

# HAT2026R

Silicon N Channel Power MOS FET  
High Speed Power Switching

# HITACHI

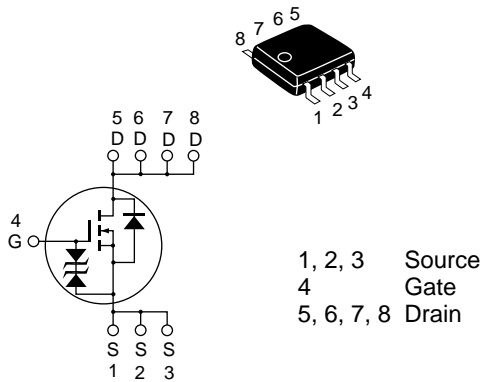
ADE-208-523 C (Z)  
4th. Edition  
February 1999

## Features

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

## Outline

SOP-8



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	20	V
Gate to source voltage	$V_{GSS}$	$\pm 12$	V
Drain current	$I_D$	11	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	88	A
Body-drain diode reverse drain current	$I_{DR}$	11	A
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	2.5	W
Channel temperature	$T_{ch}$	150	°C
Storage temperature	$T_{stg}$	- 55 to + 150	°C

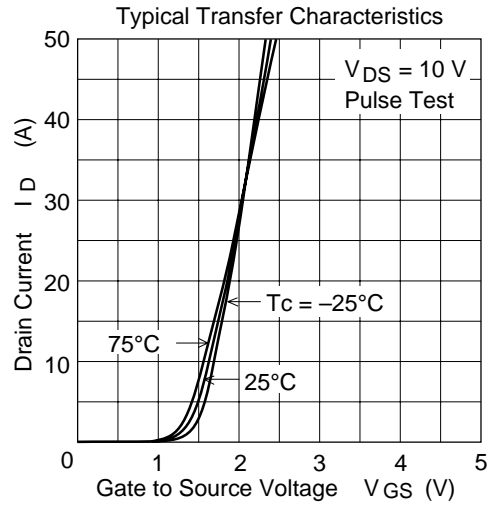
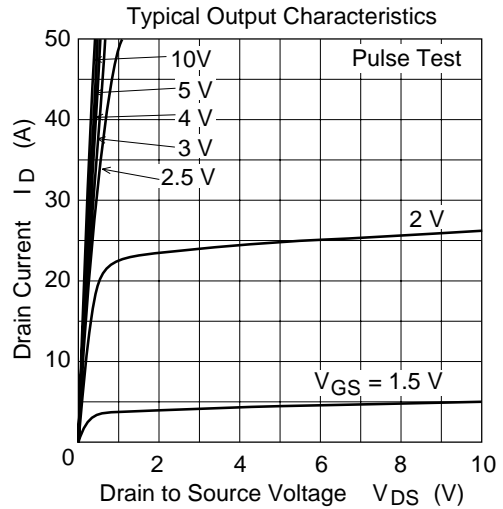
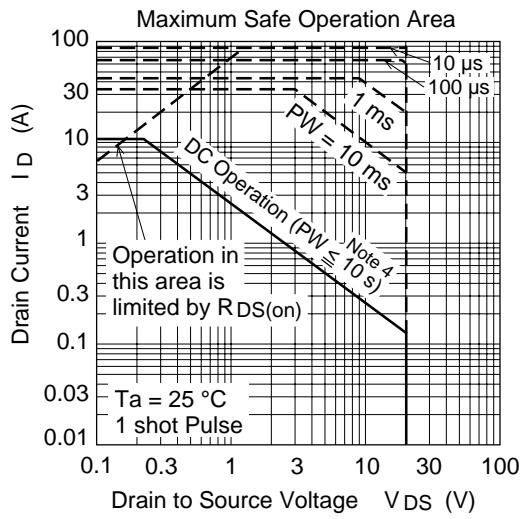
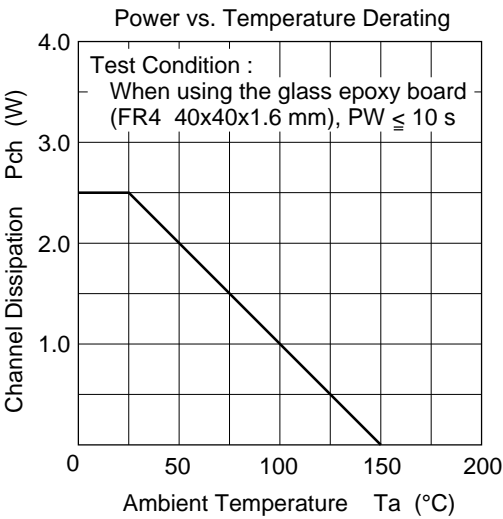
Note: 1.  $PW \leq 10\mu s$ , duty cycle  $\leq 1\%$   
2. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm),  $PW \leq 10s$

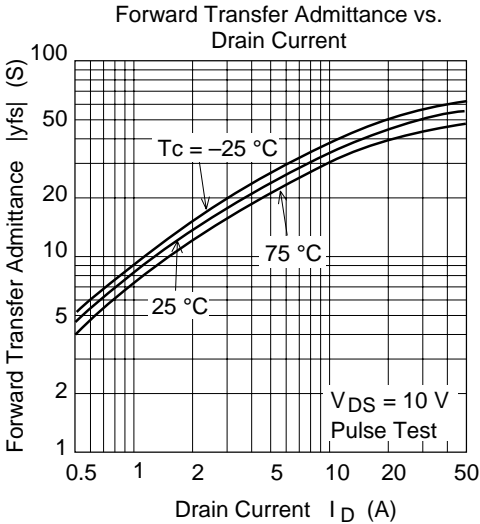
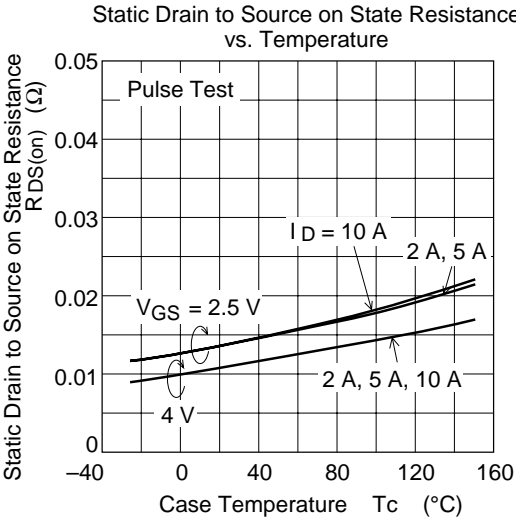
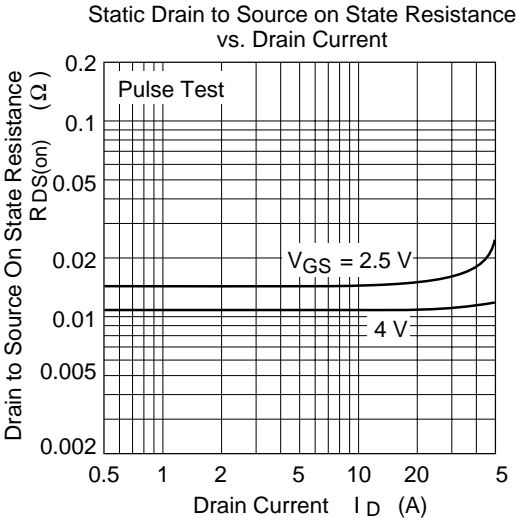
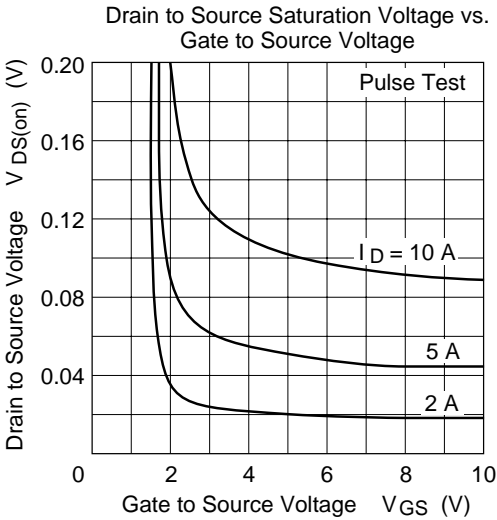
Electrical Characteristics (Ta = 25°C)

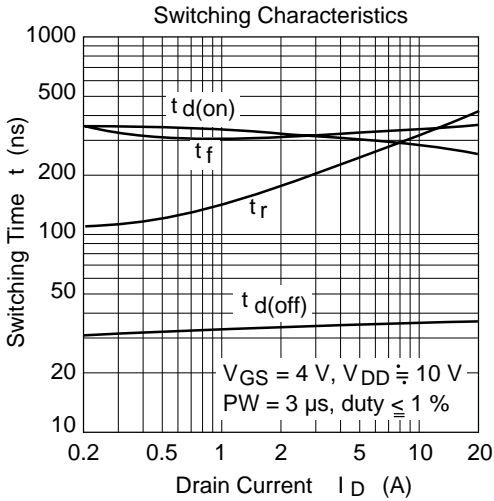
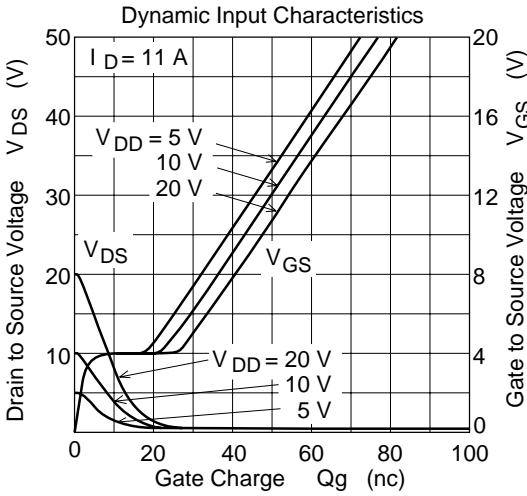
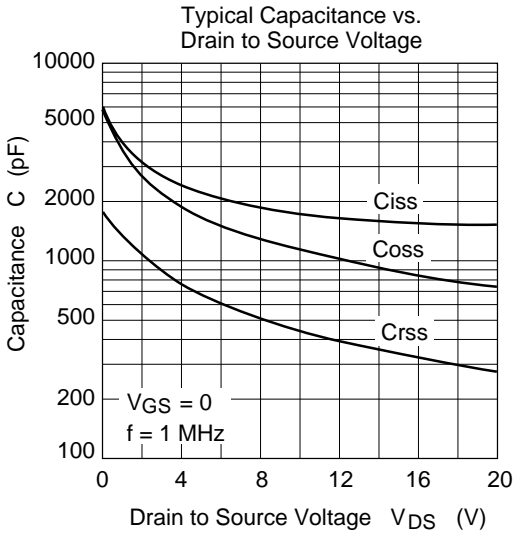
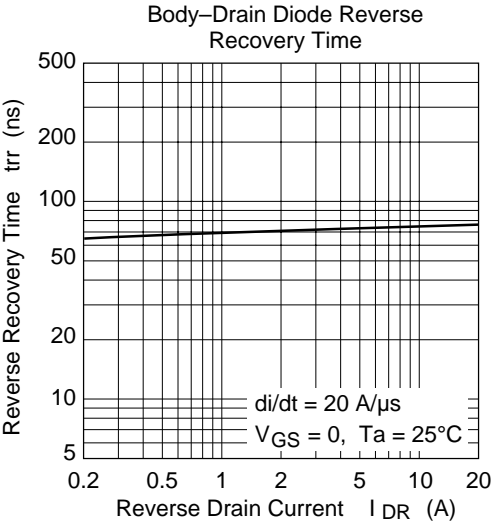
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	20	—	—	V	$I_D = 10\text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 12$	—	—	V	$I_G = \pm 100\text{ }\mu A$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu A$	$V_{GS} = \pm 10\text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	1	$\mu A$	$V_{DS} = 20\text{ V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0.4	—	1.4	V	$V_{DS} = 10\text{ V}$ , $I_D = 1\text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.011	0.015	$\Omega$	$I_D = 6\text{ A}$ , $V_{GS} = 4\text{ V}$ <sup>Note3</sup>
	$R_{DS(on)}$	—	0.014	0.021	$\Omega$	$I_D = 6\text{ A}$ , $V_{GS} = 2.5\text{ V}$ <sup>Note3</sup>
Forward transfer admittance	$ y_{fs} $	18	27	—	S	$I_D = 6\text{ A}$ , $V_{DS} = 10\text{ V}$ <sup>Note3</sup>
Input capacitance	$C_{iss}$	—	1760	—	pF	$V_{DS} = 10\text{ V}$
Output capacitance	$C_{oss}$	—	1130	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	450	—	pF	$f = 1\text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	35	—	ns	$V_{GS} = 4\text{ V}$ , $I_D = 6\text{ A}$
Rise time	$t_r$	—	275	—	ns	$V_{DD} \cong 10\text{ V}$
Turn-off delay time	$t_{d(off)}$	—	300	—	ns	
Fall time	$t_f$	—	340	—	ns	
Body–drain diode forward voltage	$V_{DF}$	—	0.83	1.08	V	$IF = 11\text{ A}$ , $V_{GS} = 0$ <sup>Note3</sup>
Body–drain diode reverse recovery time	$t_{rr}$	—	75	—	ns	$IF = 11\text{ A}$ , $V_{GS} = 0$ $diF/dt = 20\text{ A}/\mu s$

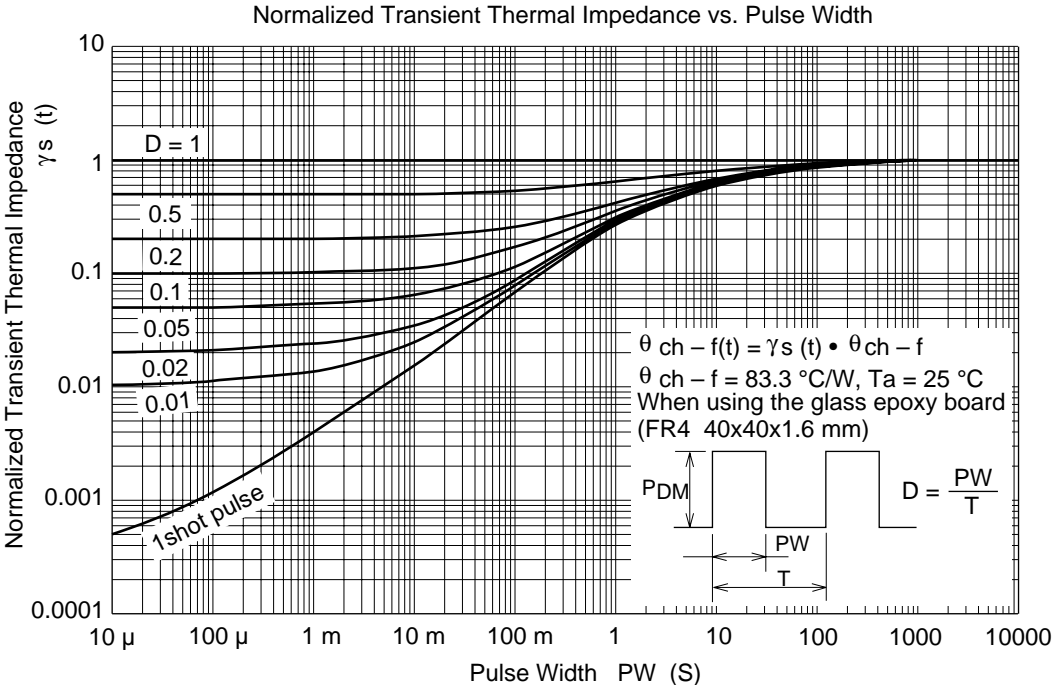
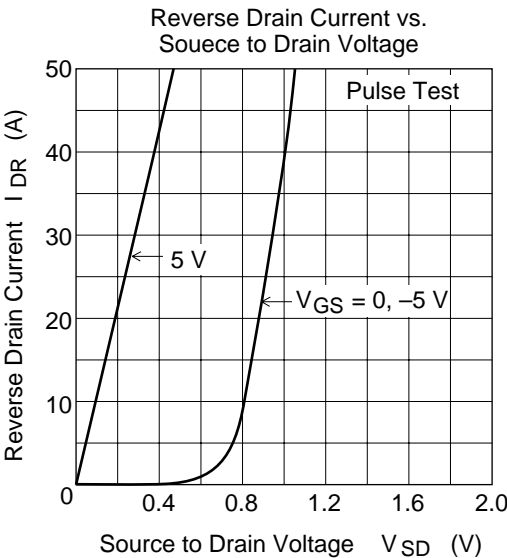
Note: 3. Pulse test  
The specifications may be change without notice.

Main Characteristics

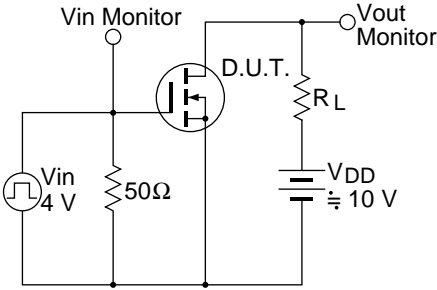




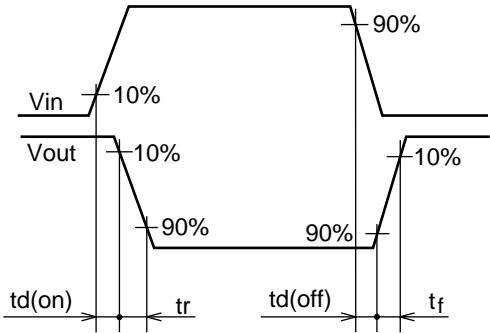




Switching Time Test Circuit

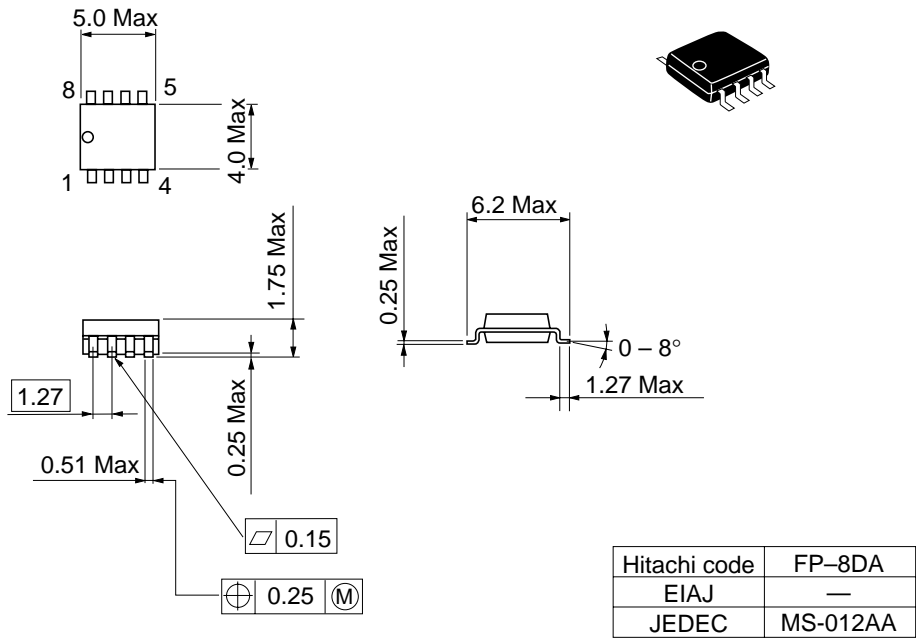


Switching Time Waveform



Package Dimensions

Unit: mm





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