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# HAT1025R

Silicon P Channel Power MOS FET  
High Speed Power Switching

# HITACHI

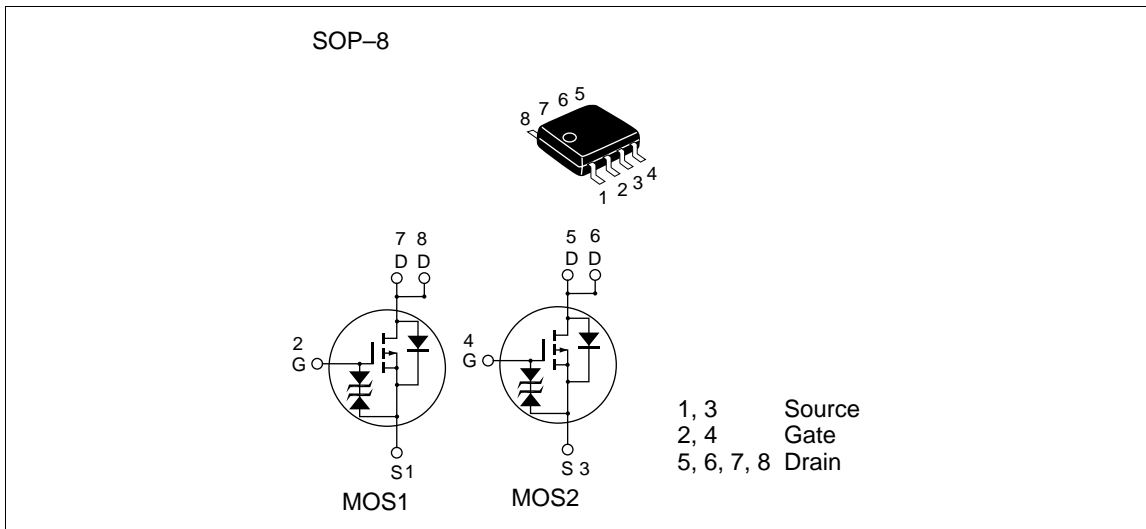
ADE-208-437 F (Z)  
7th. Edition  
December. 1996

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## Features

- Low on-resistance
- Capable of 2.5 V gate drive
- Low drive current
- High density mounting

## Outline



# HAT1025R

## Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	VDSS	-20	V
Gate to source voltage	VGSS	±10	V
Drain current	ID	-4.5	A
Drain peak current	ID(pulse)Note1	-36	A
Body-drain diode reverse drain current	IDR	-4.5	A
Channel dissipation	Pch Note2	2	W
Channel dissipation	Pch Note3	3	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Note: 1. PW ≤ 10μs, 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	-20	—	—	V	ID = -10mA, VGS = 0
Gate to source breakdown voltage	V(BR)GSS	±10	—	—	V	IG = ±100μA, VDS = 0
Gate to source leak current	IGSS	—	—	±10	μA	VGS = ±8V, VDS = 0
Zero gate voltage drain current	IDSS	—	—	-10	μA	VDS = -20 V, VGS = 0
Gate to source cutoff voltage	VGS(off)	-0.5	—	-1.5	V	VDS = -10V, ID = -1mA
Static drain to source on state resistance	RDS(on)	—	0.065	0.095	Ω	ID = -3A, VGS = -4V Note4
	RDS(on)	—	0.09	0.15	Ω	ID = -3A, VGS = -2.5V Note4
Forward transfer admittance	yfs	4.5	7	—	S	ID = -3A, VDS = -10V Note4
Input capacitance	Ciss	—	860	—	pF	VDS = -10V
Output capacitance	Coss	—	450	—	pF	VGS = 0
Reverse transfer capacitance	Crss	—	150	—	pF	f = 1MHz
Turn-on delay time	td(on)	—	20	—	ns	VGS = -4V, ID = -3A
Rise time	tr	—	120	—	ns	VDD $\hat{A}$ -10V
Turn-off delay time	td(off)	—	120	—	ns	
Fall time	tf	—	100	—	ns	
Body-drain diode forward voltage	VDF	—	-0.9	-1.4	V	IF = -4.5A, VGS = 0 Note4

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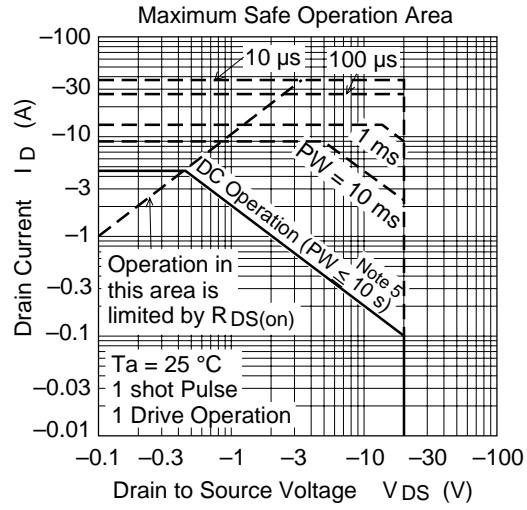
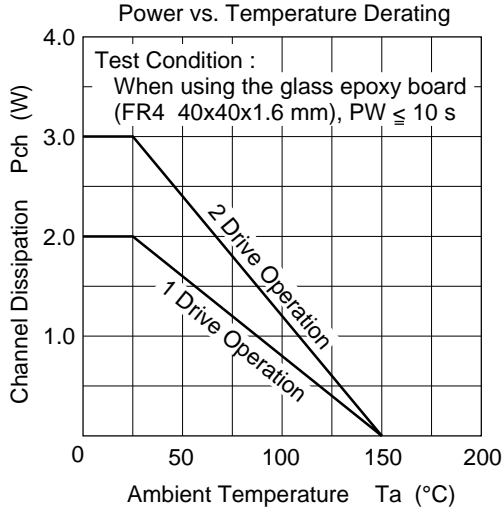
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Body-drain diode reverse recovery time	trr	—	60	—	ns	IF = -4.5A, VGS = 0 diF/ dt =20A/μs
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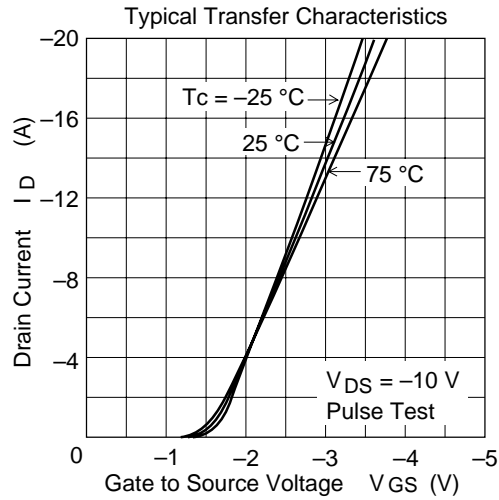
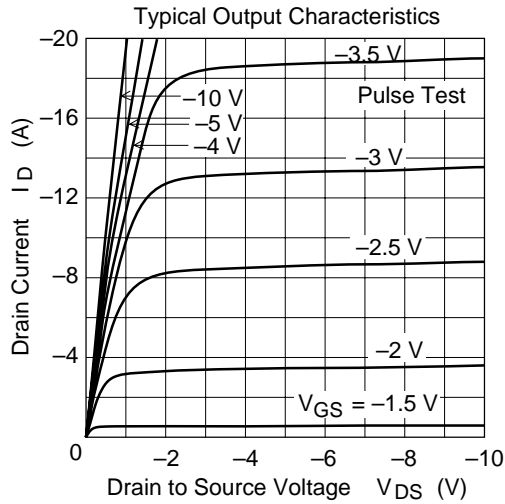
Note: 4. Pulse test

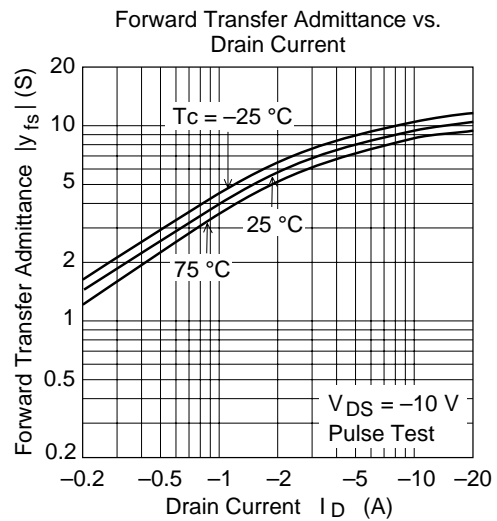
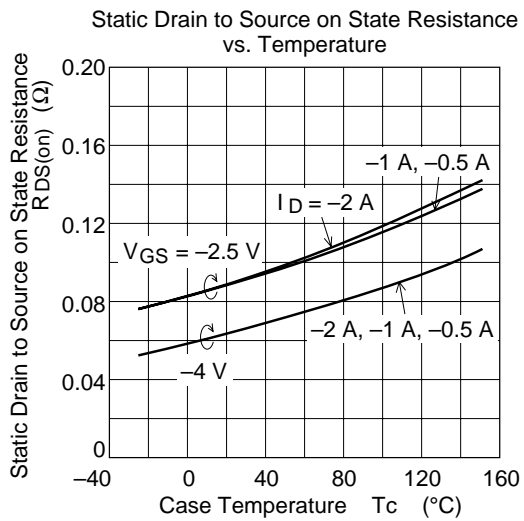
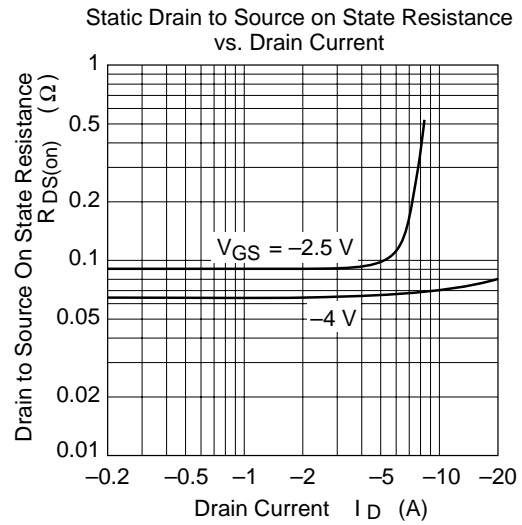
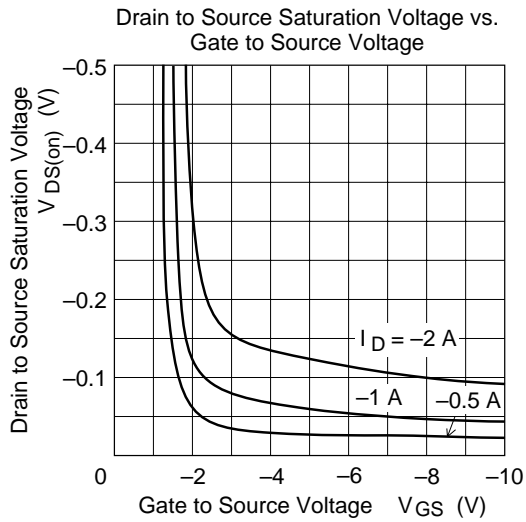
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## Main Characteristics

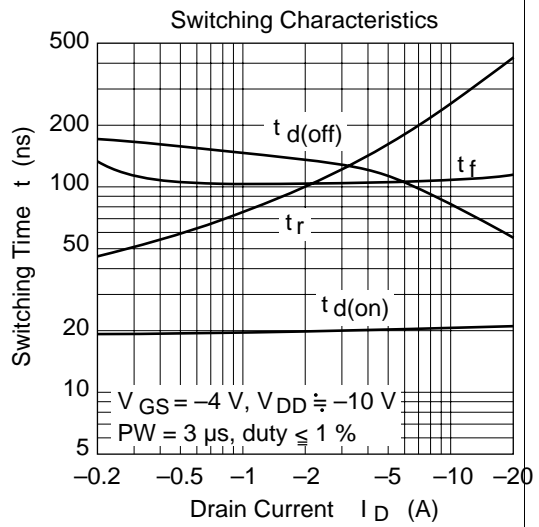
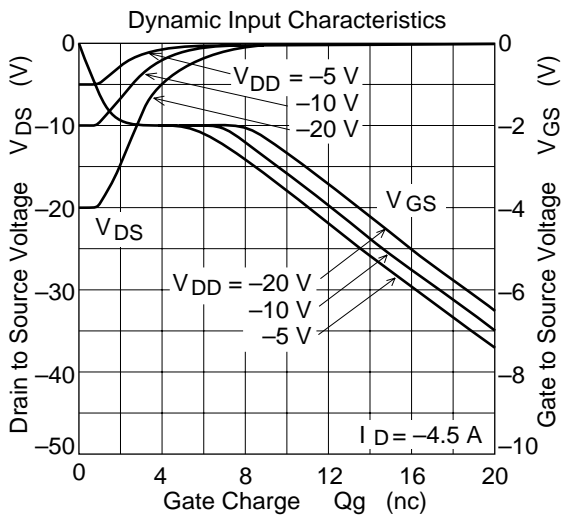
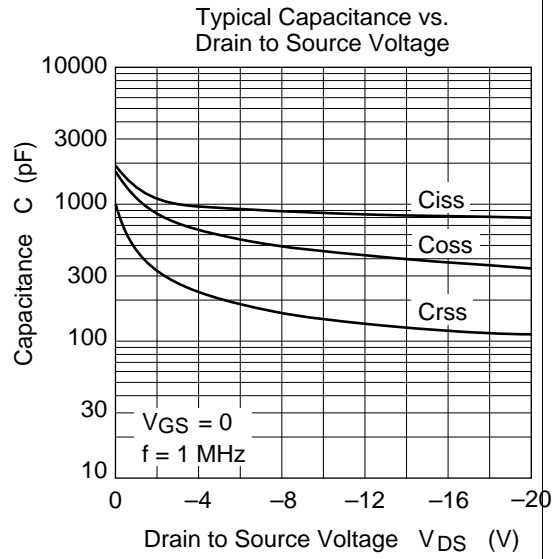
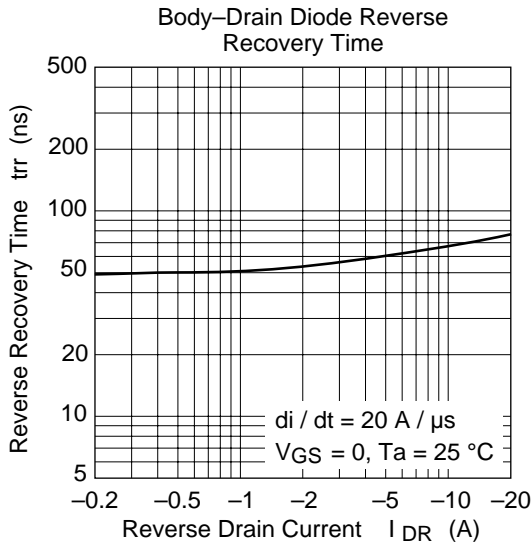


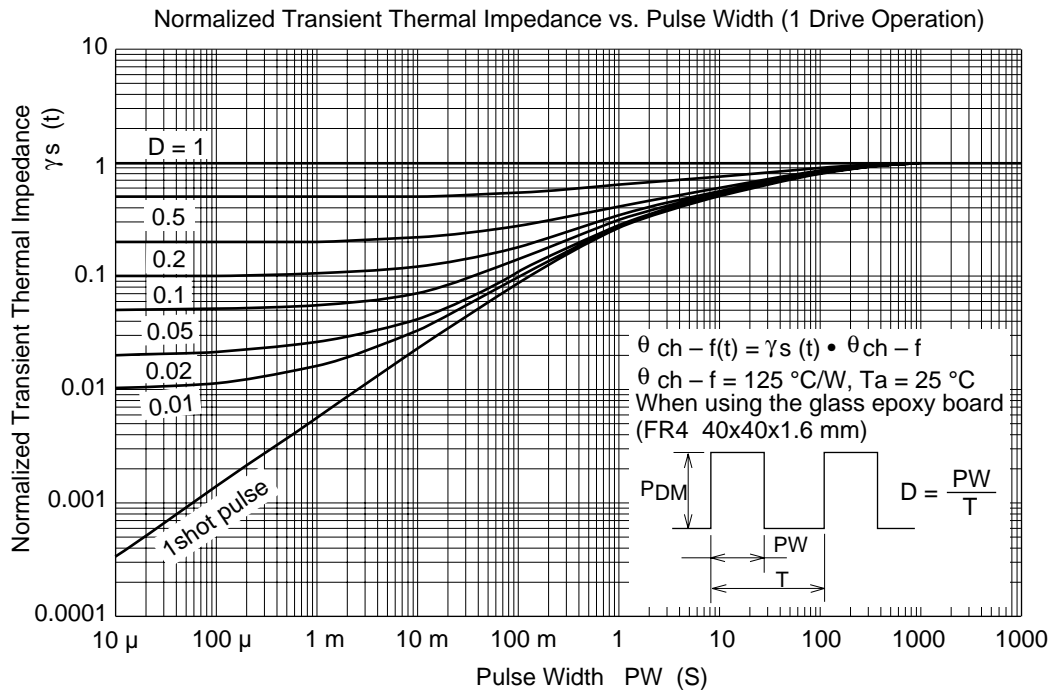
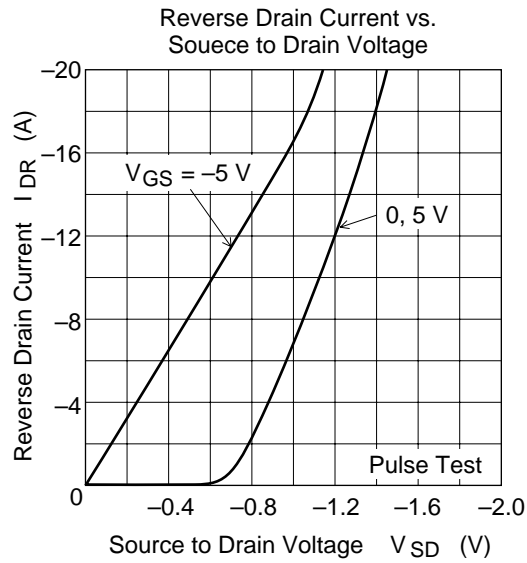
Note 5 :  
When using the glass epoxy board (FR4 40x40x1.6 mm)



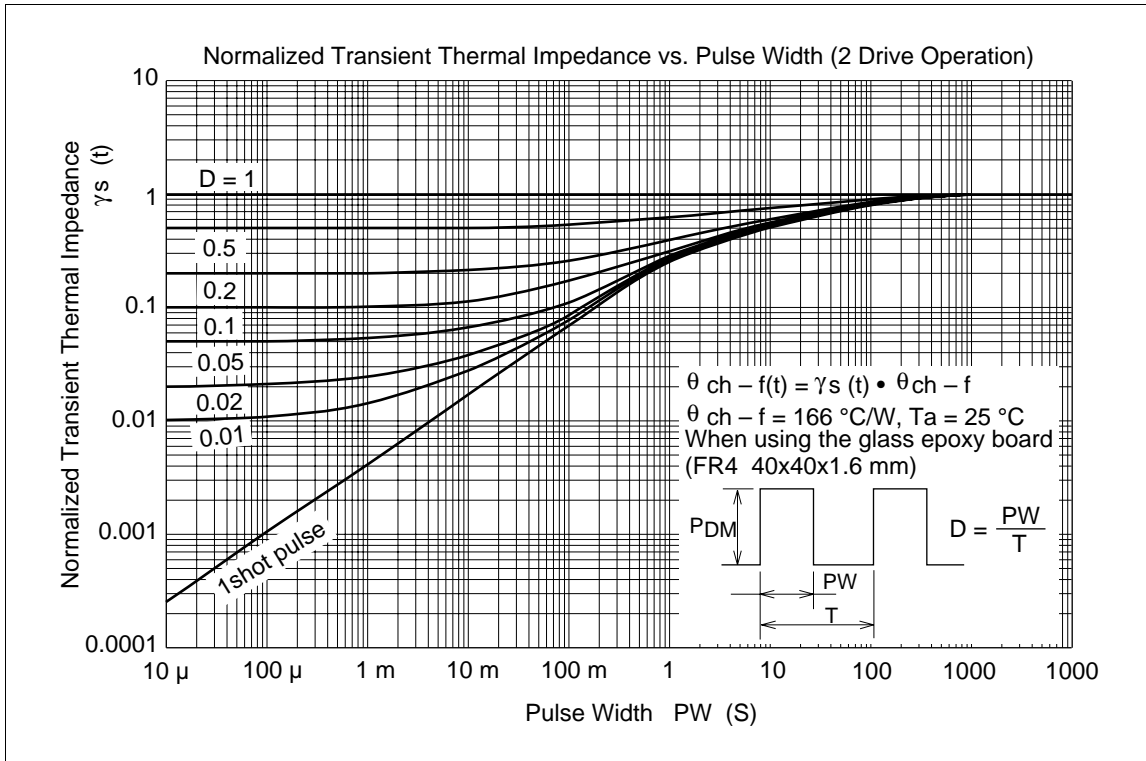


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## Package Dimensions

Unit: mm

