To all our customers

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

Cautions

Keep safety first in your circuit designs!

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   Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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HAT2036R

Silicon N Channel Power MOS FET
Power Switching

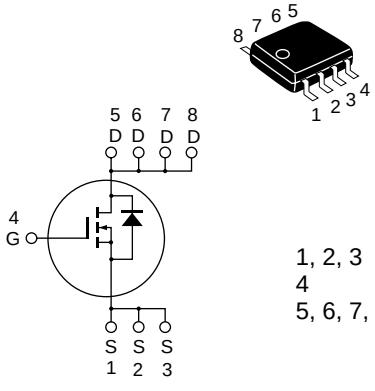
ADE-208-665D (Z)
5th. Edition
Feb. 1999

Features

- Low on-resistance
  $R_{DS(on)}$=12mΩ typ
- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- High speed switching
  tf=60ns typ.

Outline

SOP–8



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

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	12	A
Drain peak current	$I_{D(pulse)}$ *[1]	96	A
Body-drain diode reverse drain current	I_{DR}	12	A
Channel dissipation	Pch*[2]	2.5	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

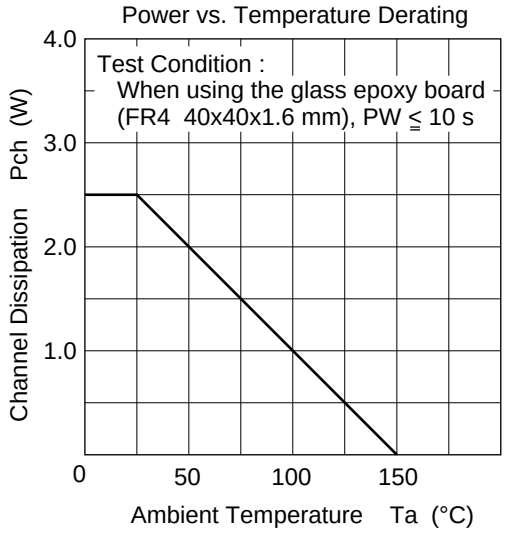
Notes: 1. PW ≤ 10µs, duty cycle ≤ 1 %
2. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW≤ 10s

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	I_D = 10mA, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±0.1	µA	V_{GS} = ±20V, V_{DS} = 0
Zero gate voltege drain current	I_{DSS}	—	—	1	µA	V_{DS} = 30 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	1.5	—	3.0	V	V_{DS} = 10V, I_D = 1mA
Static drain to source on state resistance	$R_{DS(on)}$	—	12	15	mΩ	I_D = 6A, V_{GS} = 10V *[1]
	$R_{DS(on)}$	—	20	30	mΩ	I_D = 6A, V_{GS} = 4.5V *[1]
Forward transfer admittance	$\|y_{fs}\|$	12	20	—	S	I_D = 6A, V_{DS} = 10V *[1]
Input capacitance	Ciss	—	1200	—	pF	V_{DS} = 10V
Output capacitance	Coss	—	380	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	200	—	pF	f = 1MHz
Total gate charge	Qg	—	23	—	nc	V_{DD} = 10V
Gate to source charge	Qgs	—	4.0	—	nc	V_{GS} = 10V
Gate to drain charge	Qgd	—	6.0	—	nc	I_D = 12A
Turn-on delay time	$t_{d(on)}$	—	40	—	ns	V_{GS} = 4.5V, I_D = 6A
Rise time	t_r	—	300	—	ns	V_{DD} ≈ 10V
Turn-off delay time	$t_{d(off)}$	—	35	—	ns	
Fall time	t_f	—	60	—	ns	
Body–drain diode forward voltage	V_{DF}	—	0.9	—	V	IF = 12A, V_{GS} = 0 *[1]
Body–drain diode reverse recovery time	t_{rr}	—	35	—	ns	IF = 12A, V_{GS} = 0 diF/ dt =20A/µs

Note: 1. Pulse test

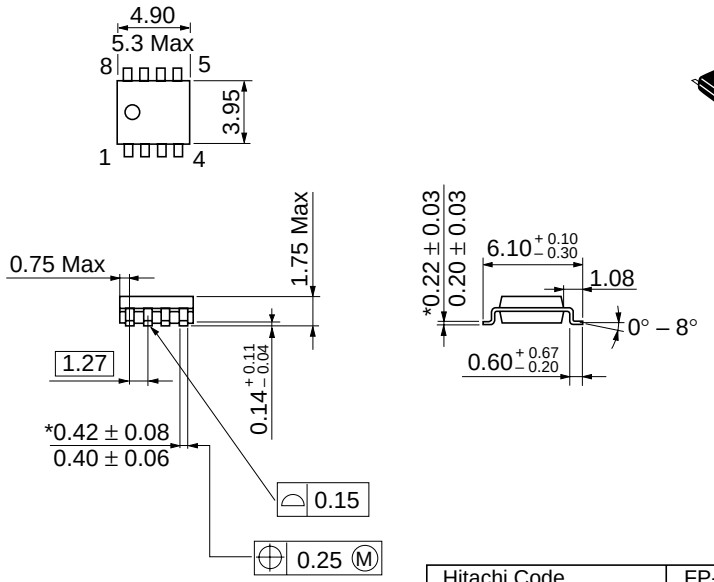
Main Characteristics



Package Dimensions

As of January, 2001

Unit: mm



*Dimension including the plating thickness
Base material dimension

Hitachi Code	FP-8DA
JEDEC	Conforms
EIAJ	—
Mass (reference value)	0.085 g

Cautions

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