
HAT1036R

Silicon P Channel Power MOS FET
Power Switching

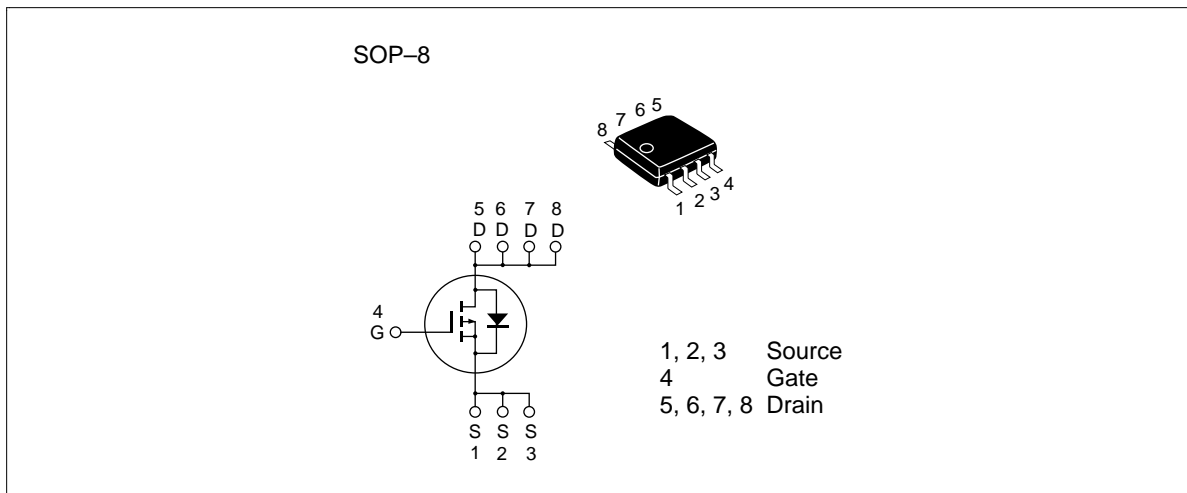
HITACHI

ADE-208-662C(Z)
4th. Edition
August 1, 1998

Features

- Low on-resistance
 $R_{DS(on)}=11m\Omega$ typ
- Capable of -4 V gate drive
- Low drive current
- High density mounting

Outline



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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

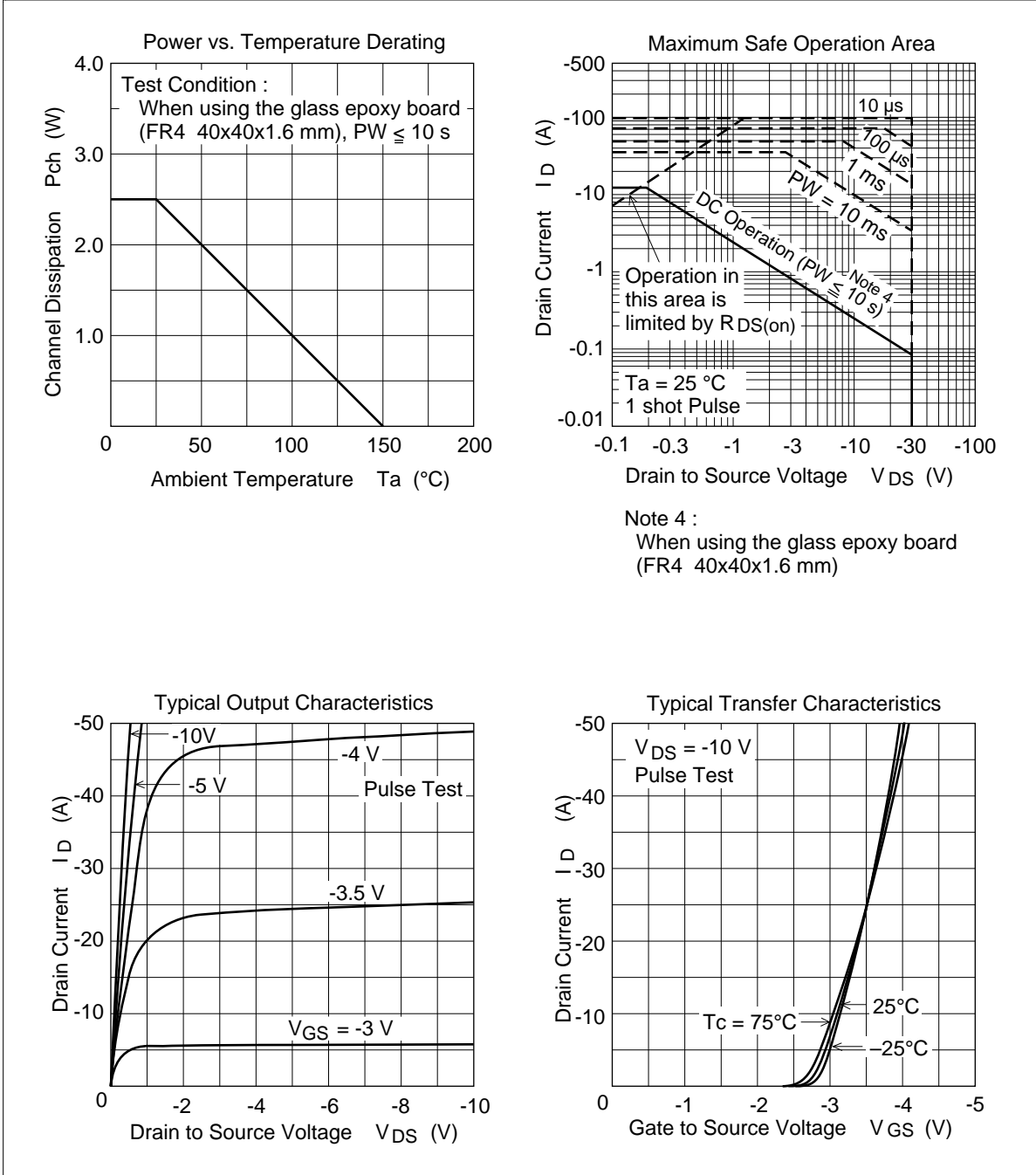
Electrical Characteristics (Ta = 25°C)

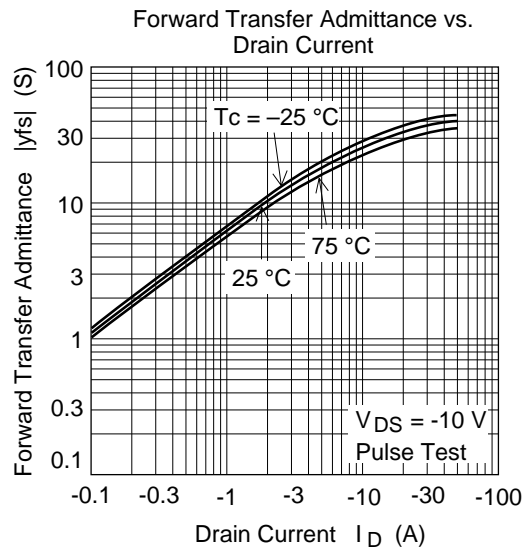
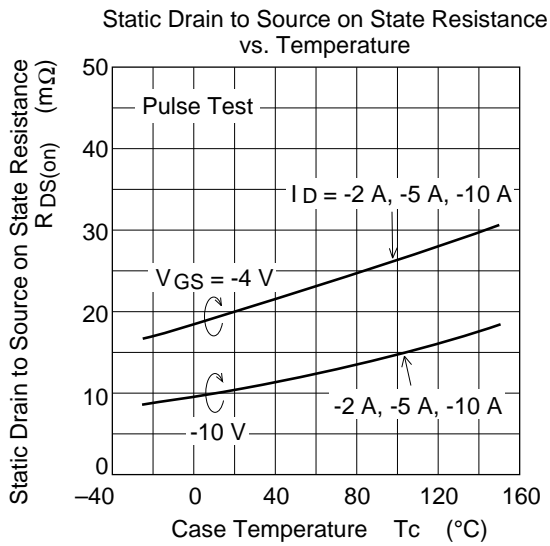
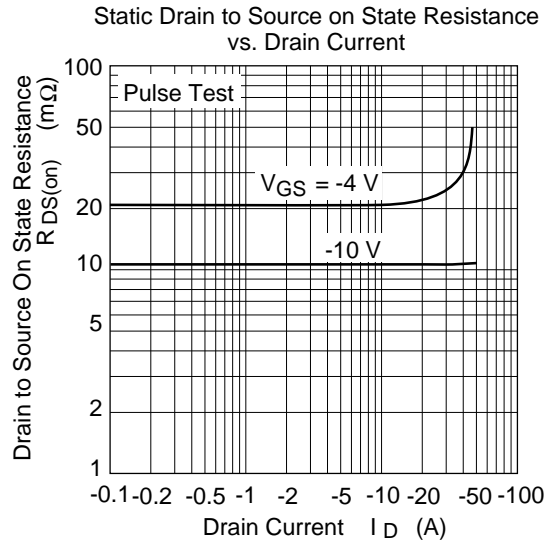
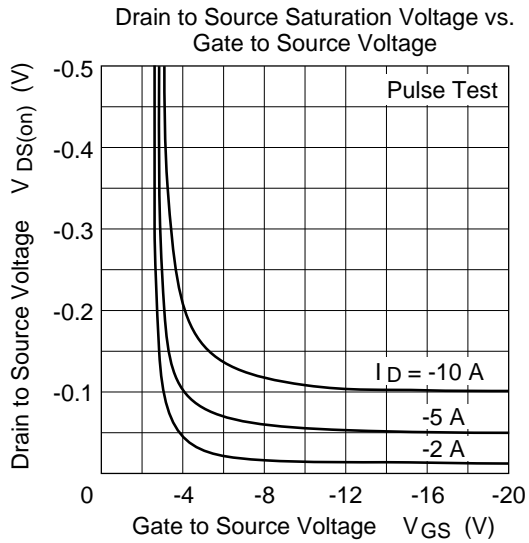
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-30	—	—	V	$I_D = -10\text{mA}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-1	μA	$V_{DS} = -30\text{V}$, $V_{GS} = 0$
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	$R_{DS(on)}$	—	11	14	$\text{m}\Omega$	$I_D = -6\text{A}$, $V_{GS} = -10\text{V}^{*1}$
	$R_{DS(on)}$	—	21	34	$\text{m}\Omega$	$I_D = -6\text{A}$, $V_{GS} = -4\text{V}^{*1}$
Forward transfer admittance	$ y_{fs} $	12	20	—	S	$I_D = -6\text{A}$, $V_{DS} = -10\text{V}^{*1}$
Input capacitance	C_{iss}	—	4200	—	pF	$V_{DS} = -10\text{V}$
Output capacitance	C_{oss}	—	870	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	360	—	pF	$f = 1\text{MHz}$
Total gate charge	Q_g	—	70	—	nc	$V_{DD} = -10\text{V}$
Gate to source charge	Q_{gs}	—	12	—	nc	$V_{GS} = -10\text{V}$
Gate to drain charge	Q_{gd}	—	14	—	nc	$I_D = -12\text{A}$
Turn-on delay time	$t_{d(on)}$	—	120	—	ns	$V_{GS} = -4\text{V}$, $I_D = -6\text{A}$
Rise time	t_r	—	350	—	ns	$V_{DD} \approx -10\text{V}$
Turn-off delay time	$t_{d(off)}$	—	100	—	ns	
Fall time	t_f	—	120	—	ns	
Body-drain diode forward voltage	V_{DF}	—	-0.85	-1.11	V	$I_F = -12\text{A}$, $V_{GS} = 0^{*1}$
Body-drain diode reverse recovery time	t_{rr}	—	55	—	ns	$I_F = -12\text{A}$, $V_{GS} = 0$ $di_F/dt = 20\text{A}/\mu\text{s}$

Note: 1. Pulse test

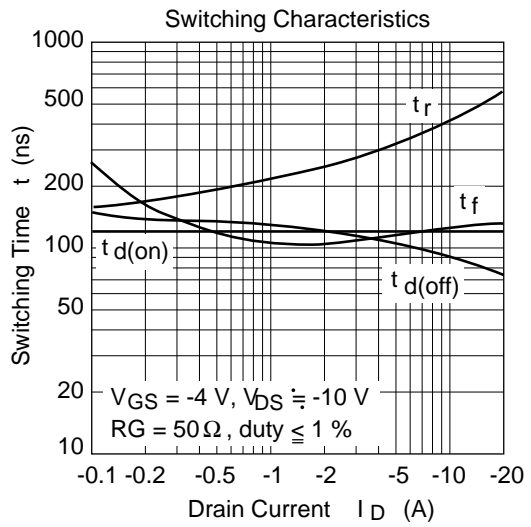
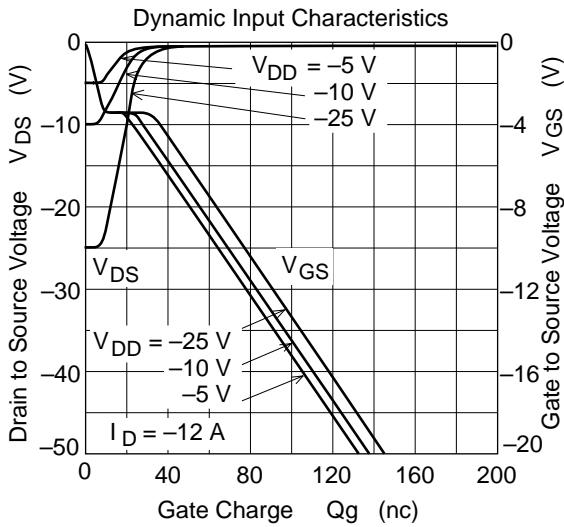
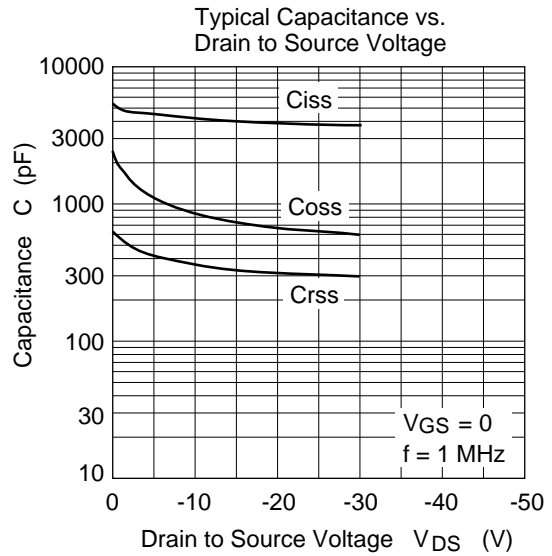
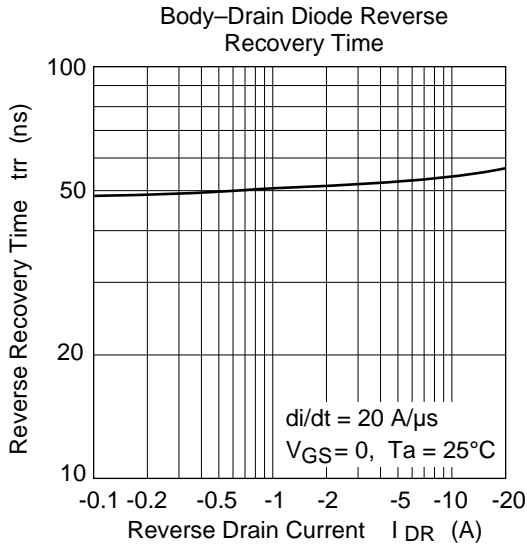
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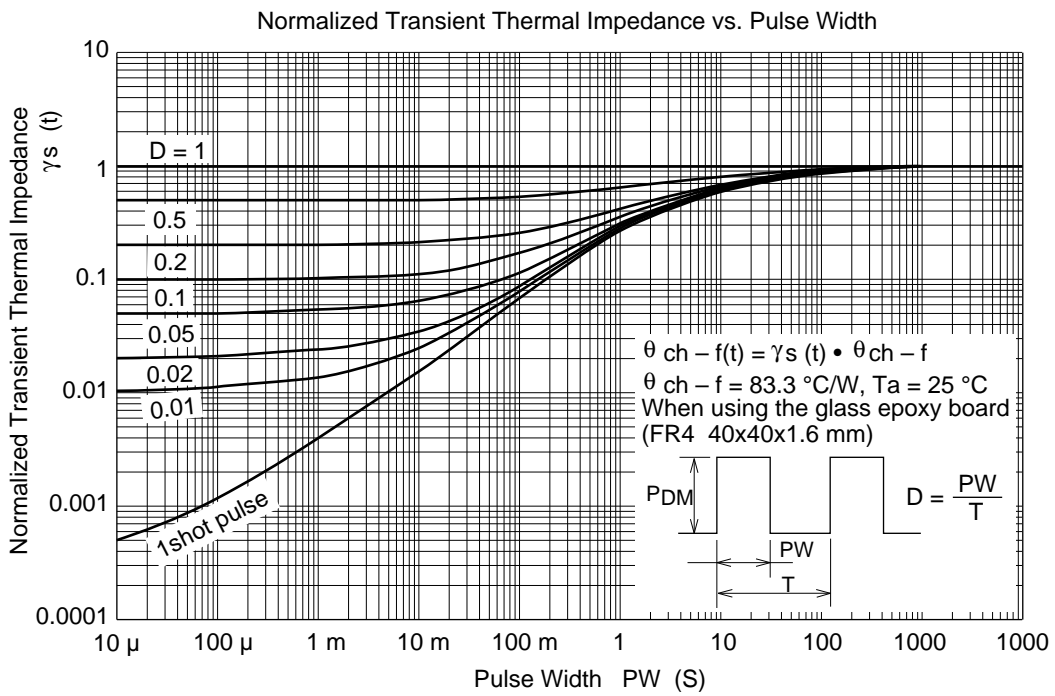
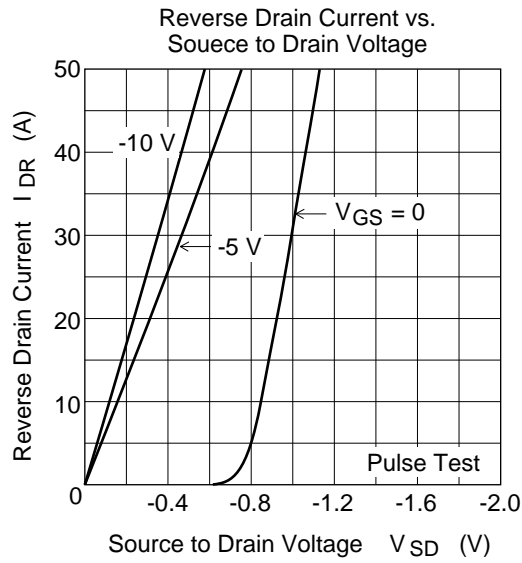
Main Characteristics



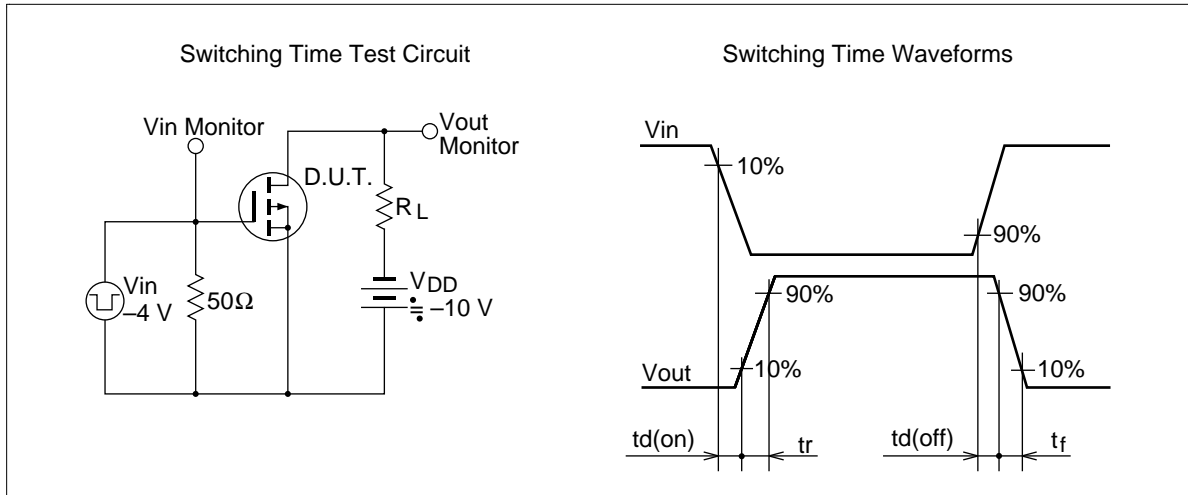


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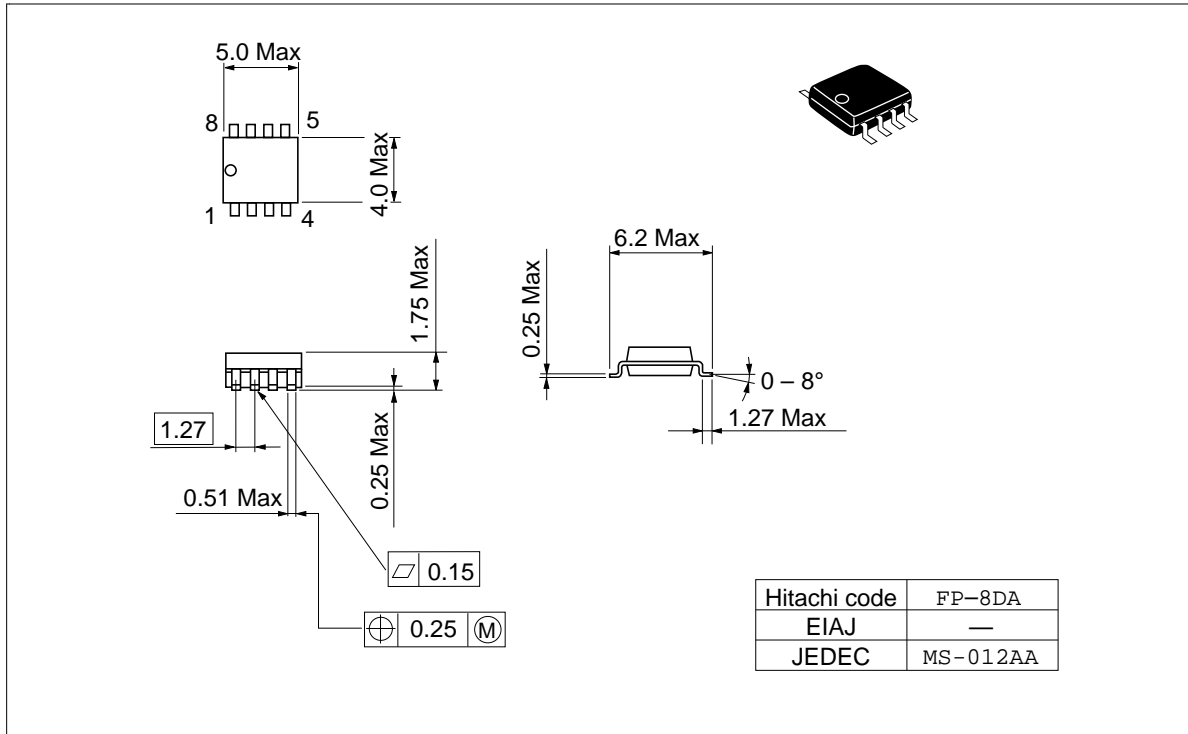




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Package Dimensions (Unit: mm)



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