

2SK3290

Silicon N Channel MOS FET
High Speed Switching

HITACHI

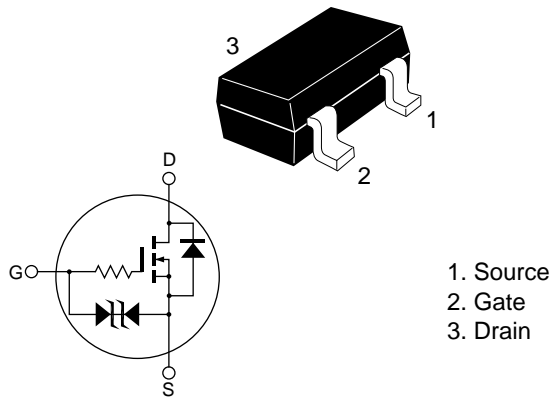
ADE-208-744 C (Z)
4th.Edition.
June 1999

Features

- Low on-resistance
 $R_{DS} = 0.455 \Omega$ typ. ($V_{GS} = 10 \text{ V}$, $I_D = 250 \text{ mA}$)
 $R_{DS} = 0.9 \Omega$ typ. ($V_{GS} = 4 \text{ V}$, $I_D = 100 \text{ mA}$)
- 4 V gate drive device.
- Small package (MPAK)

Outline

MPAK



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	30	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	500	mA
Drain peak current	$I_{D(pulse)}$ ^{Note 1}	2	A
Body-drain diode reverse drain current	I_{DR}	500	mA
Channel dissipation	Pch ^{Note 2}	400	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 (12.5x20x0.7mm)

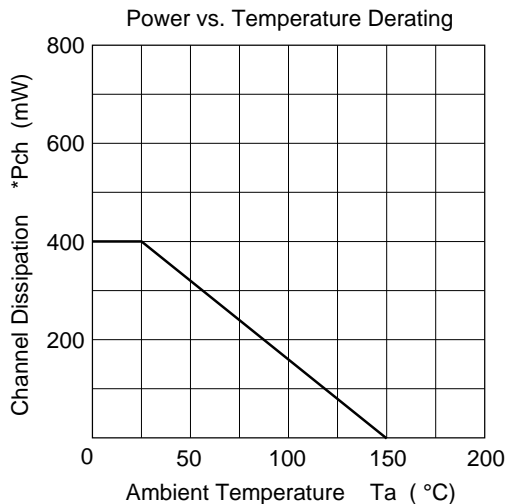
Electrical Characteristics (Ta = 25°C)

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	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100 \mu A, V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±5	μA	$V_{GS} = \pm 16 V, V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-1	μA	$V_{DS} = 30 V, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.3	—	2.3	V	$I_D = 10 \mu A, V_{DS} = 5 V$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.455	0.525	Ω	$I_D = 250 mA, V_{GS} = 10 V$ ^{Note 3}
	$R_{DS(on)}$	—	0.9	1.25	Ω	$I_D = 100 mA, V_{GS} = 4 V$ ^{Note 3}
Forward transfer admittance	$ y_{fs} $	350	540	—	mS	$I_D = 250 mA, V_{DS} = 10 V$ ^{Note 3}
Input capacitance	Ciss	—	5	—	pF	$V_{DS} = 10 V$
Output capacitance	Coss	—	30	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	—	2	—	pF	f = 1 MHz
Turn-on delay time	$t_{d(on)}$	—	240	—	ns	$I_D = 250 mA, V_{GS} = 10 V$
Rise time	t_r	—	1700	—	ns	$R_L = 40 \Omega$
Turn-off delay time	$t_{d(off)}$	—	850	—	ns	
Fall time	t_f	—	1300	—	ns	

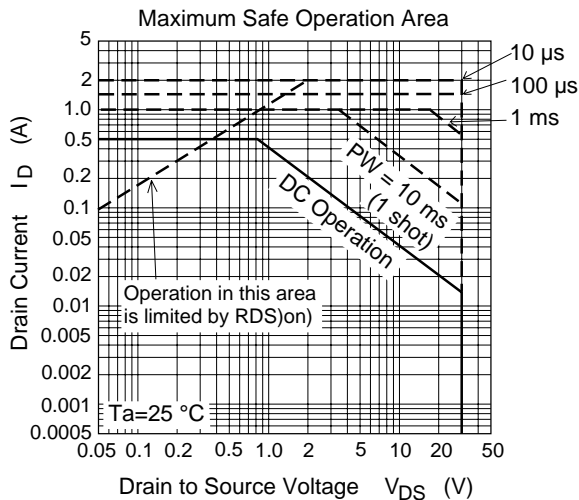
Note: 3. Pulse test

4. Marking is BN

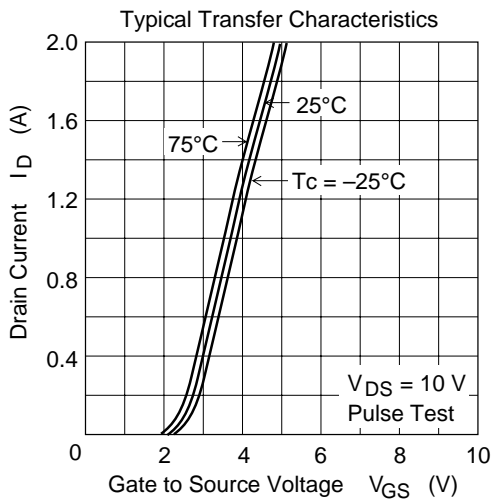
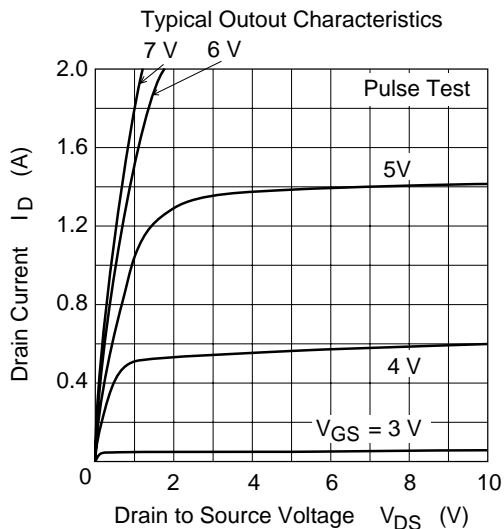
Main Characteristics

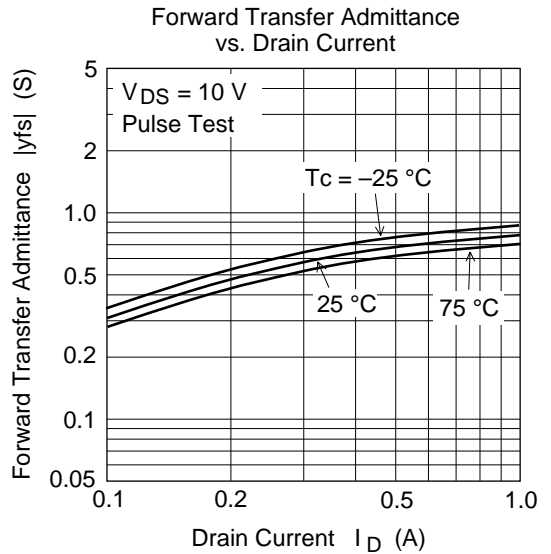
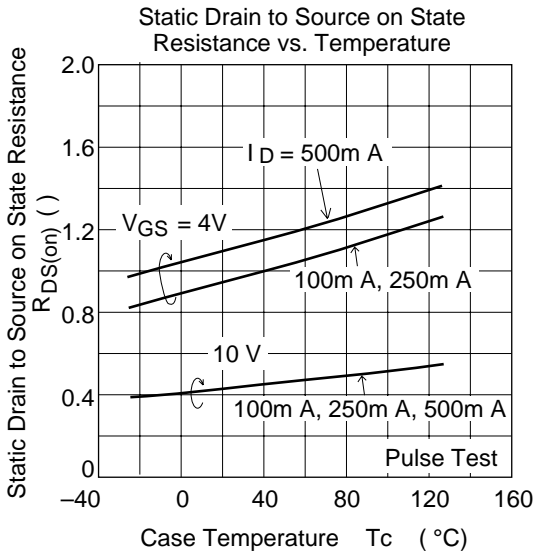
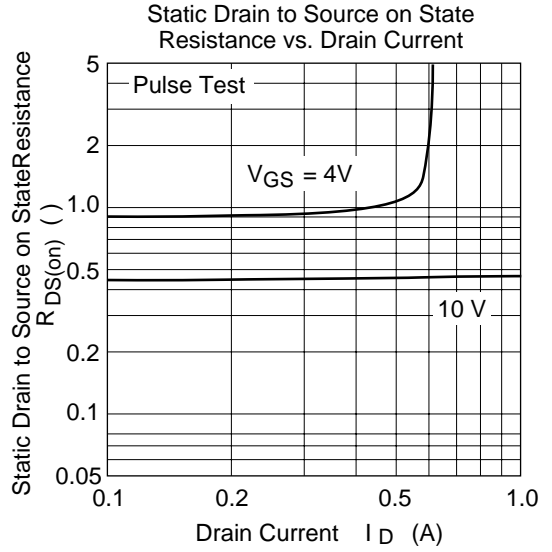
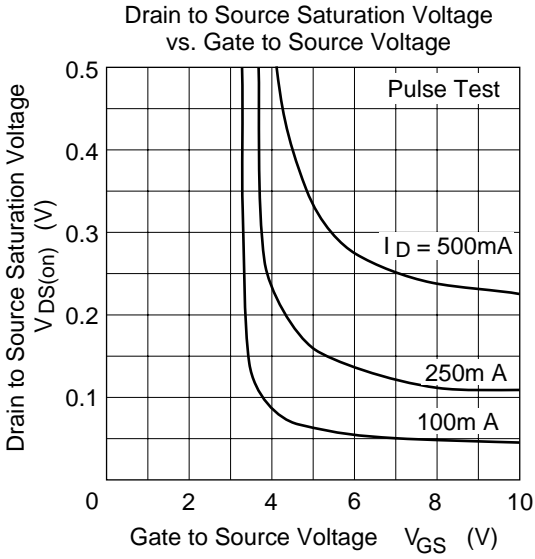


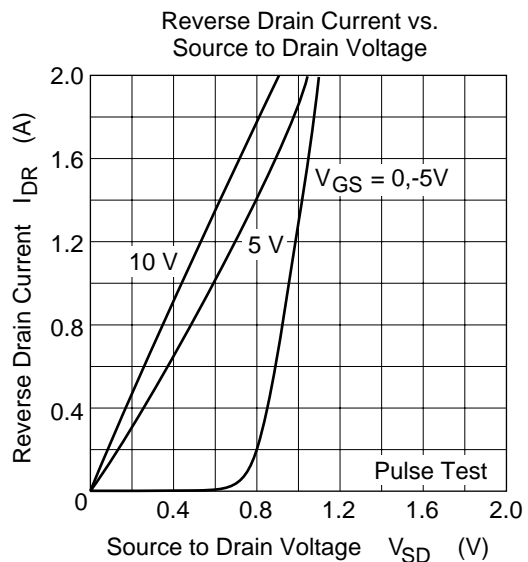
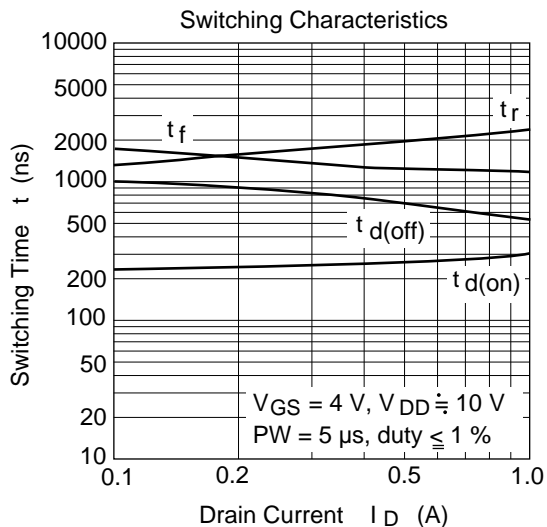
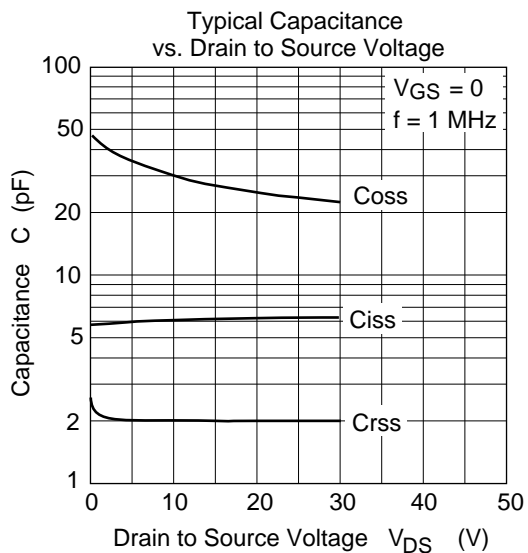
*Value on the alumina ceramic board (12.5x20x0.7mm)



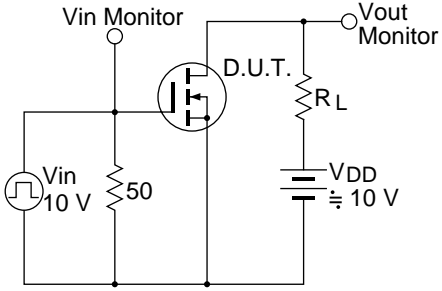
Value on the alumina ceramic board.(12.5x20x0.7mm)



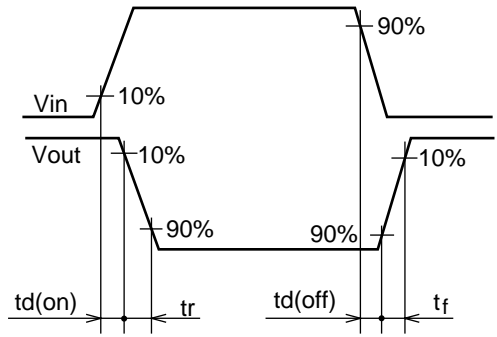




Switching Time Test Circuit

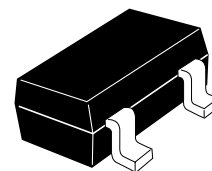
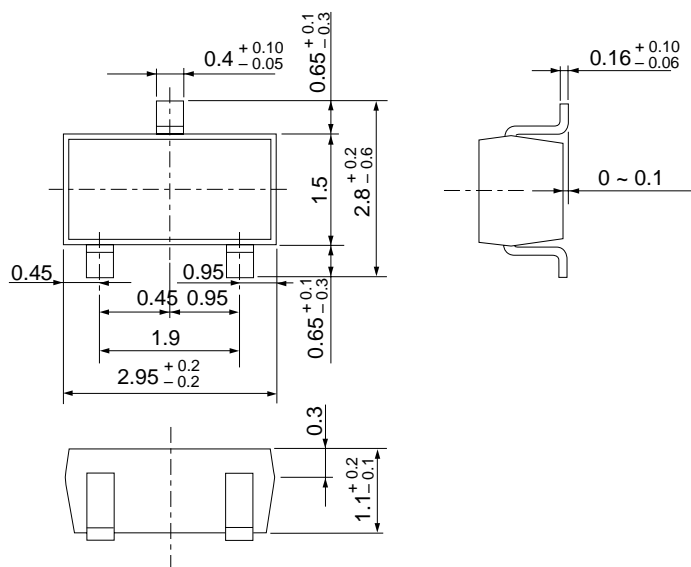


Waveforms



Package Dimensions

Unit: mm



Hitachi Code	MPAK
EIAJ	SC-59
JEDEC	TO-236Mod.

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