HAT2036R

Silicon N Channel Power MOS FET
Power Switching

HITACHI

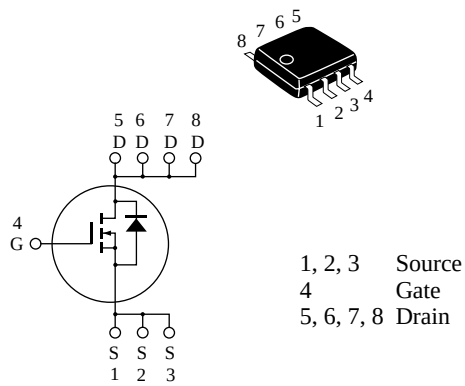
ADE-208-665D (Z)
5th. Edition
Feb. 1999

Features

- Low on-resistance
  $R_{DS(on)}$=12m 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

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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	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

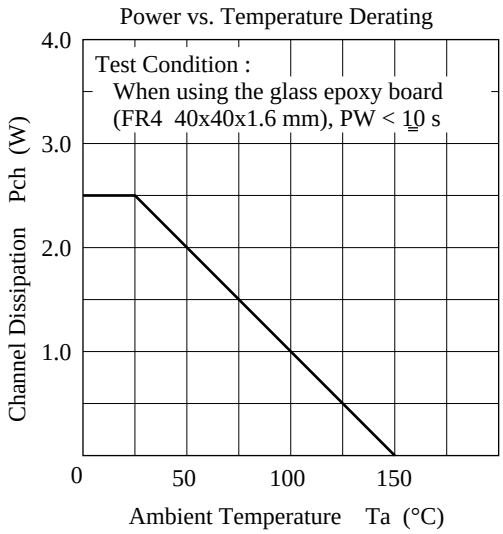
Notes: 1. PW ≤ 10µs, duty cycle ≤ 1 %
2. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW 10s

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

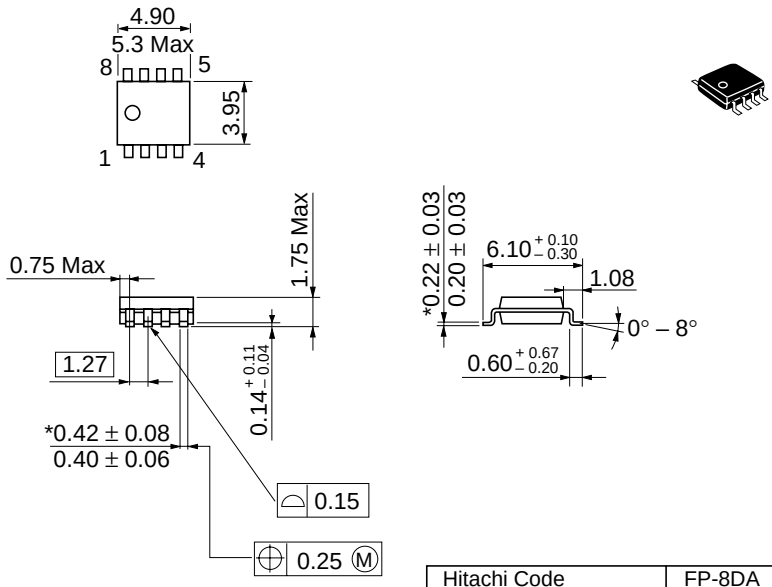
Main Characteristics



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

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