

2SK3349

Silicon N Channel MOS FET
High Speed Switching

HITACHI

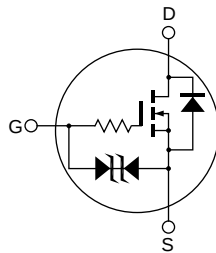
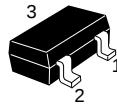
ADE-208-804 (Z)
1st.Edition.
June 1999

Features

- Low on-resistance
 $R_{DS} = 2.8 \Omega$ typ. (at $V_{GS} = 4 V$, $I_D = 25 mA$)
 $R_{DS} = 4.8 \Omega$ typ. (at $V_{GS} = 2.5 V$, $I_D = 10 mA$)
- 2.5 V gate drive device
- Small package (SMPAK)

Outline

SMPAK



1. Source
2. Gate
3. Drain

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	P_{ch} ^{Note 2}	100	mW
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. Value on the alumina ceramic board (12.5x20x0.7 mm)

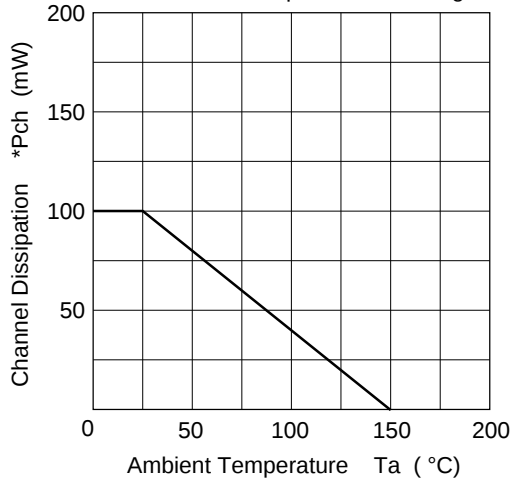
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	20	—	—	V	$I_D = 100 \mu A, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±10	—	—	V	$I_G = \pm 100 \mu A, V_{DS} = 0$
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	$V_{DS} = 20 V, V_{GS} = 0$
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	$R_{DS(on)}$	—	2.8	3.6	Ω	$I_D = 25 mA, V_{GS} = 4 V$ ^{Note 3}
	$R_{DS(on)}$	—	4.8	7.2	Ω	$I_D = 10 mA, V_{GS} = 2.5 V$ ^{Note 3}
Forward transfer admittance	$ y_{fs} $	56	85	—	mS	$I_D = 25 mA, V_{DS} = 10 V$ ^{Note 3}
Input capacitance	C_{iss}	—	6	—	pF	$V_{DS} = 10 V$
Output capacitance	C_{oss}	—	7	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	1.2	—	pF	$f = 1 MHz$
Turn-on delay time	$t_{d(on)}$	—	120	—	ns	$I_D = 25 mA, V_{GS} = 4 V$
Rise time	t_r	—	450	—	ns	$R_L = 400 \Omega$
Turn-off delay time	$t_{d(off)}$	—	480	—	ns	
Fall time	t_f	—	500	—	ns	

Note: 3. Pulse test
4. Marking is DN

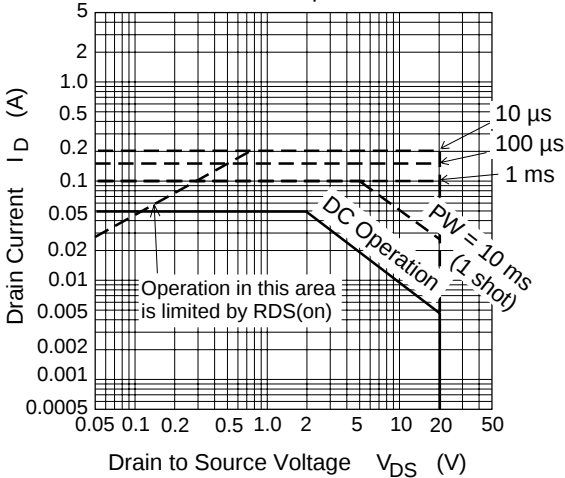
Main Characteristics

Power vs. Temperature Derating



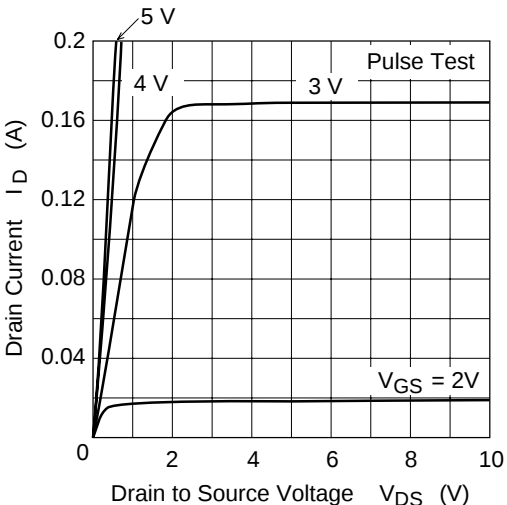
*Value on the alumina ceramic board.(12.5x20x0.7mm)

Maximum Safe Operation Area

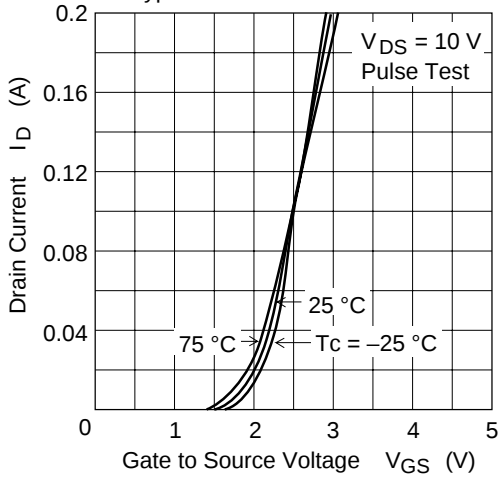


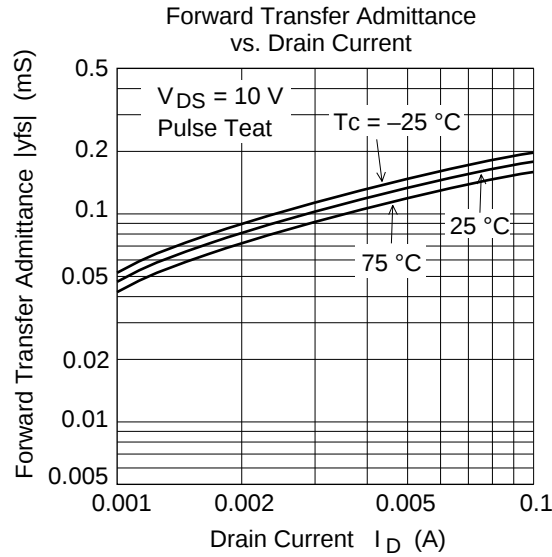
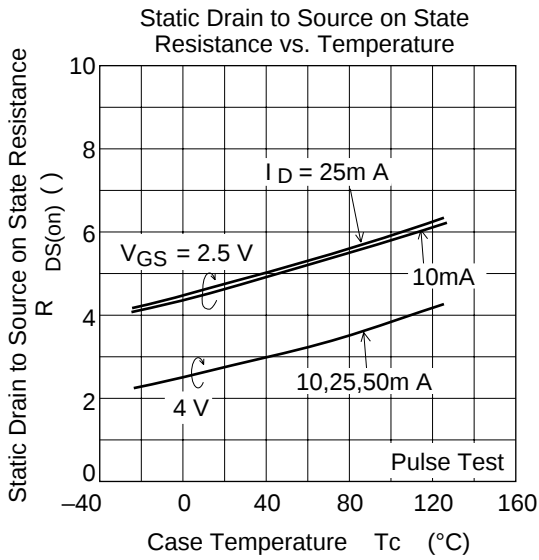
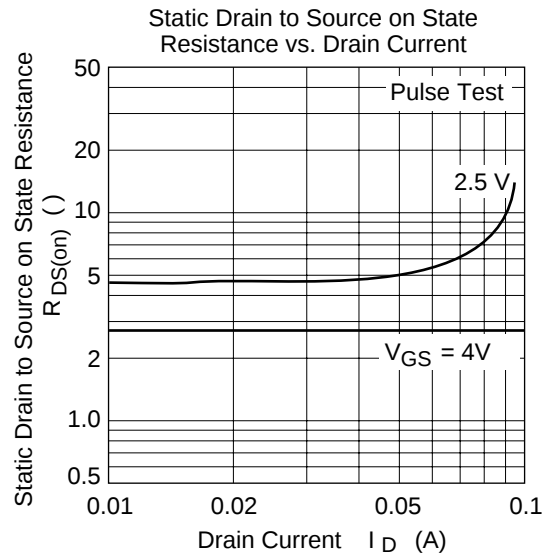
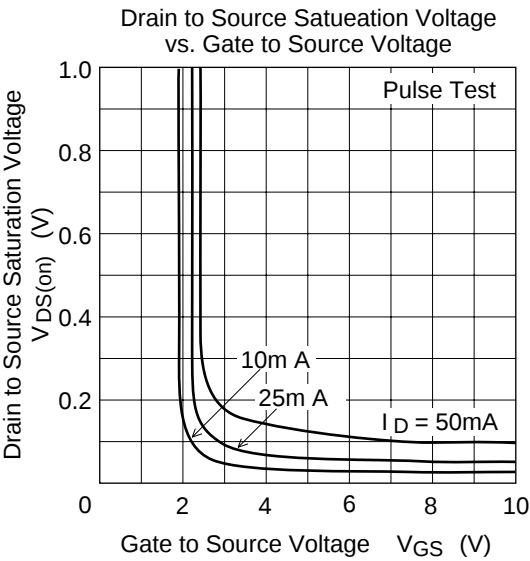
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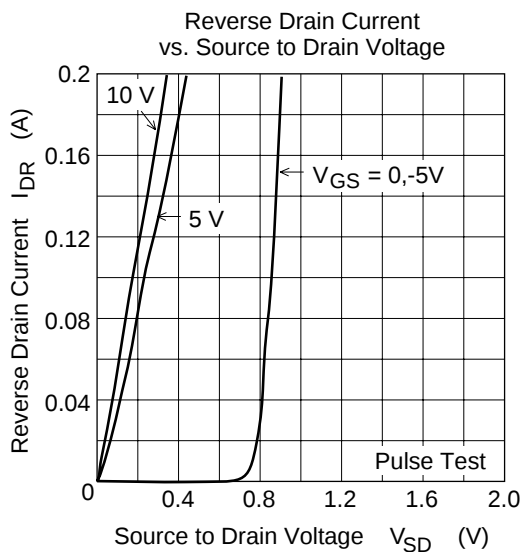
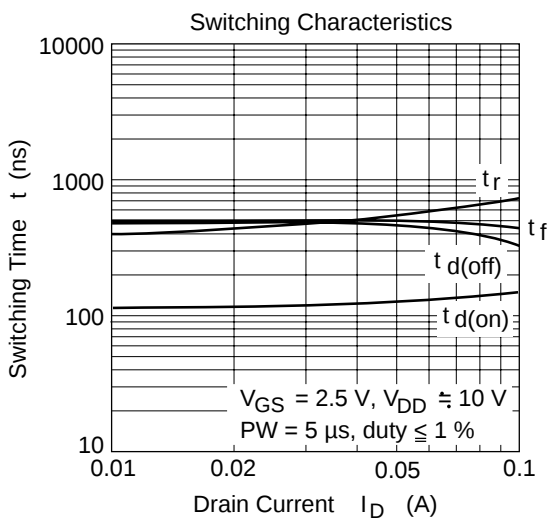
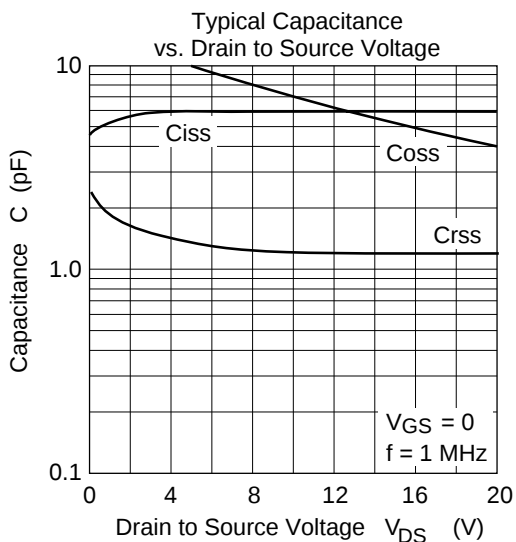
Typical Output Characteristics



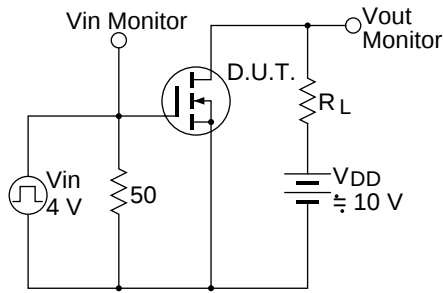
Typical Transfer Characteristics



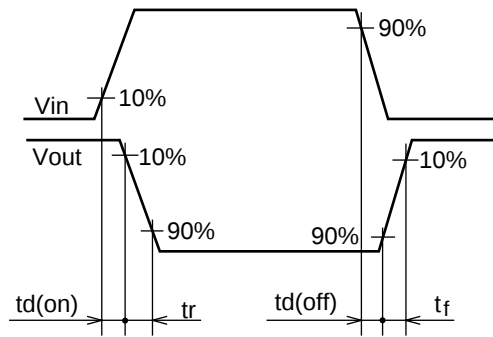




Switching Time Test Circuit

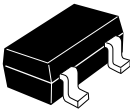
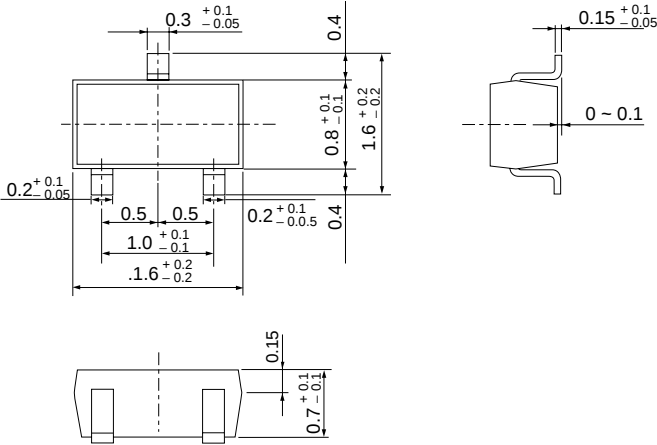


Waveforms



Package Dimensions

Unit: mm



Hitachi Code	SMPAK
EIAJ	—
JEDEC	—

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