

H5N0301SM

Silicon N Channel Power MOS FET
Power Switching

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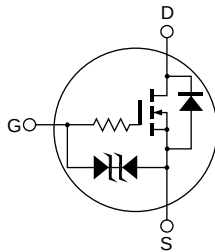
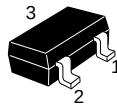
ADE-208-954 (Z)
1st. Edition
Dec. 2000

Features

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

Outline

SMPAK



1. Source
2. Gate
3. Drain

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	30	V
Gate to source voltage	V_{GSS}	±10	V
Drain current	I_D	50	mA
Drain peak current	$I_{D(pulse)}$ ^{Note 1}	200	mA
Channel dissipation	$P_{ch(pulse)}$ ^{Note 2}	100	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

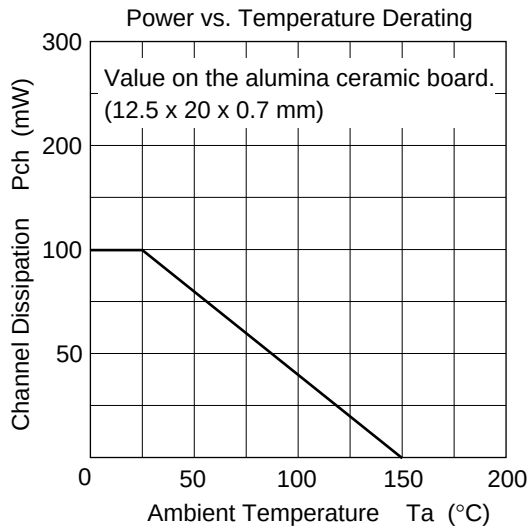
Note: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
2. Value on the alumina ceramic board (12.5 x 20 x 0.7 mm)

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 100 \mu A$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±10	—	—	V	$I_G = \pm 10 \mu A$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±5	μA	$V_{GS} = \pm 8 V$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 30 V$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0.8	—	1.8	V	$I_D = 10 \mu A$, $V_{DS} = -5 V$
Static drain to source on state resistance	$R_{DS(on)}$	—	6	7.2	Ω	$I_D = 25m A$, $V_{GS} = 4 V$ ^{Note 1}
		—	9	13	Ω	$I_D = 10mA$, $V_{GS} = 2.5 V$ ^{Note 1}
Forward transfer admittance	$ y_{fs} $	65	85	—	mS	$I_D = 25mA$, $V_{DS} = 10 V$ ^{Note 1}
Input capacitance	C_{iss}	—	12	—	pF	$V_{DS} = 10 V$
Output capacitance	C_{oss}	—	8	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	3	—	pF	$f = 1 MHz$
Turn-on delay time	$t_{d(on)}$	—	40	—	ns	$V_{GS} = 4 V$, $I_D = 25m A$
Rise time	t_r	—	115	—	ns	$R_L = 400 \Omega$
Turn-off delay time	$t_{d(off)}$	—	120	—	ns	
Fall time	t_f	—	125	—	ns	
Body-drain diode forward voltage	V_{DF}	—	0.82	1.23	V	$I_F = 50m A$, $V_{GS} = 0$ ^{Note 1}

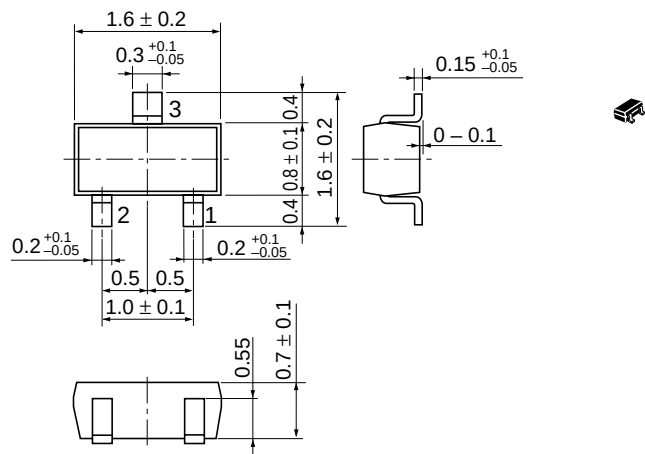
Note: 1. Pulse test

Main Characteristics



Package Dimensions

As of January, 2001
Unit: mm



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

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