
HAT1016R

Silicon P Channel Power MOS FET
High Speed Power Switching

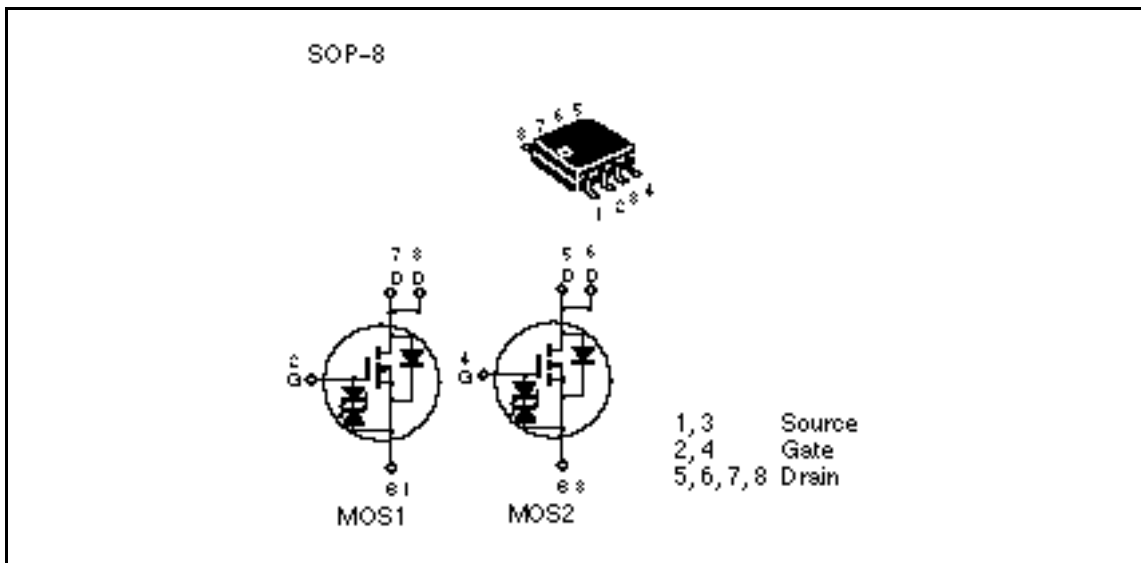
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ADE-208-471 C
4th. Edition

Features

- Low on-resistance
- 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	-4.5	A
Drain peak current	$I_{D(pulse)}^{*1}$	-36	A
Body to drain diode reverse drain current	I_{DR}	-4.5	A
Channel dissipation	P_{ch}^{*2}	2	W
Channel dissipation	P_{ch}^{*3}	3	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Notes: 1. PW 10 μ s, duty cycle 1 %

2. 1 Drive operation : When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW 10s

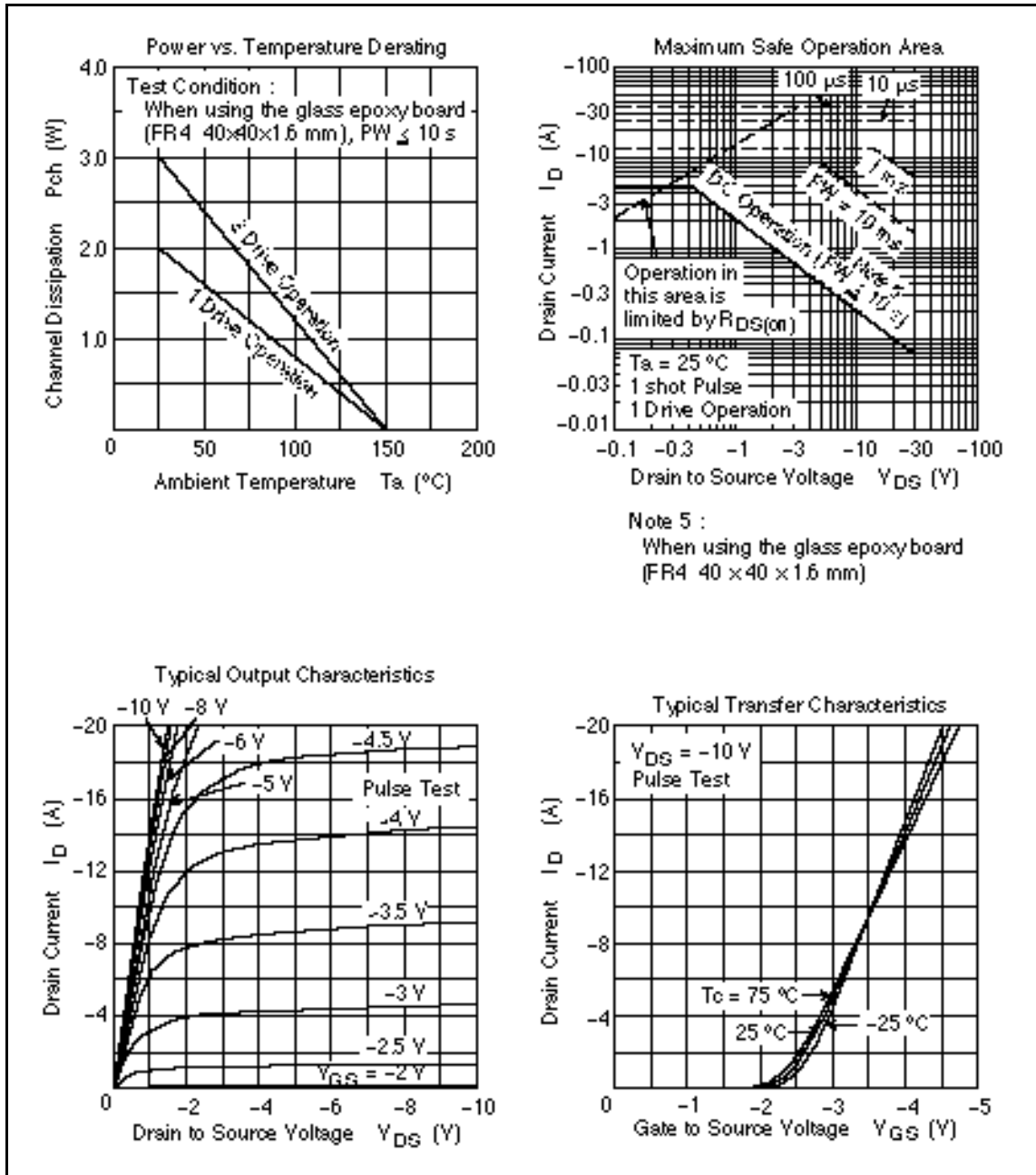
3. 2 Drive operation : When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW 10s

Electrical Characteristics (Ta = 25°C)

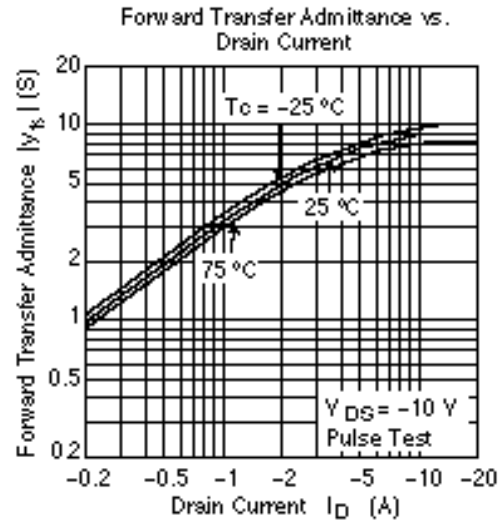
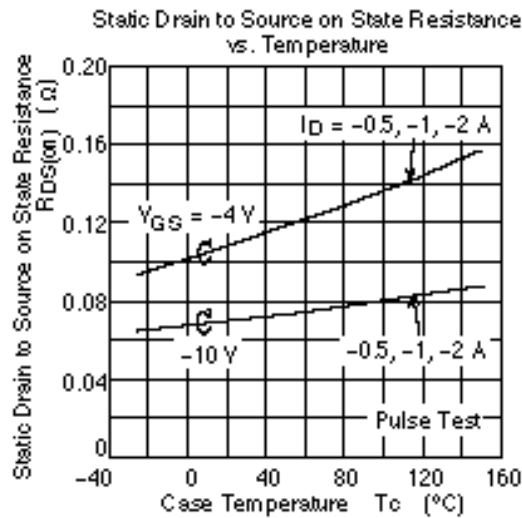
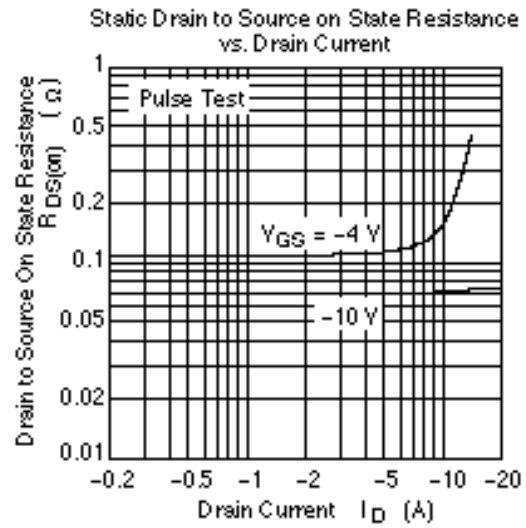
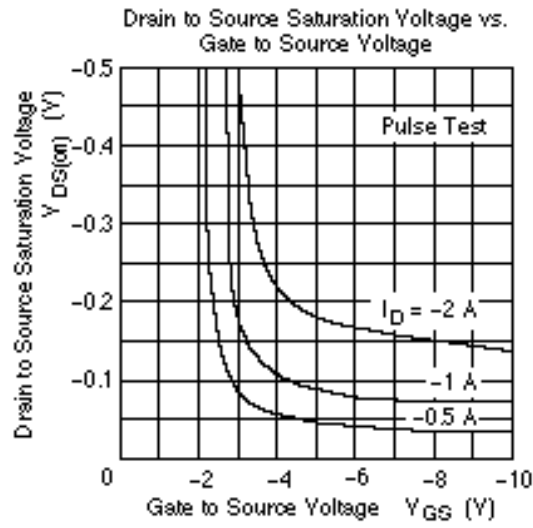
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-30	—	—	V	$I_D = -10mA, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100\mu A, V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 16V, V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-10	μA	$V_{DS} = -30V, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-1.0	—	-2.5	V	$V_{DS} = -10V, I_D = -1mA$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.07	0.09		$I_D = -3A, V_{GS} = -10V^{*1}$
	$R_{DS(on)}$	—	0.11	0.18		$I_D = -3A, V_{GS} = -4V^{*1}$
Forward transfer admittance	$ y_{fs} $	4	6	—	S	$I_D = -3A, V_{DS} = -10V^{*1}$
Input capacitance	Ciss	—	660	—	pF	$V_{DS} = -10V$
Output capacitance	Coss	—	440	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	—	140	—	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	—	24	—	ns	$V_{GS} = -4V, I_D = -3A$
Rise time	t_r	—	165	—	ns	$V_{DD} = -10V$
Turn-off delay time	$t_{d(off)}$	—	35	—	ns	
Fall time	t_f	—	70	—	ns	
Body to drain diode forward voltage	V_{DF}	—	-0.9	-1.4	V	$I_F = -4.5A, V_{GS} = 0^{*1}$
Body to drain diode reverse recovery time	t_{rr}	—	60	—	ns	$I_F = -4.5A, V_{GS} = 0$ diF/ dt = 20A/ μ s

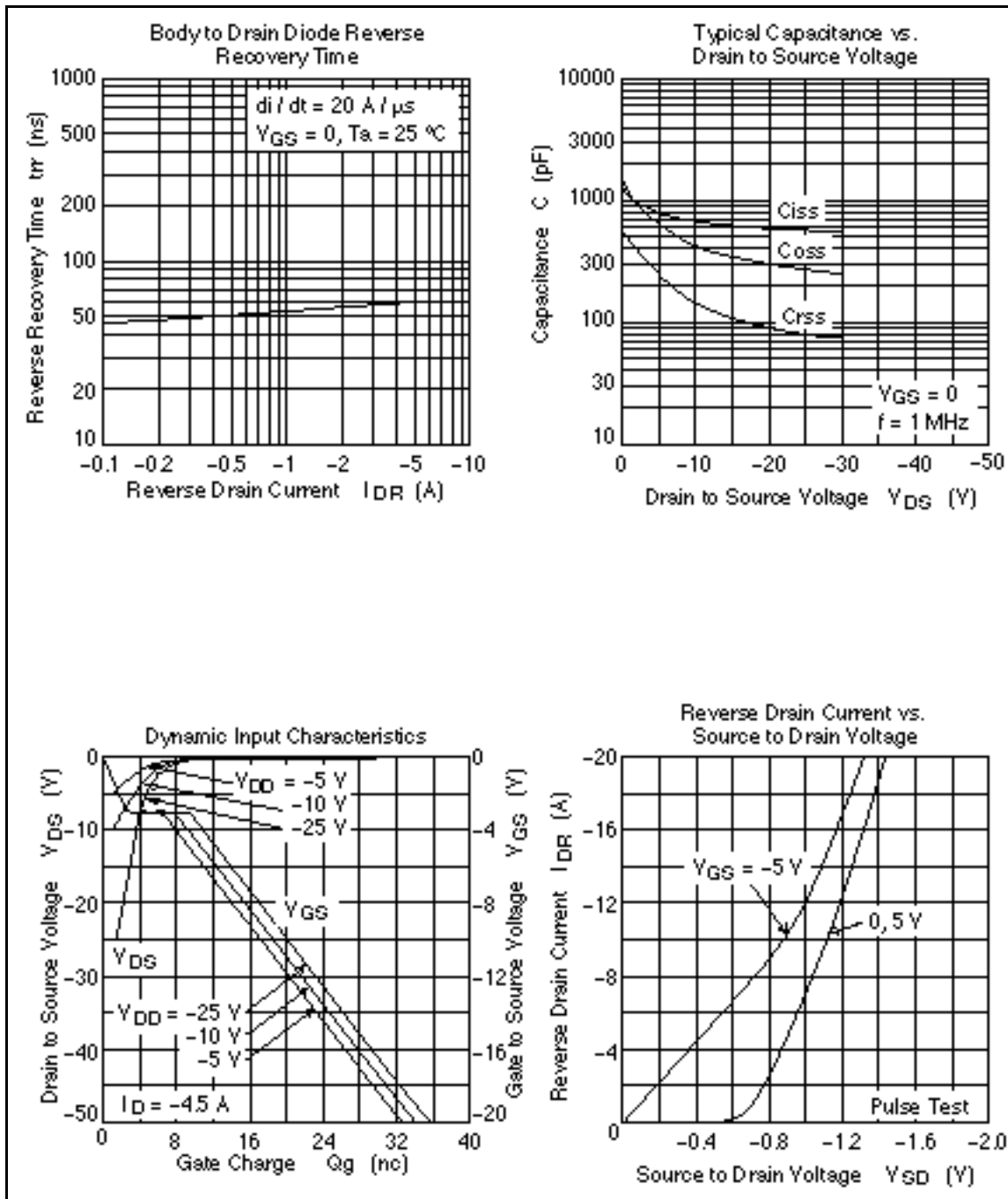
Note: 1. Pulse test

Main Characteristics

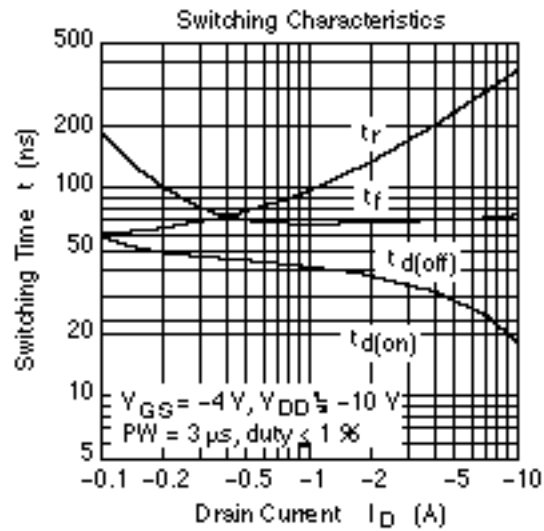


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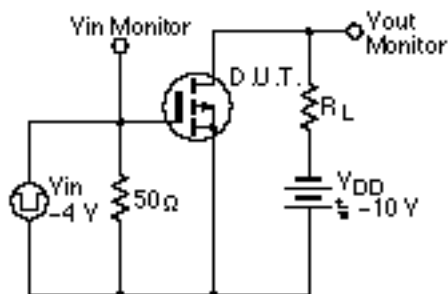




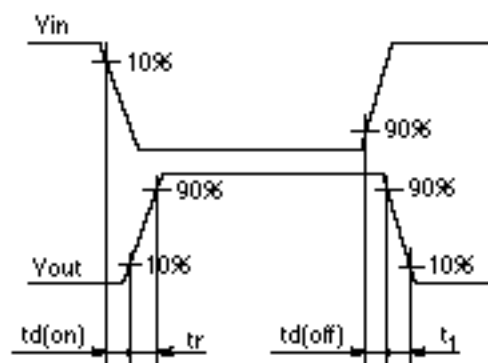
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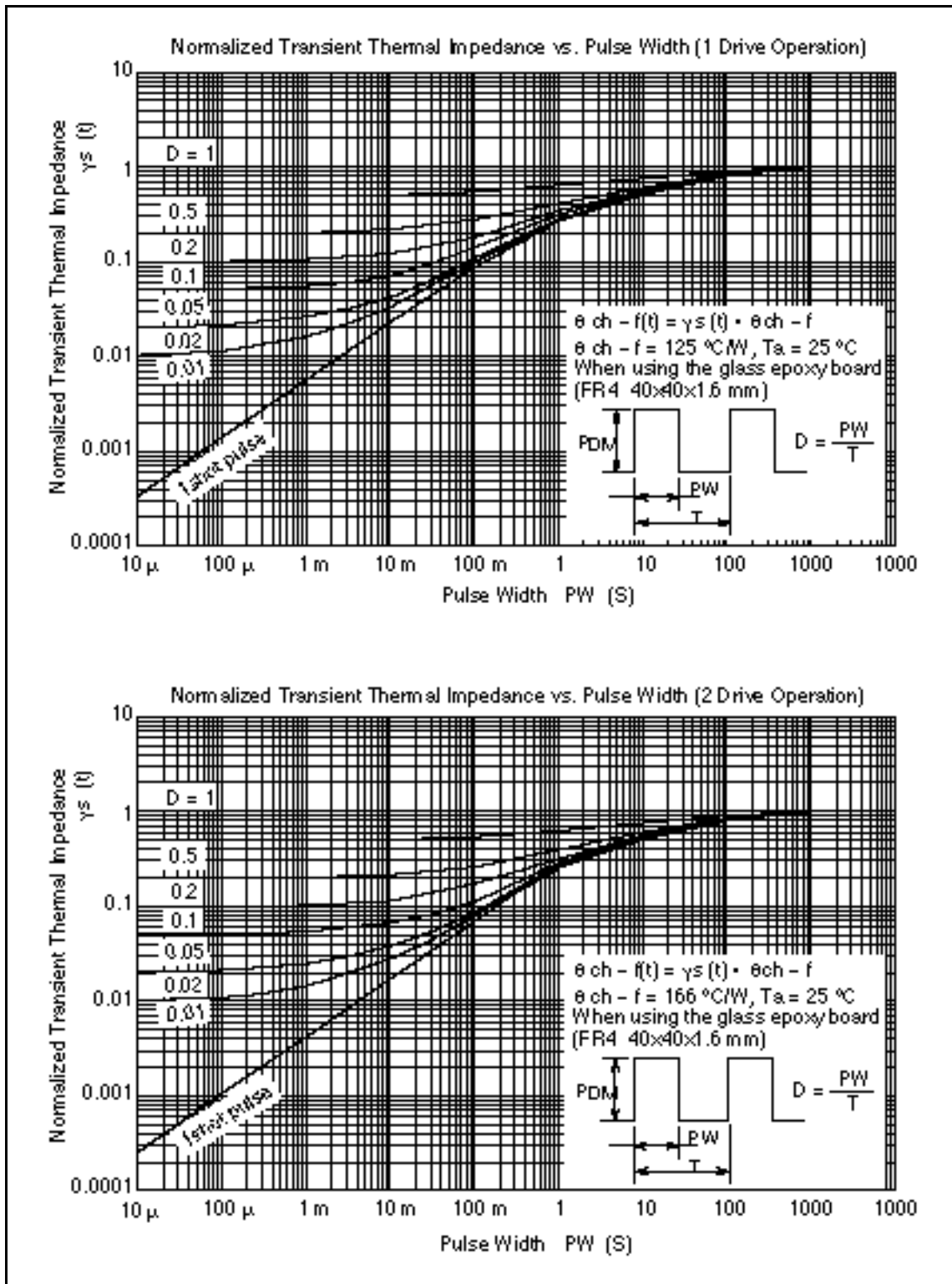


Switching Time Test Circuit



Switching Time Waveform

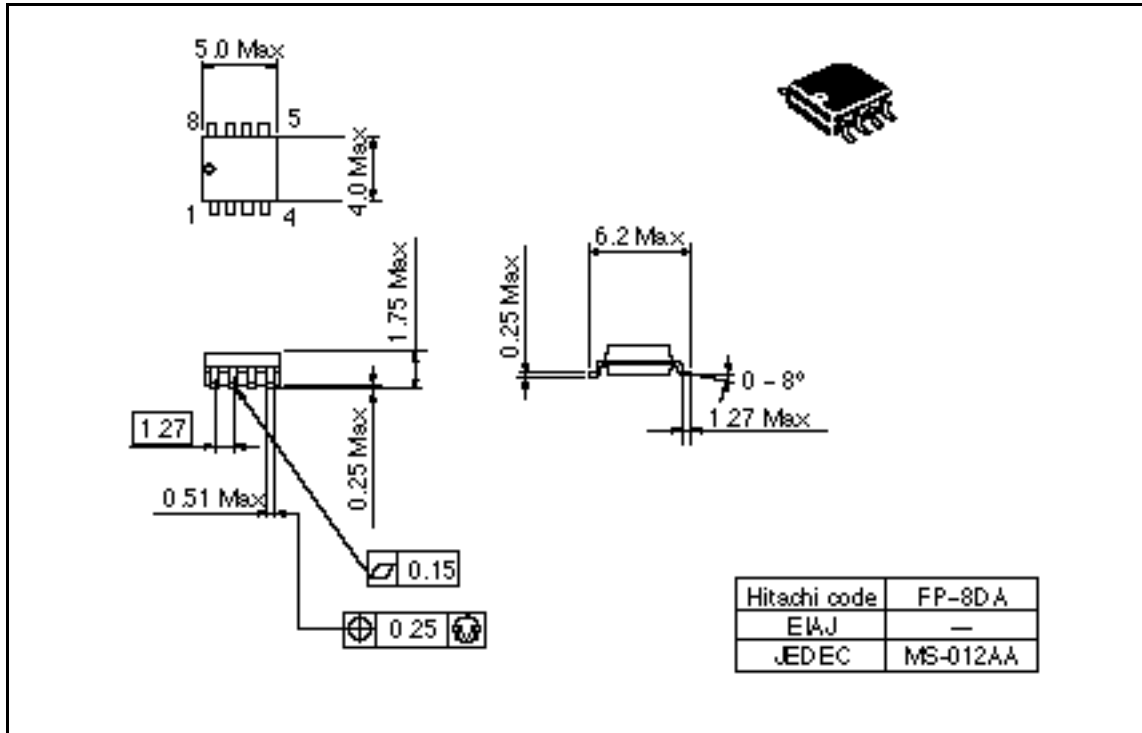




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Package Dimensions

Unit: mm



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Hitachi, Ltd.

Semiconductor & IC Div.
Nippon Bldg., 2-6-2, Ohite-machi, Chiyoda-ku, Tokyo 100, Japan
Tel Tokyo (03) 3270-2111
Fax (03) 3270-5109

For further information write to:

Hitachi America, Ltd.
Semiconductor & IC Div.
2000 Sierra Point Parkway
Brisbane, CA. 94005-4835
U.S.A.
Tel 415-589-8900
Fax 415-589-4207

Hitachi Europe GmbH
Electronic Components Group
Continental Europe
Dornacher StraÙe 3
D-85622 Feldkirchen
München
Tel 089-9 94 80 0
Fax 089-9 29 30 00

Hitachi Europe Ltd.
Electronic Components Div.
Northern Europe Headquarters
Whitbrook Park
Lower Cookham Road
M Maidenhead
Berkshire SL6 6SYA
United Kingdom
Tel 0628-885000
Fax 0628-778322

Hitachi Asia Pte. Ltd.
45 Collyer Quay #20-00
Hitachi Tower
Singapore 0104
Tel 535-2100
Fax 535-1533

Hitachi Asia (Hong Kong) Ltd.
Unit 705, North Tower,
World Finance Centre
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon
Hong Kong
Tel 27359218
Fax 27308074