To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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HAT1041T

Silicon P Channel Power MOS FET
High Speed Power Switching

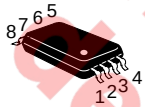
ADE-208-1238F (Z)
7th. Edition
Jan. 2001

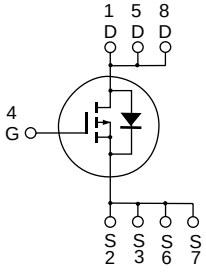
Features

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

Outline

TSSOP-8





1, 5, 8	Drain
2, 3, 6, 7	Source
4	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	-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	1.3	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

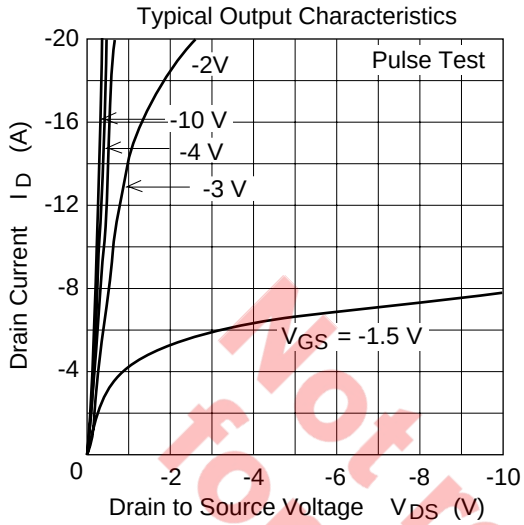
Note: 1. PW ≤ 10µs, duty cycle ≤ 1 %
2. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW≤10s

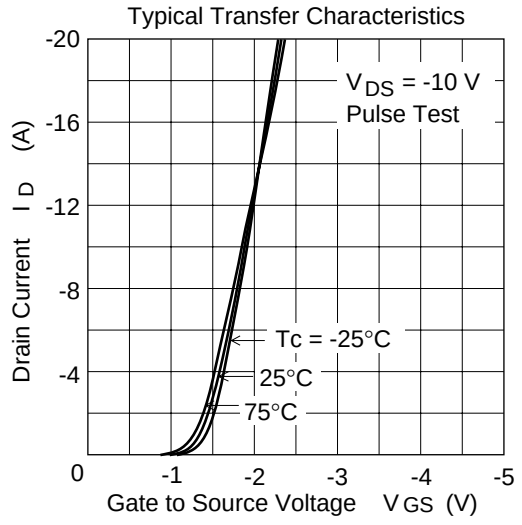
Electrical Characteristics (Ta = 25°C)

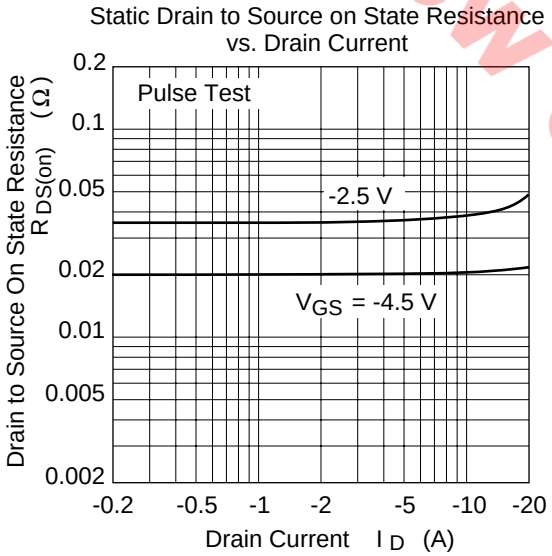
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-20	—	—	V	I_D = -10mA, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±0.1	µA	V_{GS} = ±12V, V_{DS} = 0
Zero gate voltege drain current	I_{DSS}	—	—	1	µA	V_{DS} = -20 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	-0.4	—	-1.4	V	V_{DS} = -10V, I_D = -1mA
Static drain to source on state resistance	$R_{DS(on)}$	—	0.020	0.026	Ω	I_D =- 3A, V_{GS} =- 4.5V Note3
	$R_{DS(on)}$	—	0.035	0.045	Ω	I_D = -3A, V_{GS} = -2.5V Note3
Forward transfer admittance	$\|y_{fs}\|$	6.5	11	—	S	I_D = -3A, V_{DS} = -10V Note3
Input capacitance	Ciss	—	1850	—	pF	V_{DS} = -10V
Output capacitance	Coss	—	590	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	380	—	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	—	30	—	ns	V_{GS} =- 4V, I_D = -3A
Rise time	t_r	—	145	—	ns	V_{DD} ≅ -10V
Turn-off delay time	$t_{d(off)}$	—	210	—	ns	
Fall time	t_f	—	170	—	ns	
Body–drain diode forward voltage	V_{DF}	—	-0.85	-1.10	V	IF =-6.0A, V_{GS} = 0 Note3
Body–drain diode reverse recovery time	t_{rr}	—	70	—	ns	IF = -6.0A, V_{GS} = 0 diF/ dt =20A/µs

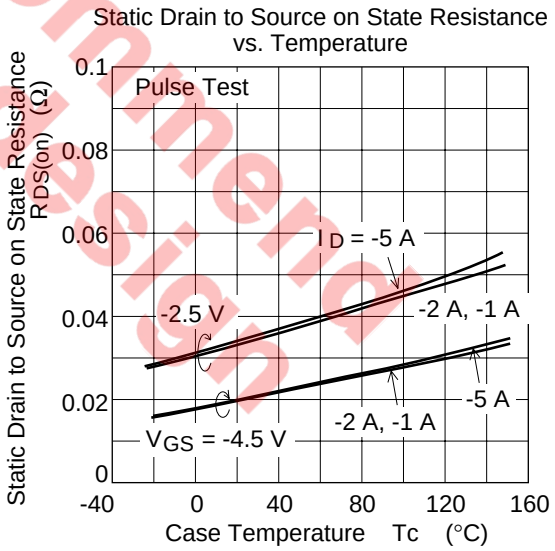
Note: 3. Pulse test

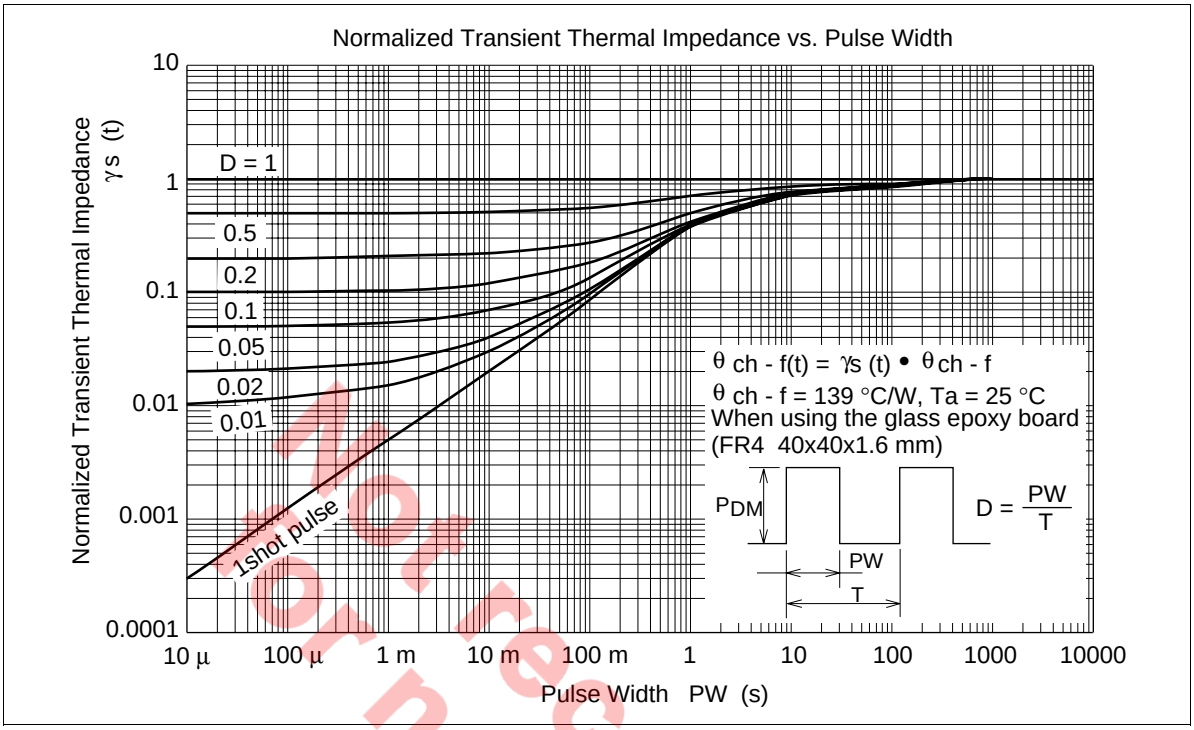
Main Characteristics







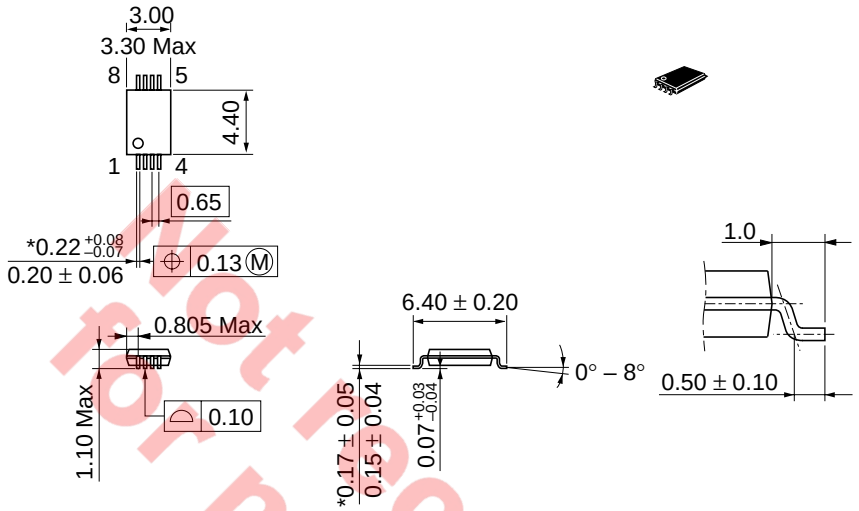




Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TTP-8D
JEDEC	—
EIAJ	—
Mass (reference value)	—

*Dimension including the plating thickness

Base material dimension

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