}$	—	TBD	—	ns	$R_L = 2.22\Omega$
Fall time	t_f	—	TBD	—	ns	$R_g = 4.7\Omega$
Body-drain diode forward voltage	V_{DF}	—	TBD	TBD	V	$I_F = -9.0A$, $V_{GS} = 0$ ^{Note3}
Body-drain diode reverse recovery time	t_{rr}	—	TBD	—	ns	$I_F = -9.0A$, $V_{GS} = 0$ $diF/dt = 20A/\mu s$

Note: 3. Pulse test

Package Dimensions

Unit: mm



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