

2SK3349

Silicon N Channel MOS FET
High Speed Switching

HITACHI

ADE-208-804 (Z)

1st.Edition.

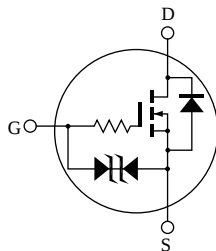
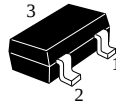
June 1999

Features

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

Outline

SMPAK



1. Source
2. Gate
3. Drain

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

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	$I_{\text{D(pulse)}}$ ^{Note 1}	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	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to $+150$	$^\circ\text{C}$

Note: 1. $PW \leq 10 \mu\text{s}$, duty cycle $\leq 1\%$

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

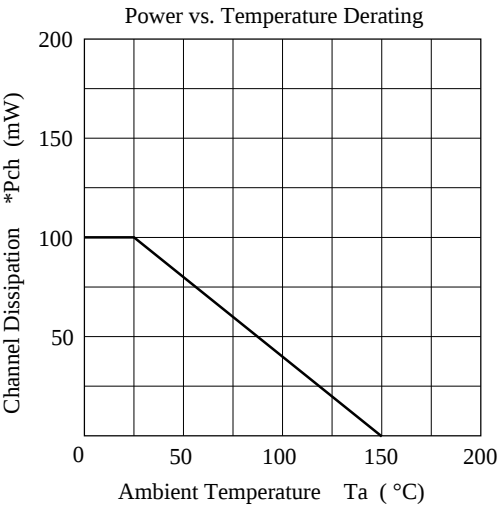
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(\text{BR})\text{DSS}}$	20	—	—	V	$I_{\text{D}} = 100 \mu\text{A}$, $V_{\text{GS}} = 0$
Gate to source breakdown voltage	$V_{(\text{BR})\text{GSS}}$	± 10	—	—	V	$I_{\text{G}} = \pm 100 \mu\text{A}$, $V_{\text{DS}} = 0$
Gate to source leak current	I_{GSS}	—	—	± 5	μA	$V_{\text{GS}} = \pm 8 \text{ V}$, $V_{\text{DS}} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{\text{DS}} = 20 \text{ V}$, $V_{\text{GS}} = 0$
Gate to source cutoff voltage	$V_{\text{GS(off)}}$	0.8	—	1.8	V	$I_{\text{D}} = 10 \mu\text{A}$, $V_{\text{DS}} = 5 \text{ V}$
Static drain to source on state resistance	$R_{\text{DS(on)}}$	—	2.8	3.6	Ω	$I_{\text{D}} = 25 \text{ mA}$, $V_{\text{GS}} = 4 \text{ V}$ ^{Note 3}
	$R_{\text{DS(on)}}$	—	4.8	7.2	Ω	$I_{\text{D}} = 10 \text{ mA}$, $V_{\text{GS}} = 2.5 \text{ V}$ ^{Note 3}
Forward transfer admittance	$ y_{\text{fs}} $	56	85	—	mS	$I_{\text{D}} = 25 \text{ mA}$, $V_{\text{DS}} = 10 \text{ V}$ ^{Note 3}
Input capacitance	C_{iss}	—	6	—	pF	$V_{\text{DS}} = 10 \text{ V}$
Output capacitance	C_{oss}	—	7	—	pF	$V_{\text{GS}} = 0$
Reverse transfer capacitance	C_{rss}	—	1.2	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{\text{d(on)}}$	—	120	—	ns	$I_{\text{D}} = 25 \text{ mA}$, $V_{\text{GS}} = 4 \text{ V}$
Rise time	t_{r}	—	450	—	ns	$R_{\text{L}} = 400 \Omega$
Turn-off delay time	$t_{\text{d(off)}}$	—	480	—	ns	
Fall time	t_{f}	—	500	—	ns	

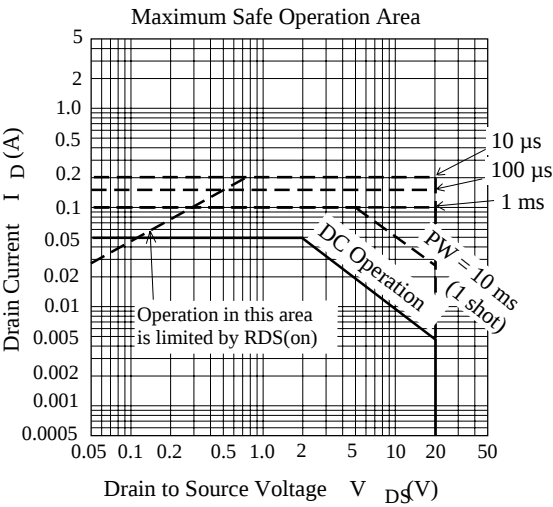
Note: 3. Pulse test

4. Marking is DN

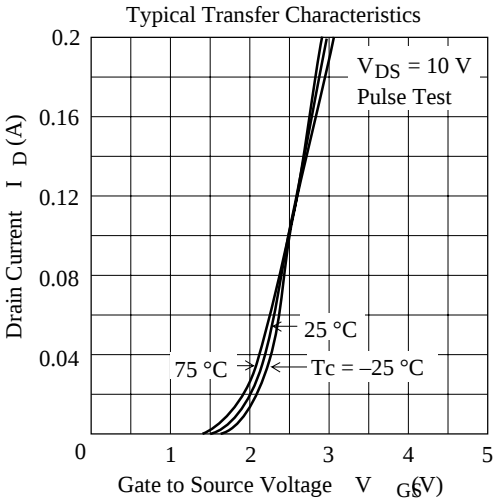
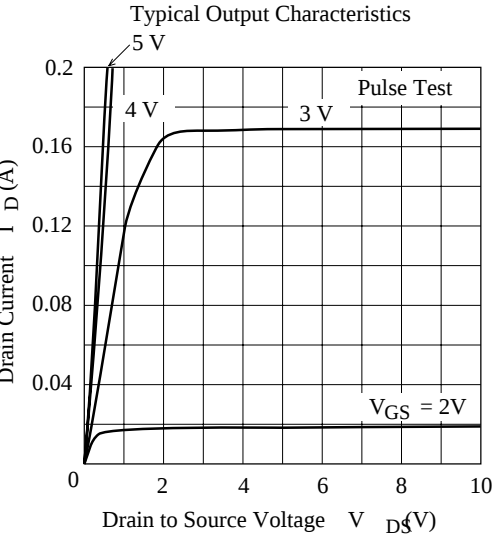
Main Characteristics

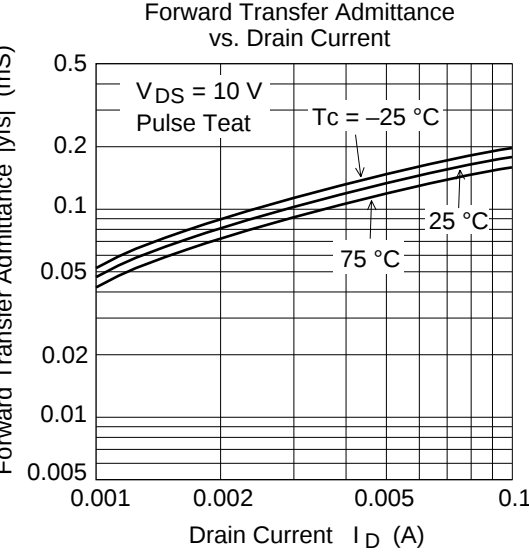
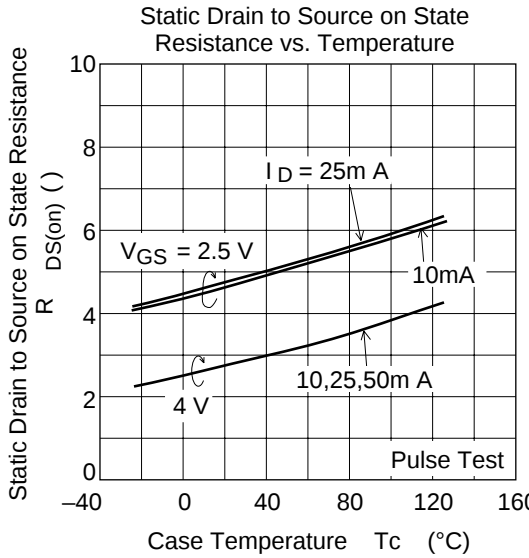
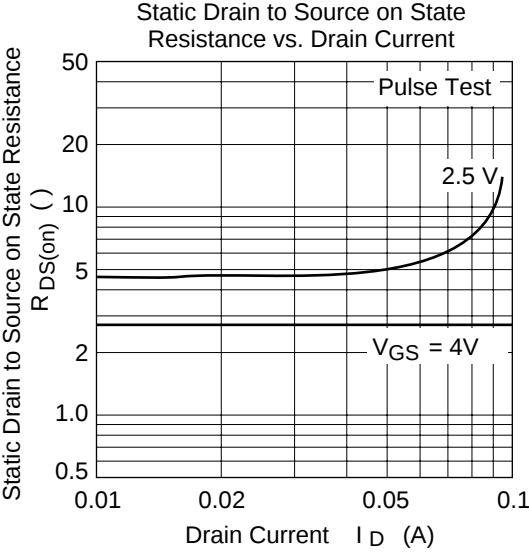
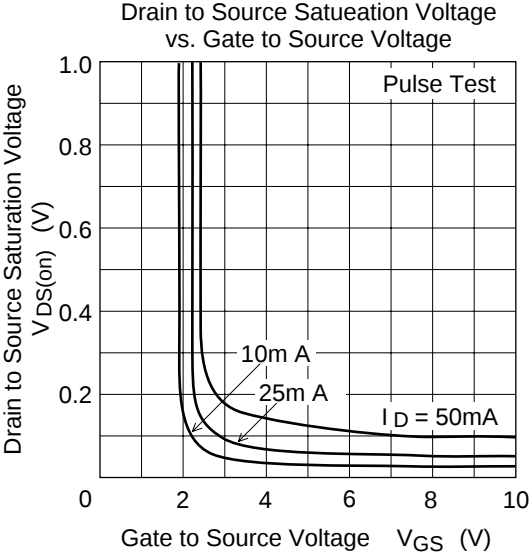


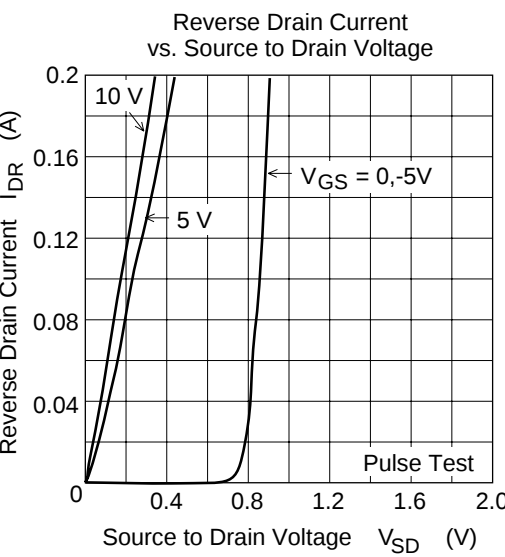
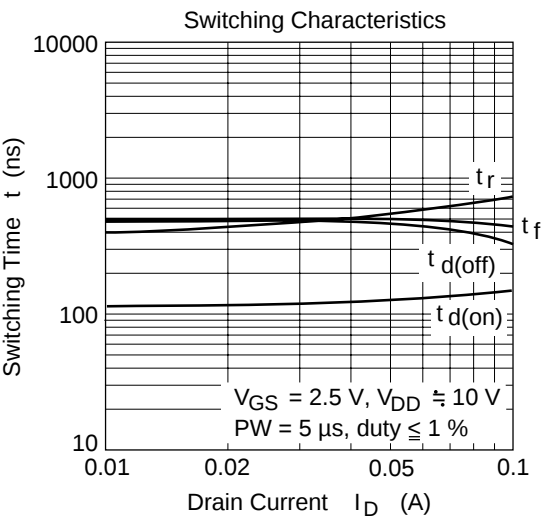
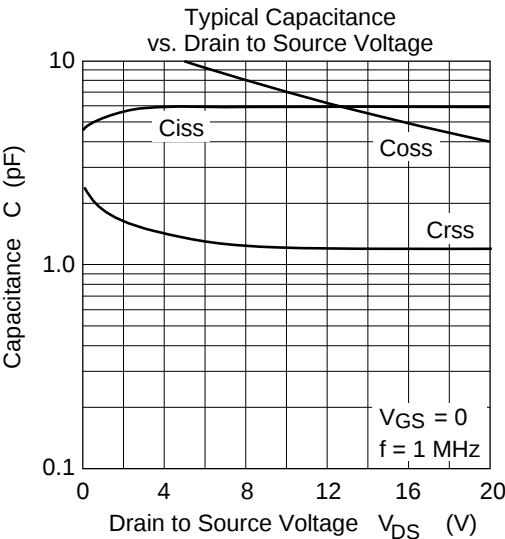
*Value on the alumina ceramic board.(12.5x20x0.7mm)



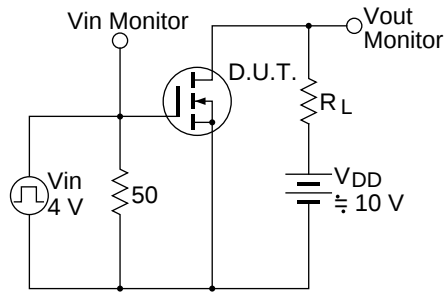
Value on the alumina ceramic board.(12.5x20x0.7mm)



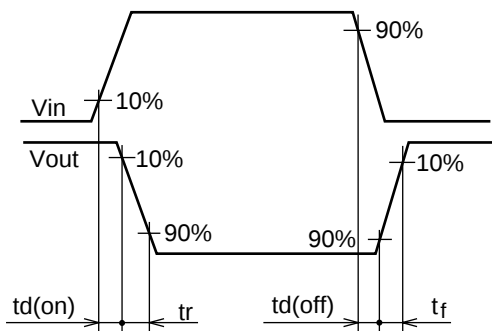




Switching Time Test Circuit

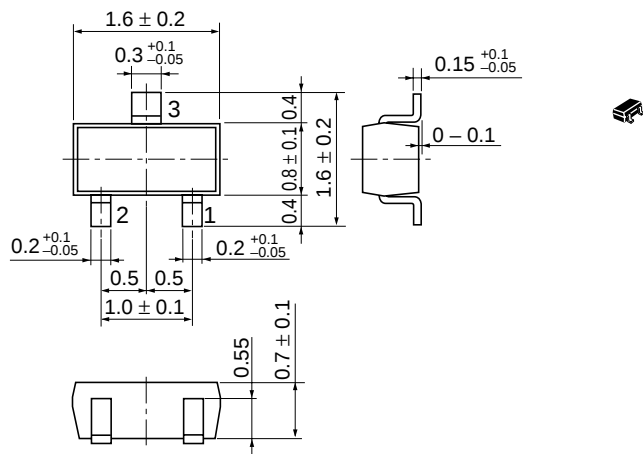


Waveforms



Package Dimensions

As of January, 2001
Unit: mm



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

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