

# HAT2022R

## Silicon N Channel Power MOS FET

7h. Edition  
Jan. 1996

# HITACHI

### Application

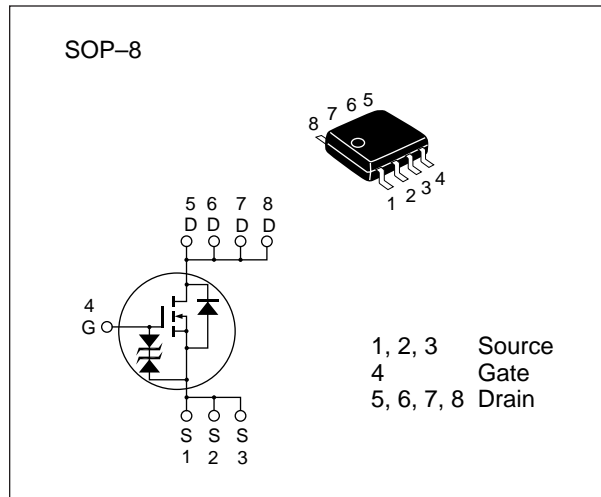
High speed power switching

### Features

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

### Ordering Information

Hitachi Cord	FP-8DA
EIAJ Cord	—
JEDEC Cord	MS-012AA



**Table 1 Absolute Maximum Ratings** (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	30	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	11	A
Drain peak current	I <sub>D(pulse)</sub> *	88	A
Body-drain diode reverse drain current	I <sub>DR</sub>	11	A
Channel dissipation	P <sub>ch</sub> **	2.5	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

\* PW ≤ 10 μs, duty cycle ≤ 1 %

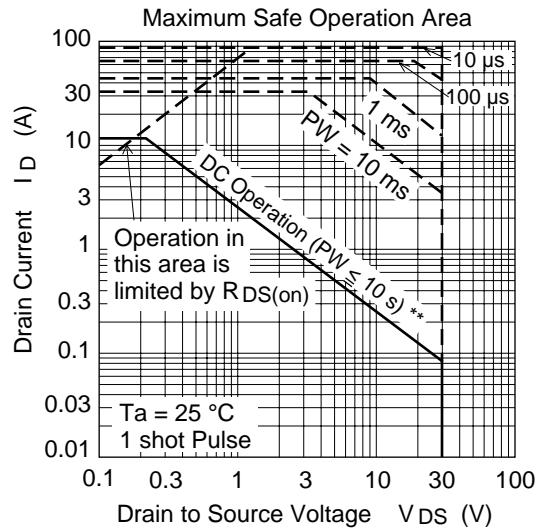
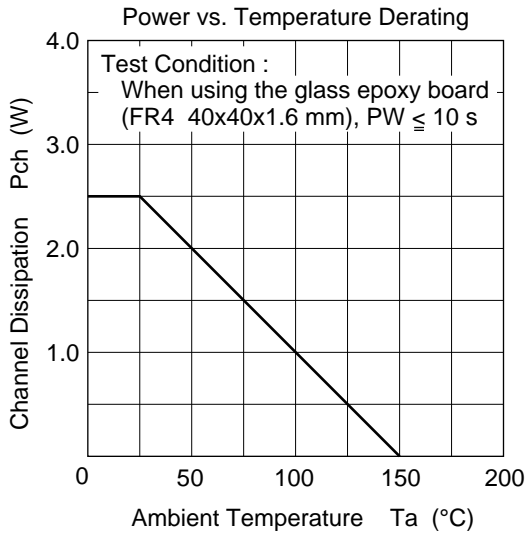
\*\* When using the glass epoxy board (FR4 40 x 40x 1.6 mm), PW ≤ 10 s

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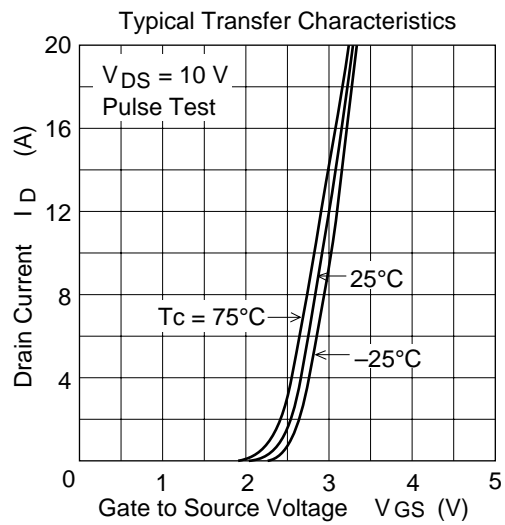
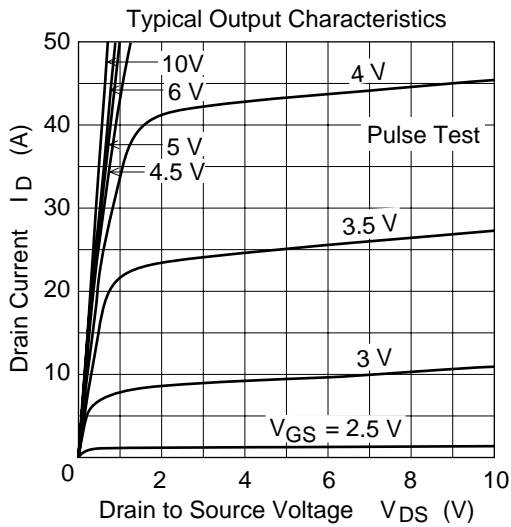
**Table 2 Electrical Characteristics (Ta = 25°C)**

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	$V_{(BR)GSS}$	$\pm 20$	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 16 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	10	$\mu\text{A}$	$V_{DS} = 30 \text{ V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	$V_{DS} = 10 \text{ V}$ , $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.012	0.015	$\Omega$	$I_D = 6 \text{ A}$ $V_{GS} = 10 \text{ V}^*$
		—	0.017	0.025	$\Omega$	$I_D = 6 \text{ A}$ $V_{GS} = 4 \text{ V}^*$
Forward transfer admittance	$ y_{fs} $	12	18	—	S	$I_D = 6 \text{ A}$ $V_{DS} = 10 \text{ V}^*$
Input capacitance	$C_{iss}$	—	1450	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	$C_{oss}$	—	950	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	380	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	60	—	ns	$V_{GS} = 4 \text{ V}$ , $I_D = 6 \text{ A}$
Rise time	$t_r$	—	450	—	ns	$V_{DD} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	80	—	ns	
Fall time	$t_f$	—	160	—	ns	
Body-drain diode forward voltage	$V_{DF}$	—	0.8	—	V	$I_F = 11 \text{ A}$ , $V_{GS} = 0$
Body-drain diode reverse recovery time	$t_{rr}$	—	70	—	ns	$I_F = 11 \text{ A}$ , $V_{GS} = 0$ $di_F / dt = 20 \text{ A} / \mu\text{s}$

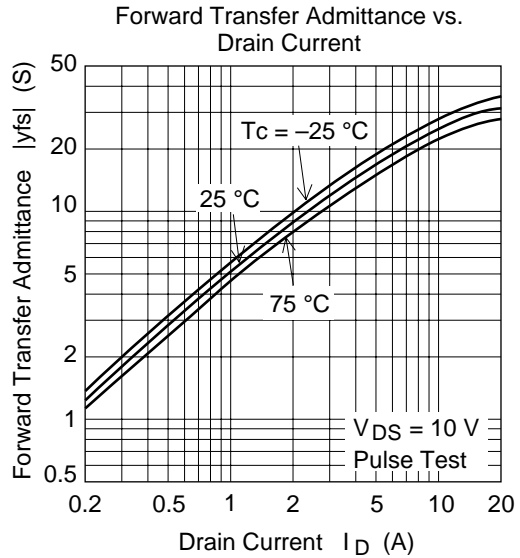
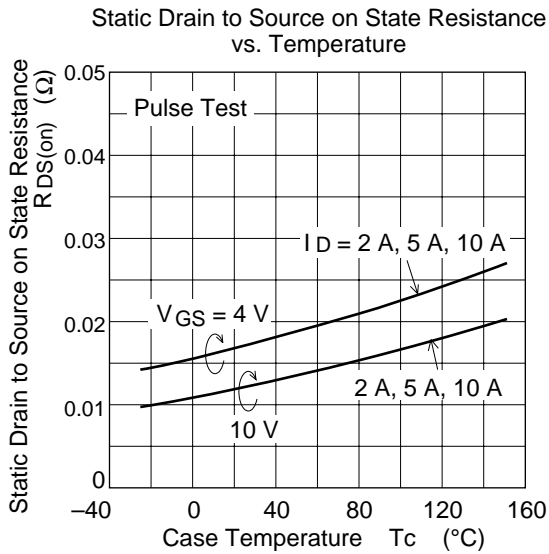
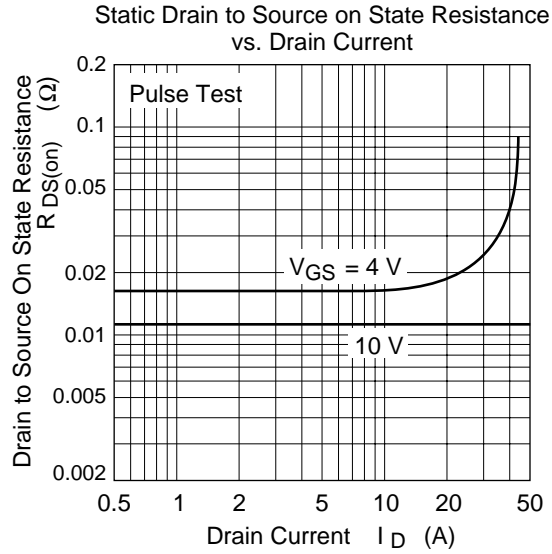
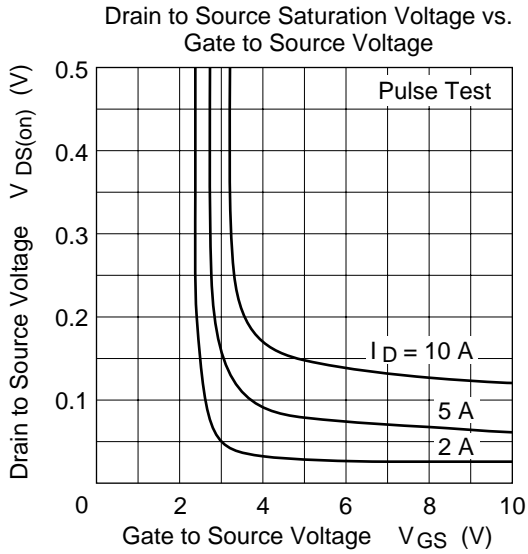
\* Pulse Test

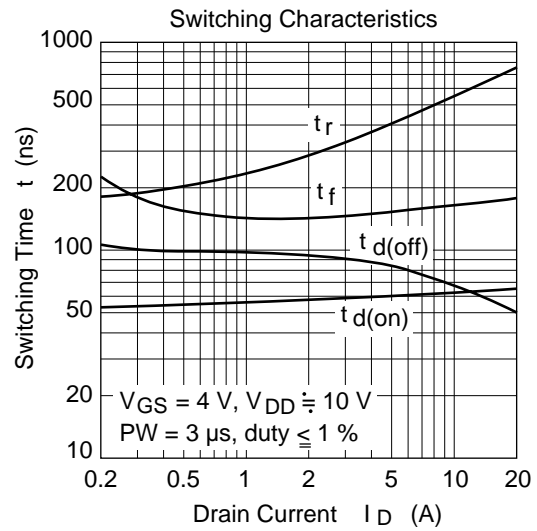
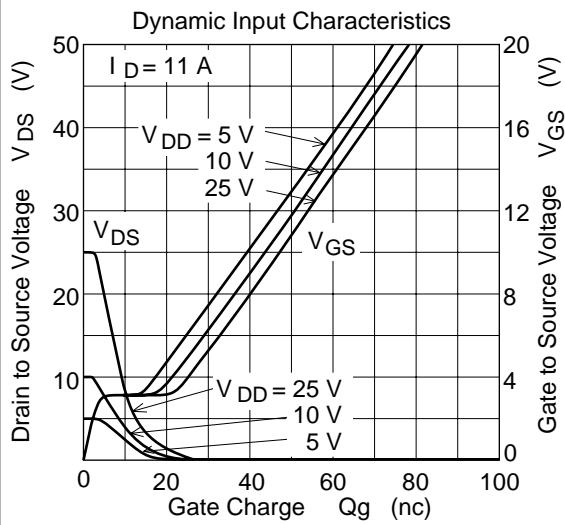
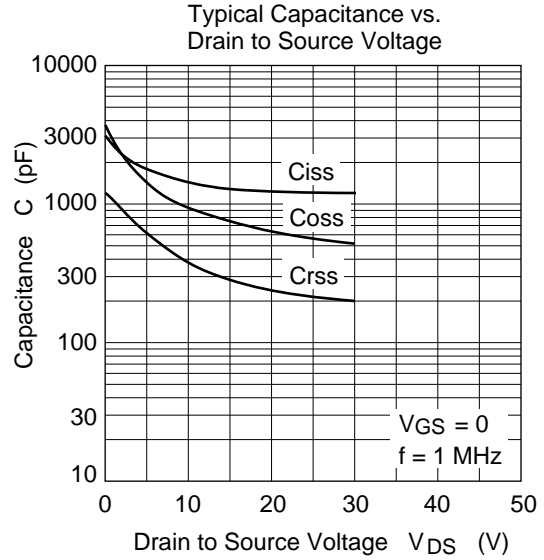
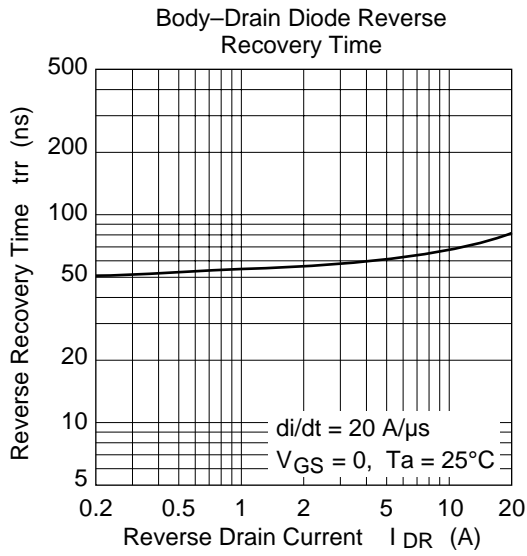


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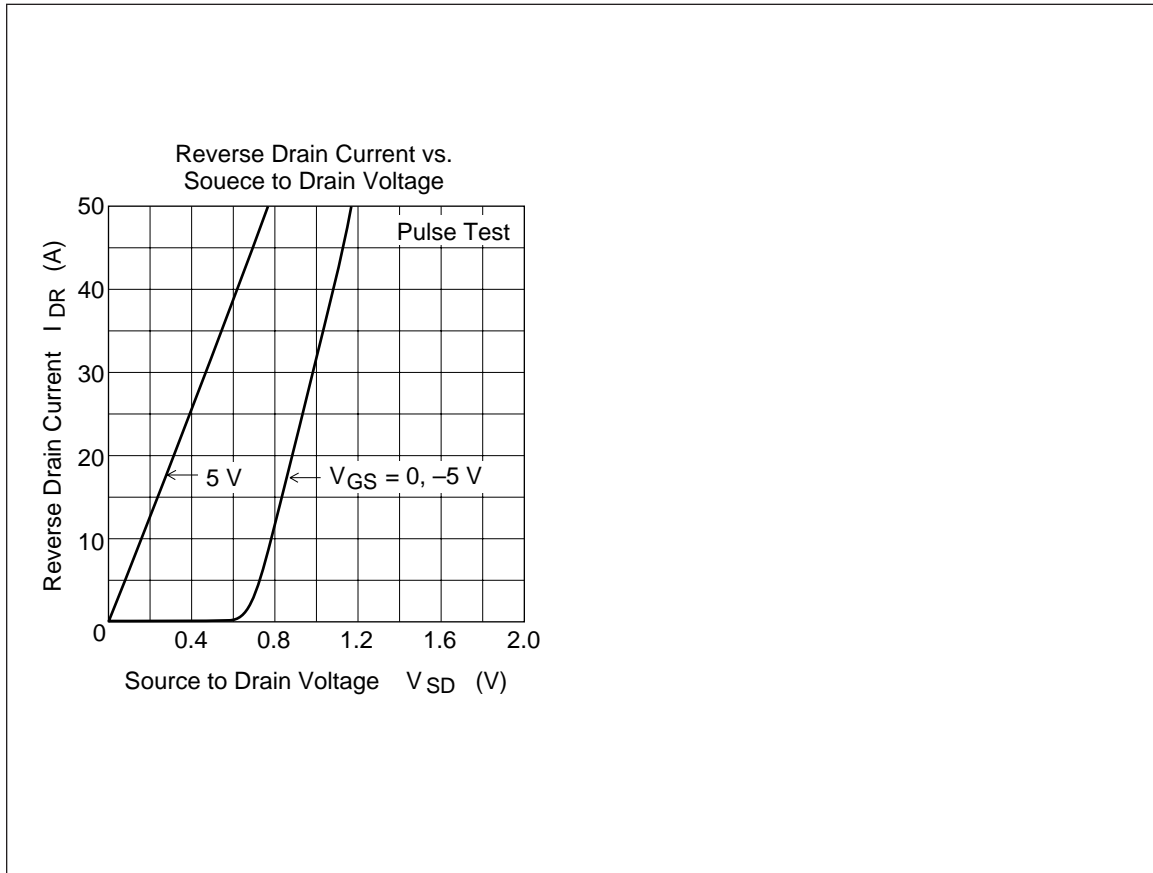


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## Package Dimensions

Unit : mm

