

# HAT1026R

Silicon P Channel Power MOS FET  
High Speed Power Switching

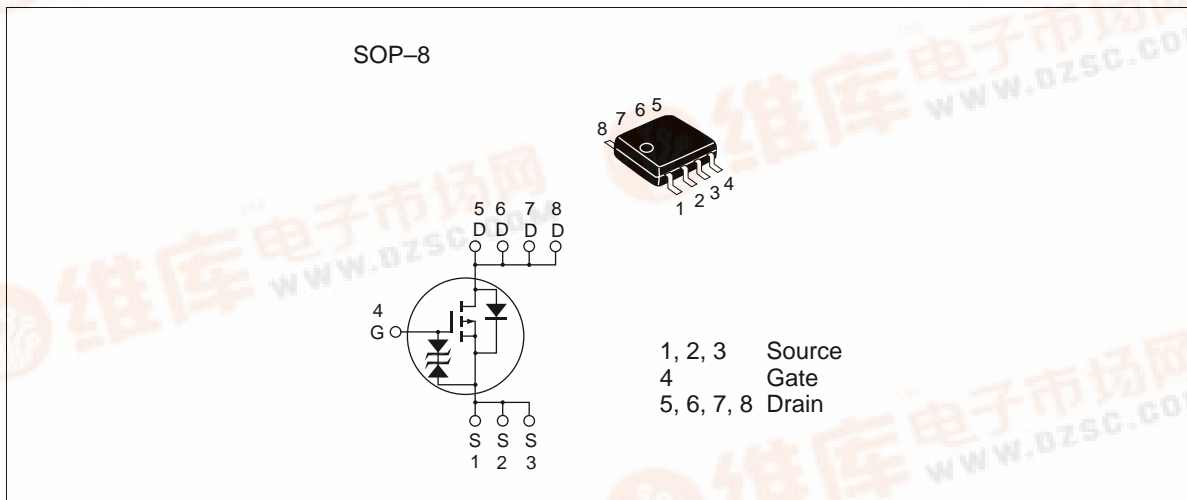
# HITACHI

ADE-208-457 H (Z)  
9th. Edition  
February 1999

## Features

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

## Outline



## HAT1026R

### 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	$I_D$	- 7	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	- 56	A
Body-drain diode reverse drain current	$I_{DR}$	- 7	A
Channel dissipation	Pch <sup>Note2</sup>	2.5	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	- 55 to + 150	°C

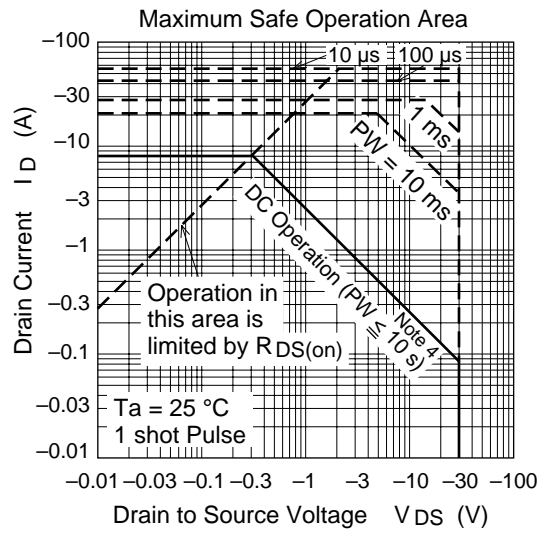
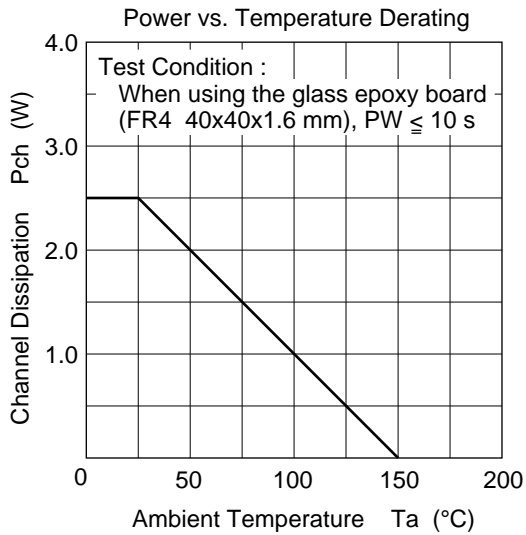
Note: 1.  $PW \leq 10\mu s$ , duty cycle  $\leq 1\%$   
 2. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm),  $PW \leq 10s$

### Electrical Characteristics (Ta = 25°C)

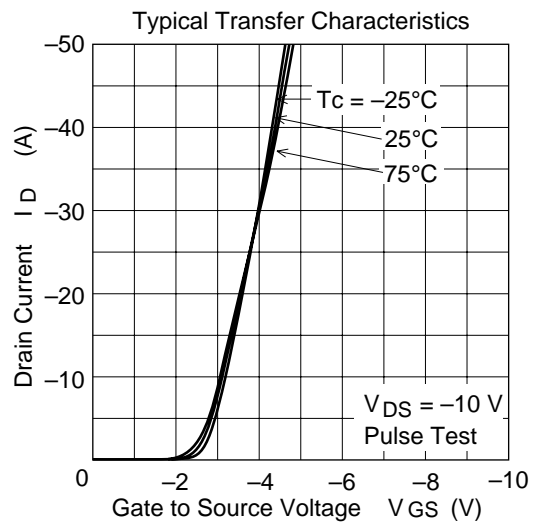
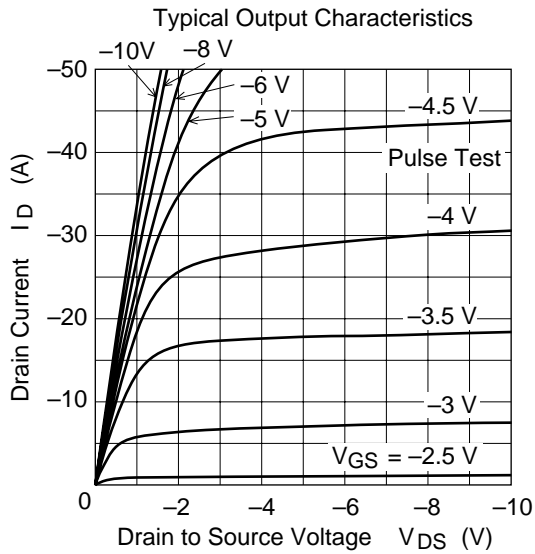
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	- 30	—	—	V	$I_D = -10\text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100\ \mu A$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	± 10	$\mu A$	$V_{GS} = \pm 16\text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	- 10	$\mu A$	$V_{DS} = -30\text{ V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	- 1.0	—	- 2.5	V	$V_{DS} = -10\text{ V}$ , $I_D = -1\text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.028	0.037	$\Omega$	$I_D = -4\text{ A}$ , $V_{GS} = -10\text{ V}$ <sup>Note3</sup>
	$R_{DS(on)}$	—	0.04	0.065	$\Omega$	$I_D = -4\text{ A}$ , $V_{GS} = -4\text{ V}$ <sup>Note3</sup>
Forward transfer admittance	$ y_{fs} $	8	12	—	S	$I_D = -4\text{ A}$ , $V_{DS} = -10\text{ V}$ <sup>Note3</sup>
Input capacitance	Ciss	—	1700	—	pF	$V_{DS} = -10\text{ V}$
Output capacitance	Coss	—	1000	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	—	190	—	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	—	60	—	ns	$V_{GS} = -4\text{ V}$ , $I_D = -4\text{ A}$
Rise time	$t_r$	—	330	—	ns	$V_{DD} \cong -10\text{ V}$
Turn-off delay time	$t_{d(off)}$	—	80	—	ns	
Fall time	$t_f$	—	120	—	ns	
Body-drain diode forward voltage	$V_{DF}$	—	- 0.9	- 1.4	V	IF = - 7 A, $V_{GS} = 0$ <sup>Note3</sup>
Body-drain diode reverse recovery time	$t_{rr}$	—	70	—	ns	IF = - 7 A, $V_{GS} = 0$ diF/ dt = 20A/ $\mu s$

Note: 3. Pulse test

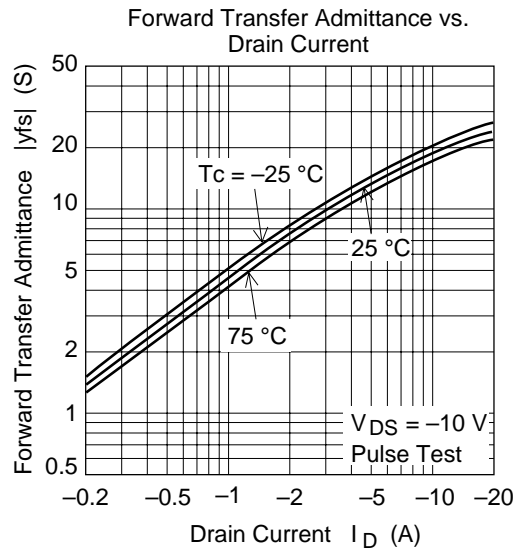
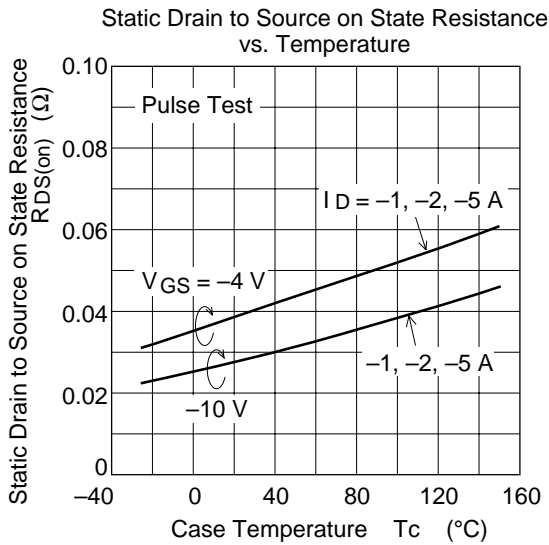
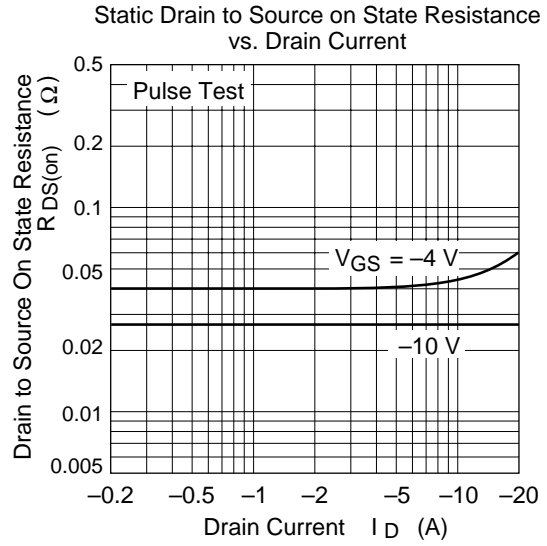
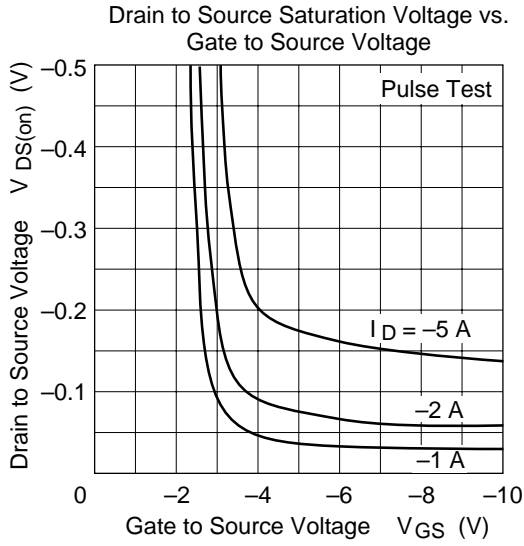
Main Characteristics

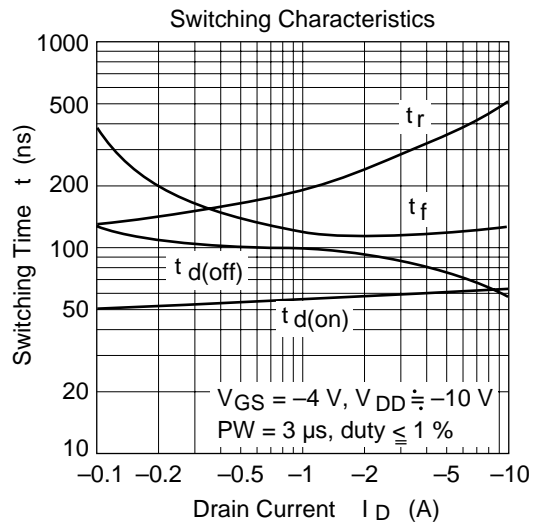
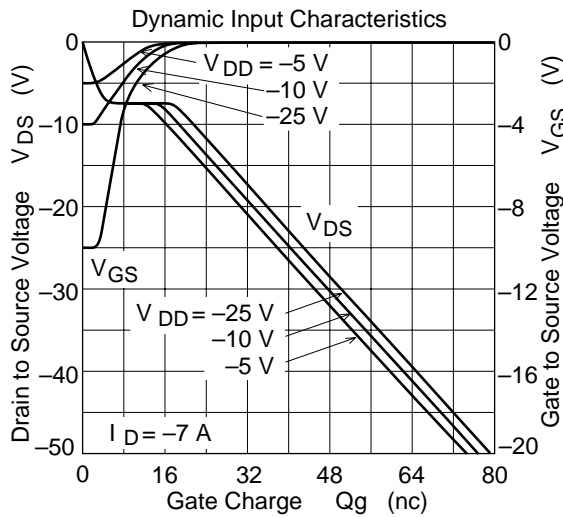
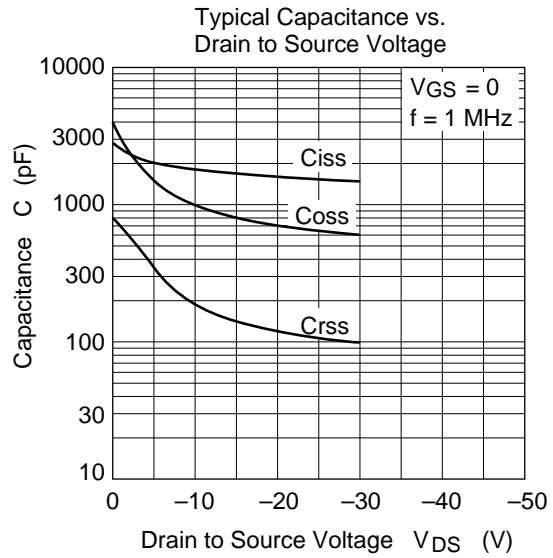
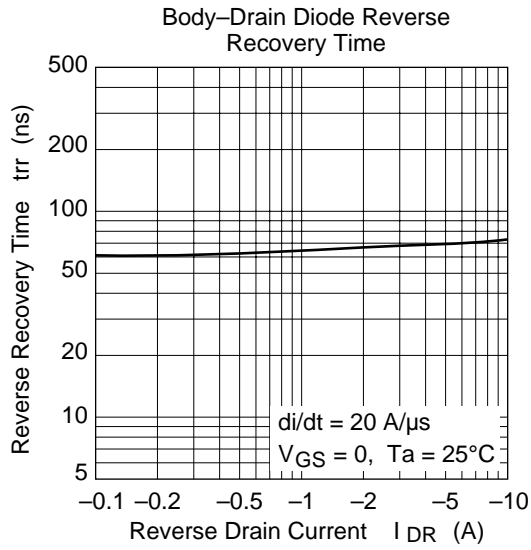


Note 4 :  
When using the glass epoxy board (FR4 40x40x1.6 mm)

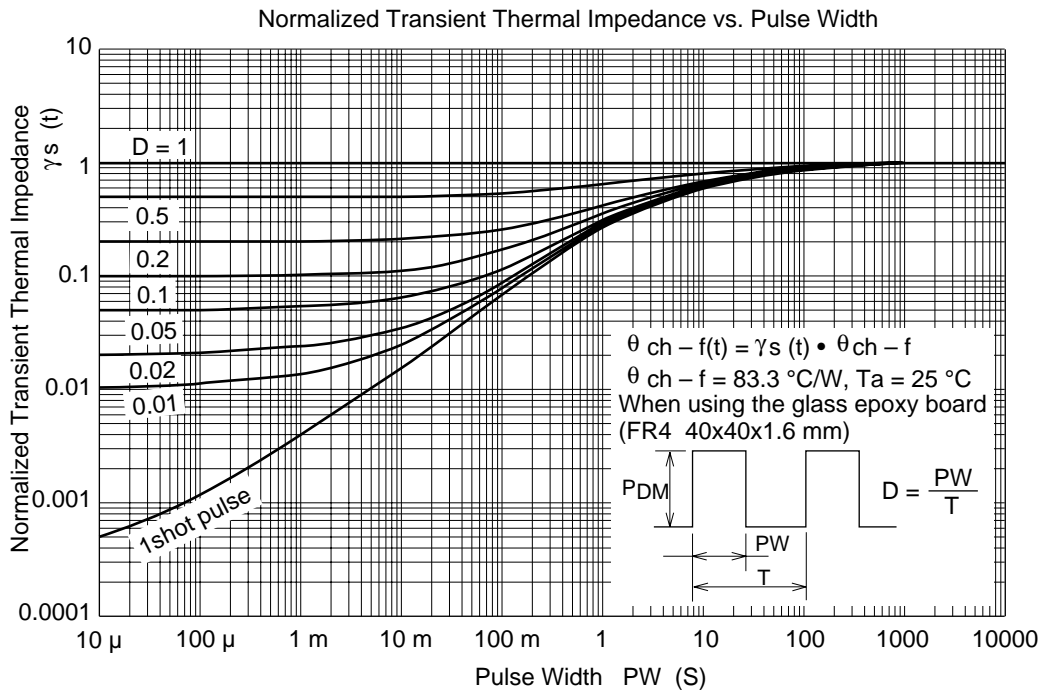
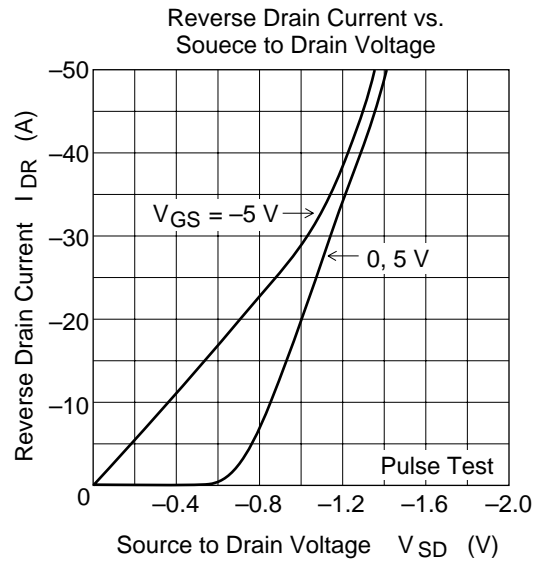


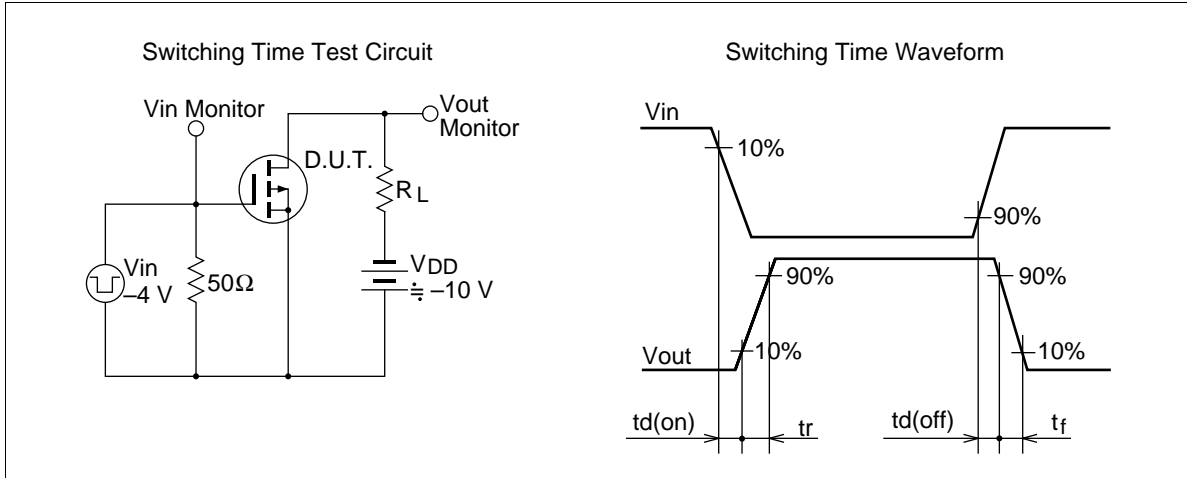
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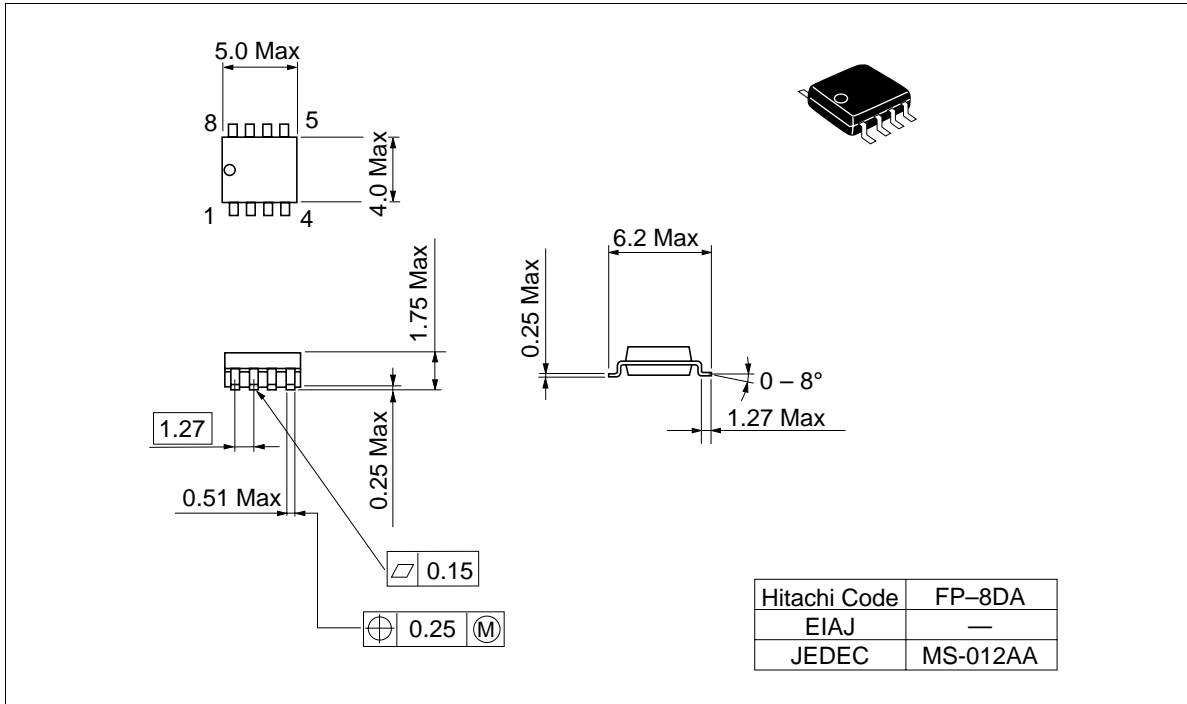




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## Package Dimensions

Unit: mm





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