
HAT1021R

Silicon P Channel Power MOS FET
High Speed Power Switching

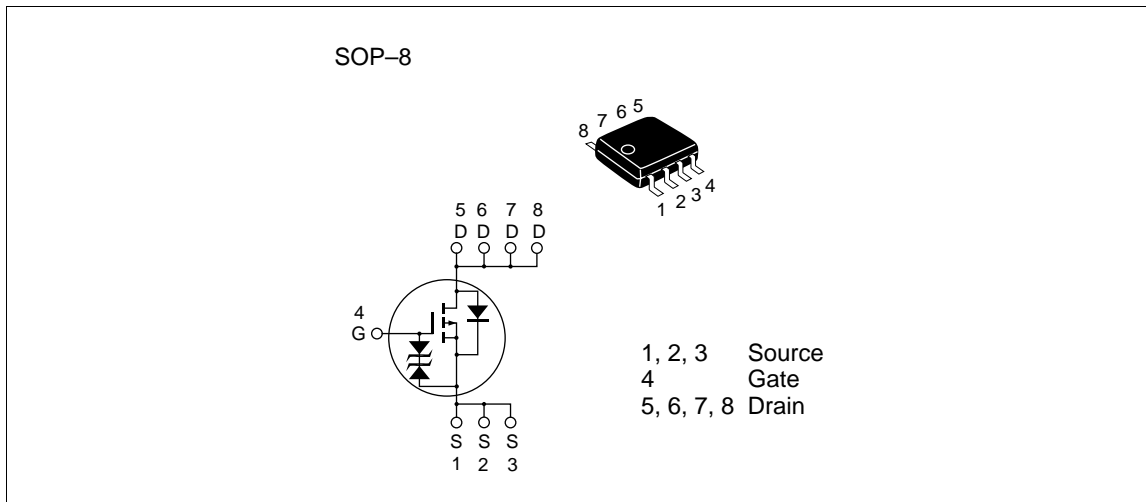
HITACHI

ADE-208-475 B (Z)
3rd. Edition
October. 1996

Features

- Low on-resistance
- Capable of 2.5 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	VDSS	-20	V
Gate to source voltage	VGSS	±10	V
Drain current	ID	-5.5	A
Drain peak current	ID(pulse)Note1	-44	A
Body-drain diode reverse drain current	IDR	-5.5	A
Channel dissipation	Pch Note2	2.5	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

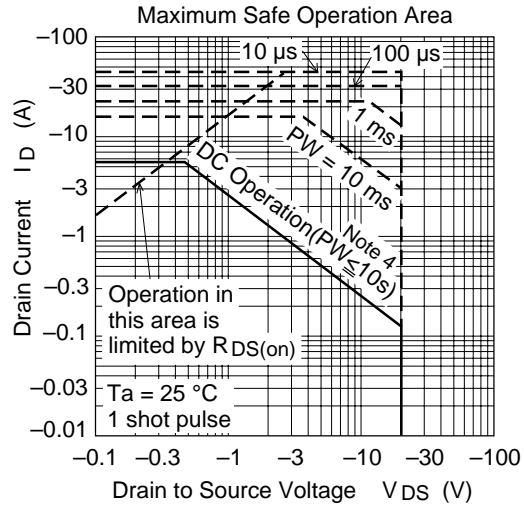
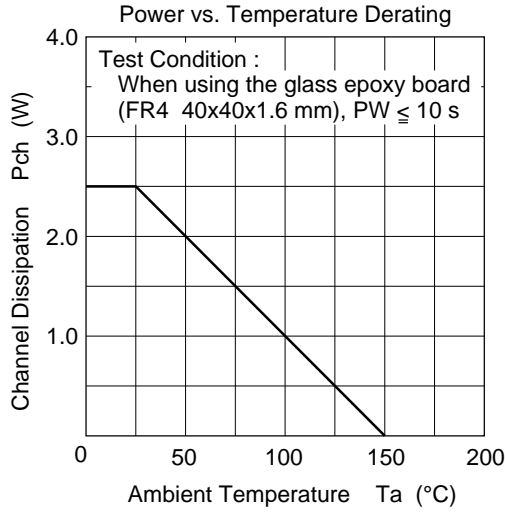
Note: 1. $PW \leq 10\mu s$, duty cycle $\leq 1\%$
 2. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), $PW \leq 10s$

Electrical Characteristics (Ta = 25°C)

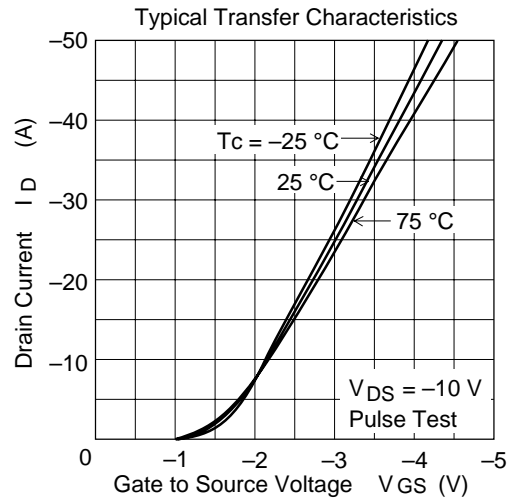
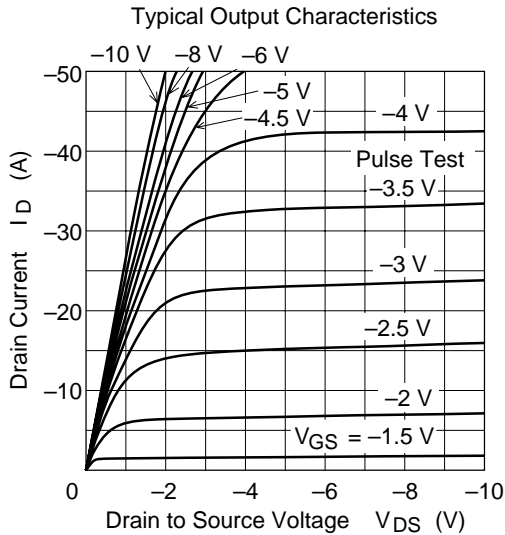
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V(BR)DSS	-20	—	—	V	ID = -10mA, VGS = 0
Gate to source breakdown voltage	V(BR)GSS	±10	—	—	V	IG = ±100μA, VDS = 0
Gate to source leak current	IGSS	—	—	±10	μA	VGS = ±8V, VDS = 0
Zero gate voltage drain current	IDSS	—	—	-10	μA	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)	—	0.048	0.060	Ω	ID = -3A, VGS = -4V Note3
	RDS(on)	—	0.065	0.085	Ω	ID = -3A, VGS = -2.5V Note3
Forward transfer admittance	yfs	6	9.5	—	S	ID = -3A, VDS = -10V Note3
Input capacitance	Ciss	—	1200	—	pF	VDS = -10V
Output capacitance	Coss	—	630	—	pF	VGS = 0
Reverse transfer capacitance	Crss	—	200	—	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)	—	175	—	ns	
Fall time	tf	—	140	—	ns	
Body-drain diode forward voltage	VDF	—	-0.9	-1.4	V	IF = -5.5A, VGS = 0 Note3
Body-drain diode reverse recovery time	trr	—	65	—	ns	IF = -5.5A, VGS = 0 diF/ dt =20A/μs

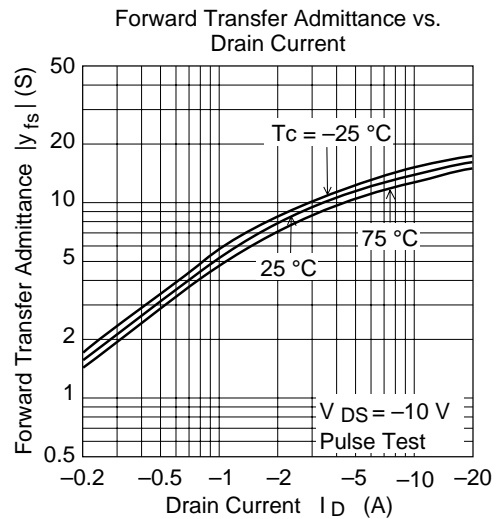
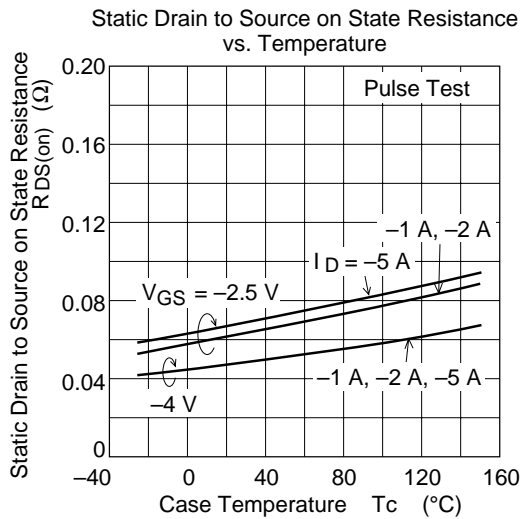
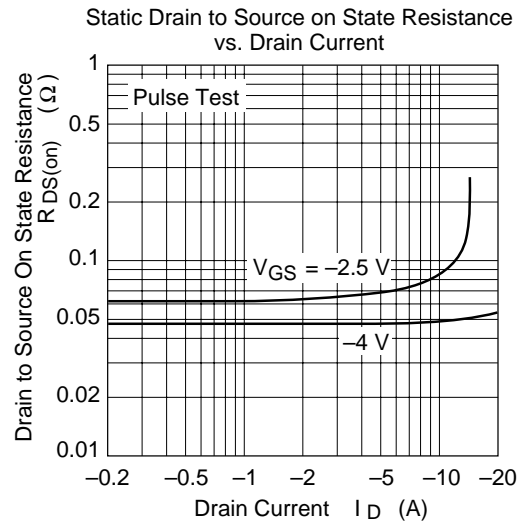
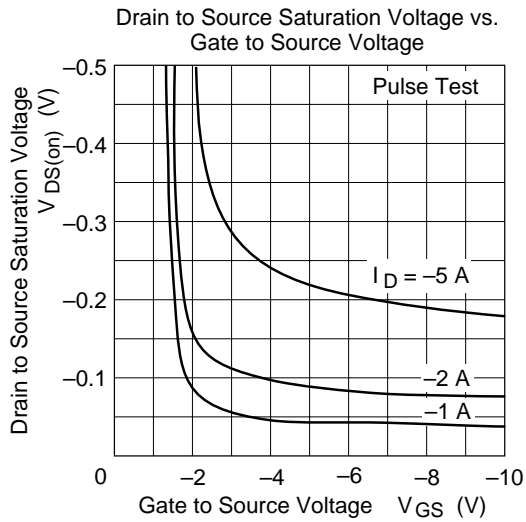
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Main Characteristics



Note 4 :
When using the glass epoxy board
(FR4 40 x 40 x 1.6 mm)





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