2SJ587

Silicon P Channel MOS FET
High Speed Switching

HITACHI

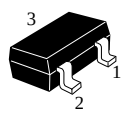
ADE-208-801 (Z)
1st.Edition.
June 1999

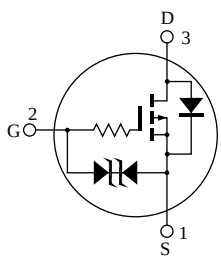
Features

- Low on-resistance
  R_{DS} = 8.5 typ. (V_{GS} = -4 V , I_D = -25 mA)
  R_{DS} = 15 typ. (V_{GS} = -2.5 V , I_D = -10 mA)
- 2.5 V gate drive device.
- Small package (SMPAK)

Outline

SMPAK





1. Source
2. Gate
3. Drain

Hitachi semiconductor

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	-20	V
Gate to source voltage	V_{GSS}	±10	V
Drain current	I_D	-50	mA
Drain peak current	$I_{D(pulse)}$ Note1	-200	mA
Body-drain diode reverse drain current	I_{DR}	-50	mA
Channel dissipation	Pch Note 2	100	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. PW 10 µs, duty cycle 1%
2. Value on the alumina ceramic board (12.5x 20 x0.7 mm)

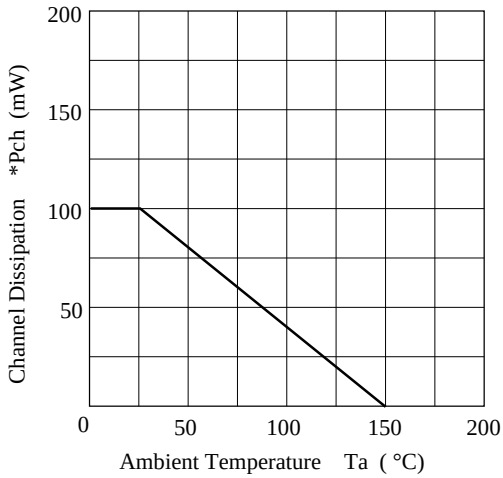
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-20	—	—	V	I_D = -100 µA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±10	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	±5	µA	V_{GS} = ±8 V, V_{DS} = 0
Zero gate voltege drain current	I_{DSS}	—	—	-1	µA	V_{DS} = -20 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	-0.8	—	-1.8	V	I_D = -10µA, V_{DS} = -5 V
Static drain to source on state resistance	$R_{DS(on)}$	—	4.1	5.0		I_D = -25 mA,V_{GS} = -4 V Note 3
	$R_{DS(on)}$	—	6.0	8.5		I_D = -10 mA,V_{GS} = -2.5 V Note 3
Forward transfer admittance	$\|y_{fs}\|$	32.5	50	—	mS	I_D = -25 mA, V_{DS} = -10 V Note 3
Input capacitance	Ciss	—	13	—	pF	V_{DS} = -10 V
Output capacitance	Coss	—	10	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	1.8	—	pF	f = 1 MHz
Turn-on delay time	$t_{d(on)}$	—	22	—	ns	I_D = -25 mA, V_{GS} = -4 V
Rise time	t_r	—	48	—	ns	R_L = 400
Turn-off delay time	$t_{d(off)}$	—	50	—	ns	
Fall time	t_f	—	60	—	ns	

Note: 3. Pulse test
4. Marking is DP

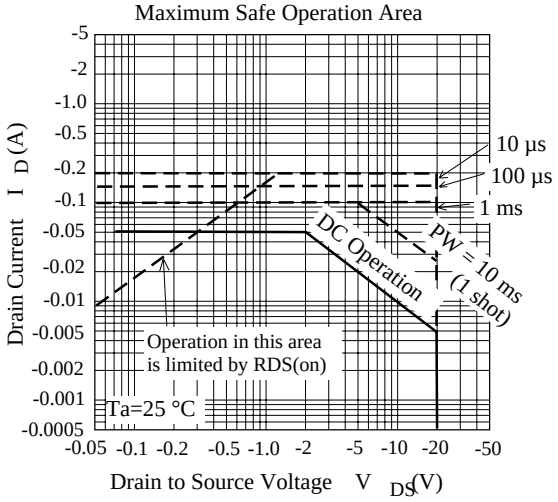
Main Characteristics

Power vs.Temperature Derating



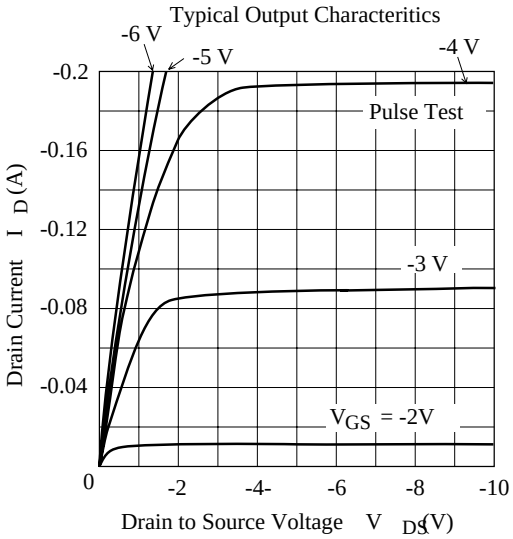
*Value on the alumina ceramic board.(12.5x20x0.7mm)

Maximum Safe Operation Area

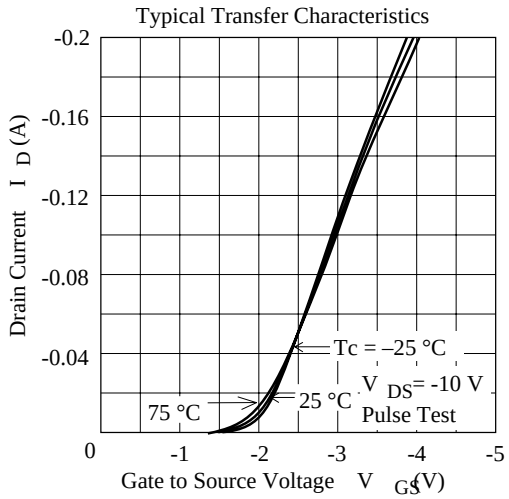


Value on the alumina ceramic board.(12.5x20x0.7mm)

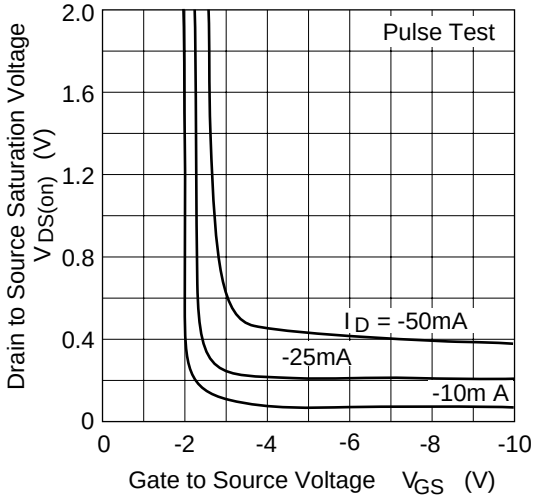
Typical Output Characteritics



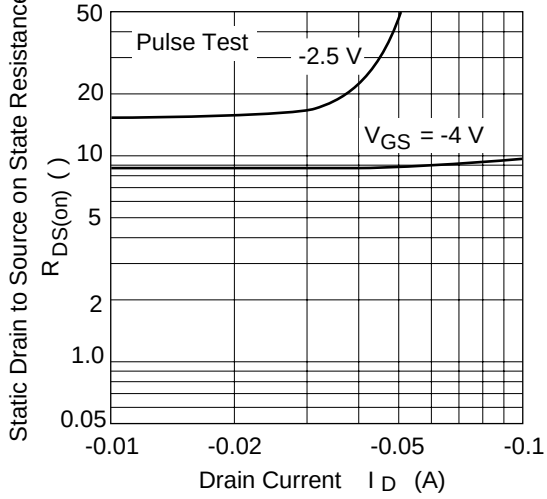
Typical Transfer Characteristics



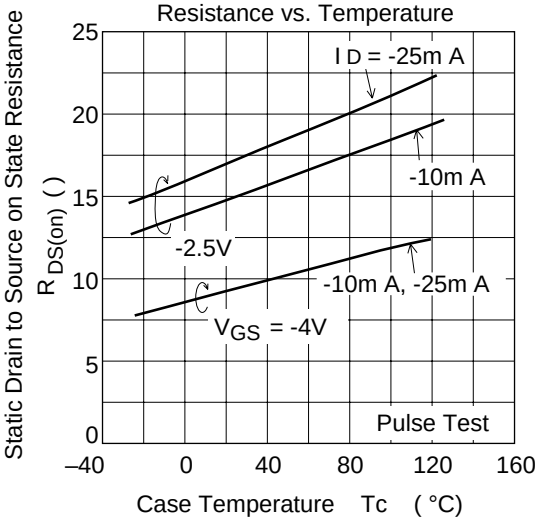
Drain to Source Saturation Voltage vs. Gate to Source Voltage



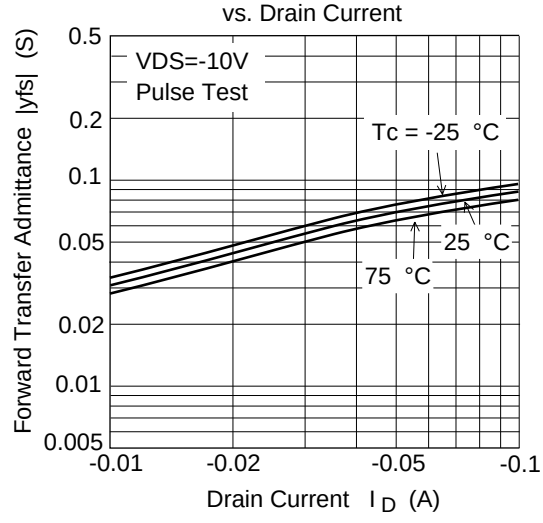
Static Drain to Sourceon State Resistance vs. Drain Current



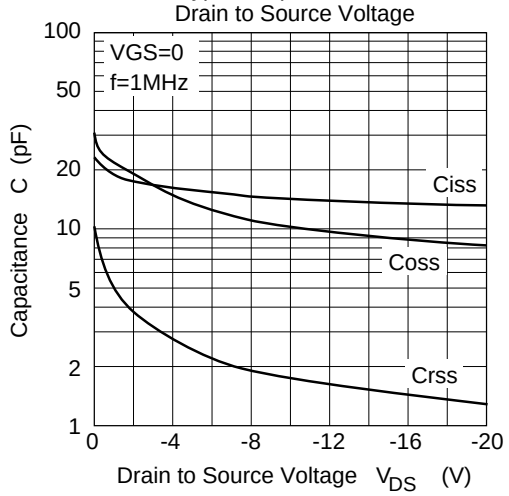
Static Drain to Source on State Resistance vs. Temperature



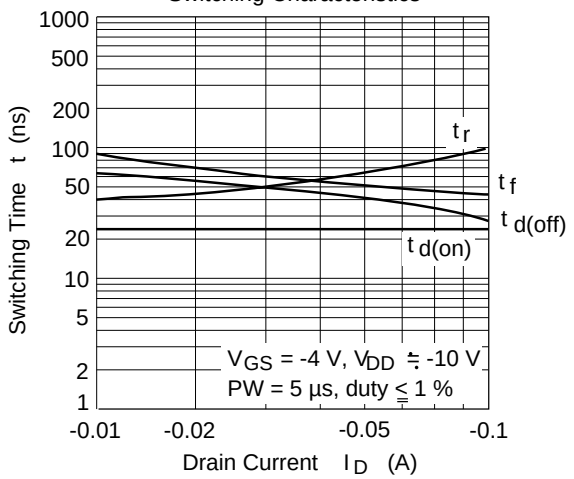
Forward TransferAdmittance vs. Drain Current



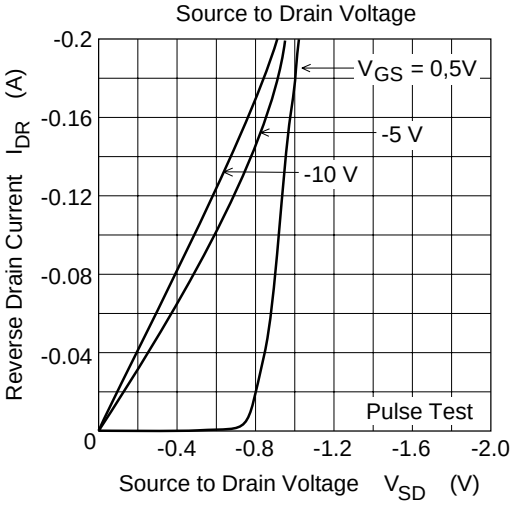
Typical capacitance vs.
Drain to Source Voltage



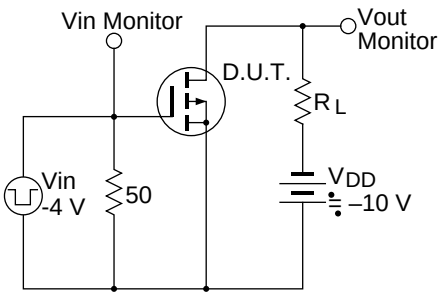
Switching Characteristics



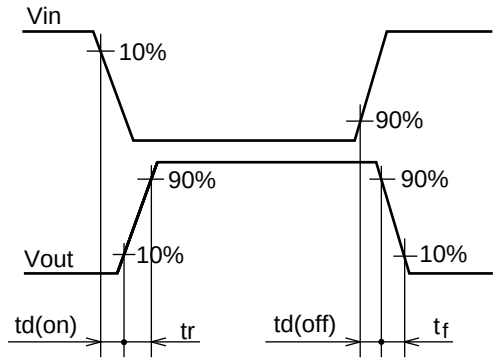
Reverse Drain Current vs.
Source to Drain Voltage



Switching Time Test Circuit

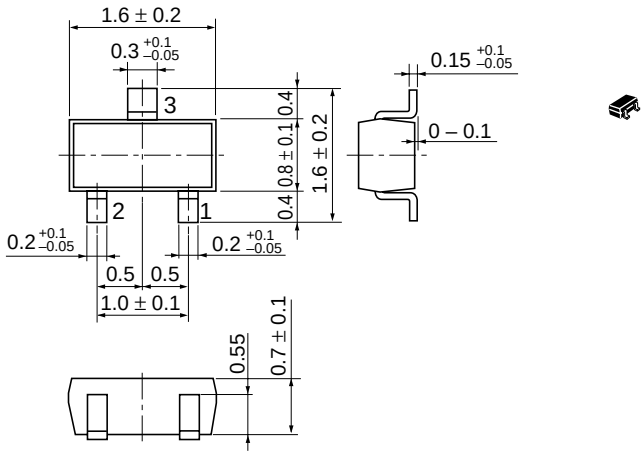


Waveforms



Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	SMPAK
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.003 g

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