

HAT2089R

Silicon N Channel MOS FET
High Speed Power Switching

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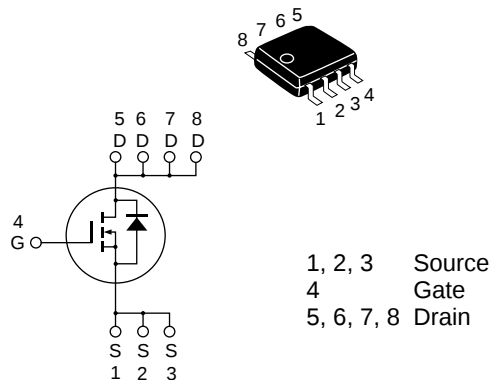
ADE-208-1235(Z)
Target Specification 1st. Edition
Dec. 2000

Features

- Low on-resistance
- Low drive current
- High density mounting

Outline

SOP-8



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	250	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D	(2)	A
Drain peak current	$I_{D(pulse)}^{Note1}$	(16)	A
Body-drain diode reverse drain current	I_{DR}	(2)	A
Channel dissipation	P_{ch}^{Note2}	2.5	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. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), $PW \leq 10s$

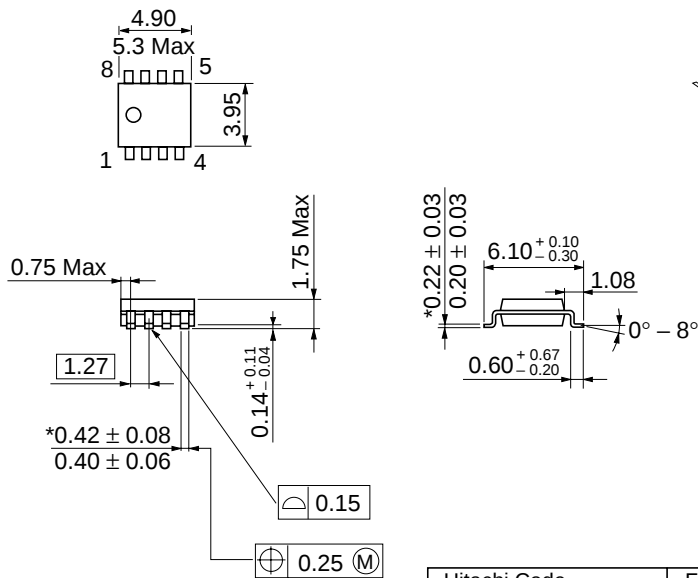
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	250	—	—	V	$I_D = 10mA$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	±0.1	μA	$V_{GS} = \pm 30V$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 250V$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	(3.0)	—	(4.5)	V	$I_D = 1mA$, $V_{DS} = 10V$
Static drain to source on state resistance	$R_{DS(on)}$	—	(0.46)	(0.6)	Ω	$I_D = 1A$, $V_{GS} = 10V^{Note3}$
Forward transfer admittance	$ y_{fs} $	(1.5)	(2.5)	—	S	$I_D = 1A$, $V_{DS} = 10V^{Note3}$
Input capacitance	C_{iss}	—	(450)	—	pF	$V_{DS} = 25V$
Output capacitance	C_{oss}	—	(60)	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	(12)	—	pF	$f = 1MHz$
Turn-on delay time	$t_{d(on)}$	—	(21)	—	ns	$V_{DD} \cong 125V$, $I_D = 1A$
Rise time	t_r	—	(10)	—	ns	$V_{GS} = 10V$
Turn-off delay time	$t_{d(off)}$	—	(52)	—	ns	$R_L = 125\Omega$
Fall time	t_f	—	(15)	—	ns	$R_g = 10\Omega$
Total gate charge	Q_g	—	(13)	—	nC	$V_{DD} = 200V$
Gate to source charge	Q_{gs}	—	(2.5)	—	nC	$V_{GS} = 10V$
Gate to drain charge	Q_{gd}	—	(6)	—	nC	$I_D = 2A$
Body-drain diode forward voltage	V_{DF}	—	(0.8)	(1.2)	V	$I_F = 2A$, $V_{GS} = 0^{Note3}$
Body-drain diode reverse recovery time	t_{rr}	—	(80)	—	ns	$I_F = 2A$, $V_{GS} = 0$ $di_F/dt = 100A/\mu s$

Note: 3. Pulse test

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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