

# 2SK2225

Silicon N-Channel MOS FET

# HITACHI

ADE-208-140  
1st. Edition

## Application

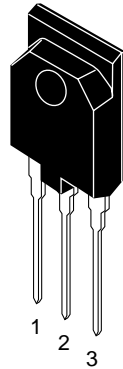
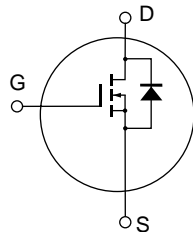
High speed power switching

## Features

- High breakdown voltage ( $V_{DSS} = 1500\text{ V}$ )
- High speed switching
- Low drive current
- No Secondary Breakdown
- Suitable for Switching regulator, DC-DC converter

## Outline

TO-3PFM



1. Gate
2. Drain
3. Source

## Absolute Maximum Ratings (Ta = 25°C)

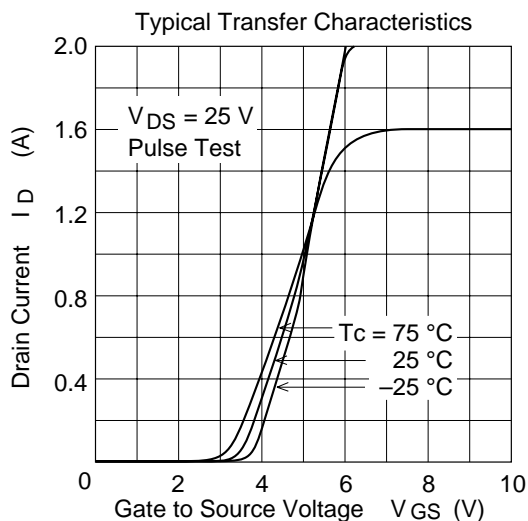
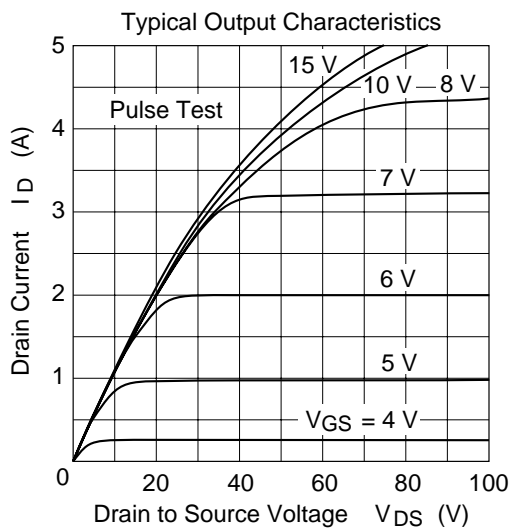
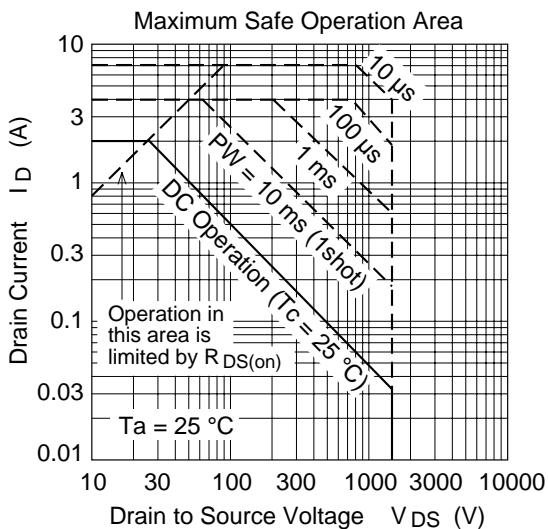
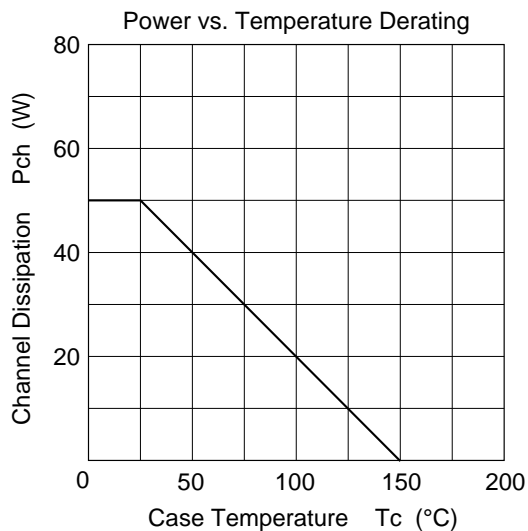
Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	1500	V
Gate to source voltage	$V_{GSS}$	±20	V
Drain current	$I_D$	2	A
Drain peak current	$I_{D(pulse)}^{*1}$	7	A
Body to drain diode reverse drain current	$I_{DR}$	2	A
Channel dissipation	$Pch^{*2}$	50	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Notes 1.  $PW \leq 10 \mu s$ , duty cycle  $\leq 1\%$   
 2. Value at  $T_c = 25^\circ C$

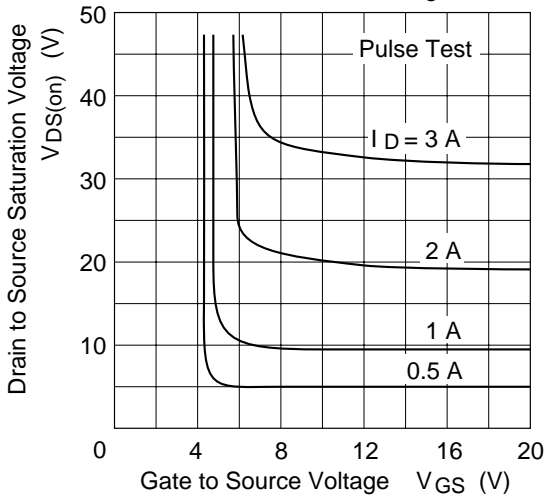
## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	1500	—	—	V	$I_D = 10 \text{ mA}$ , $V_{GS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	±1	μA	$V_{GS} = \pm 20 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	500	μA	$V_{DS} = 1200 \text{ V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	4.0	V	$I_D = 1 \text{ mA}$ , $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	9	12	Ω	$I_D = 1 \text{ A}$ $V_{GS} = 15 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	0.45	0.75	—	S	$I_D = 1 \text{ A}$ $V_{DS} = 20 \text{ V}^{*1}$
Input capacitance	Ciss	—	990	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	Coss	—	125	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	—	60	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	17	—	ns	$I_D = 1 \text{ A}$
Rise time	$t_r$	—	50	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	150	—	ns	$R_L = 30 \Omega$
Fall time	$t_f$	—	50	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.9	—	V	$I_F = 2 \text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	1750	—	ns	$I_F = 20 \text{ A}$ , $V_{GS} = 0$ , $di_F / dt = 100 \text{ A} / \mu s$

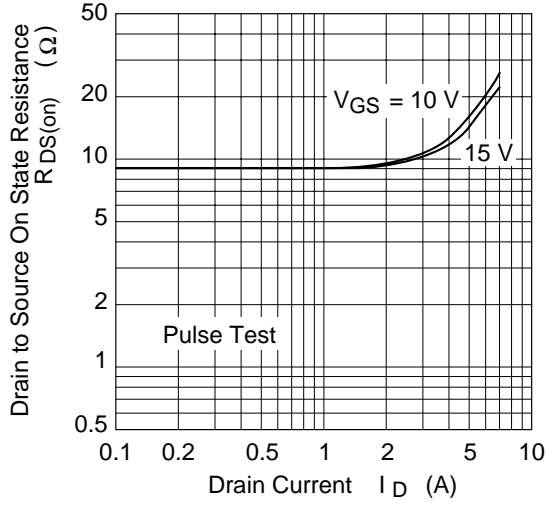
Note 1. Pulse Test



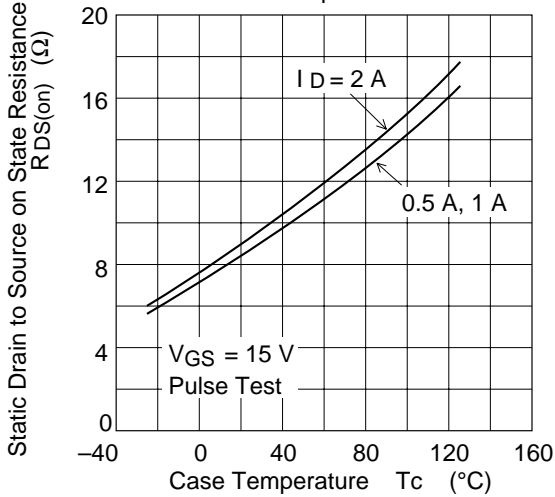
Drain to Source Saturation Voltage vs. Gate to Source Voltage



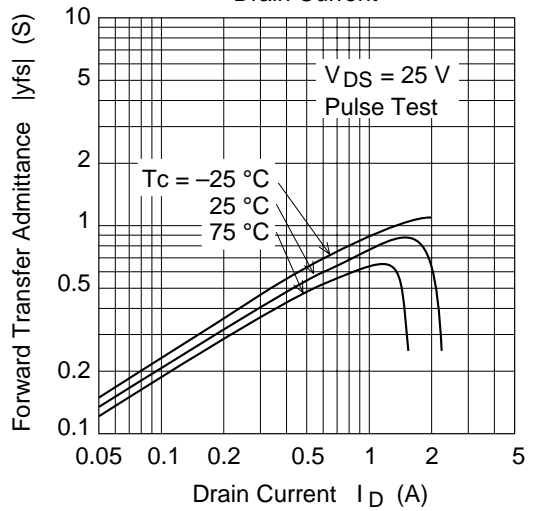
Static Drain to Source State Resistance vs. Drain Current

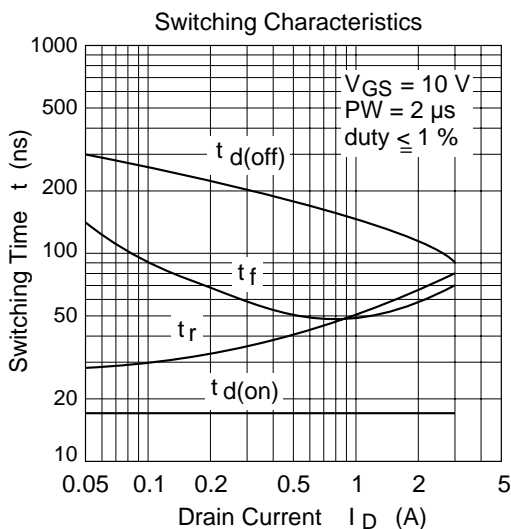
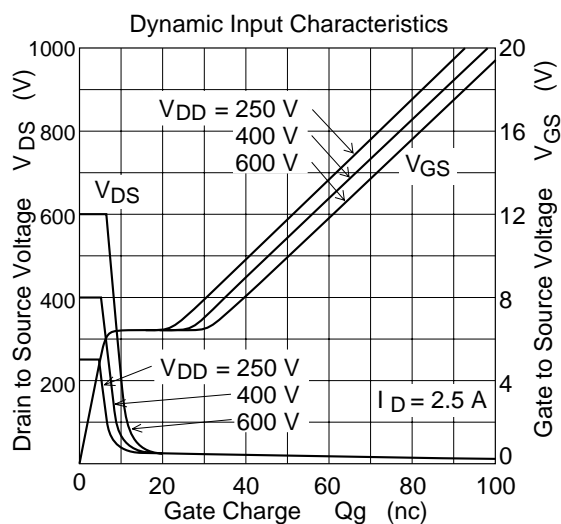
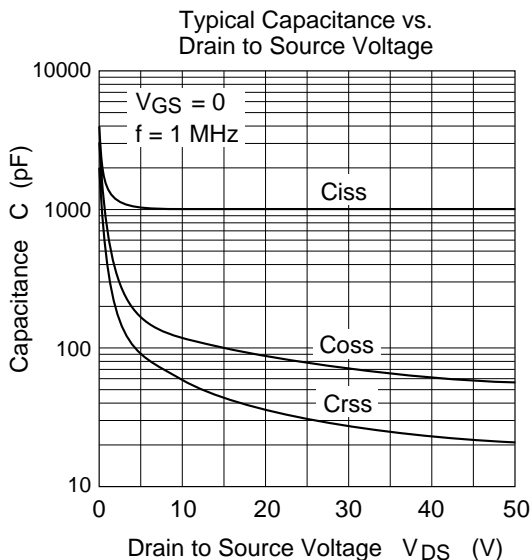
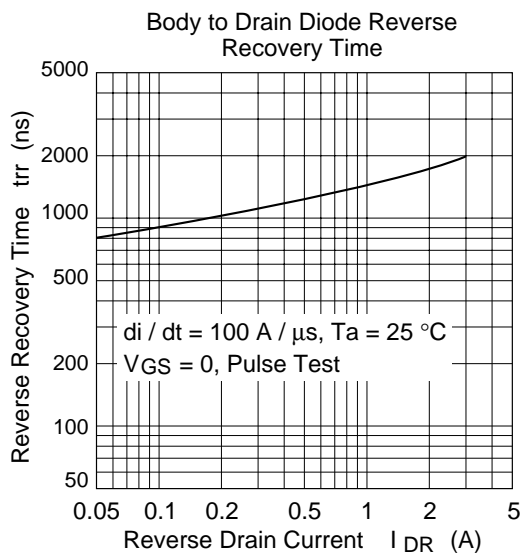


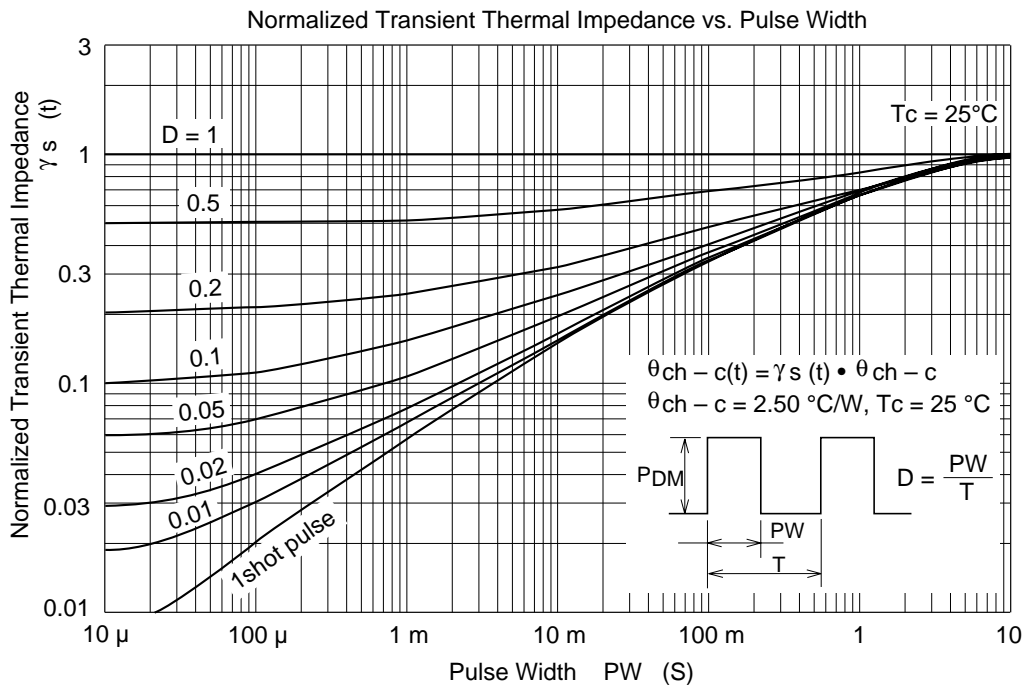
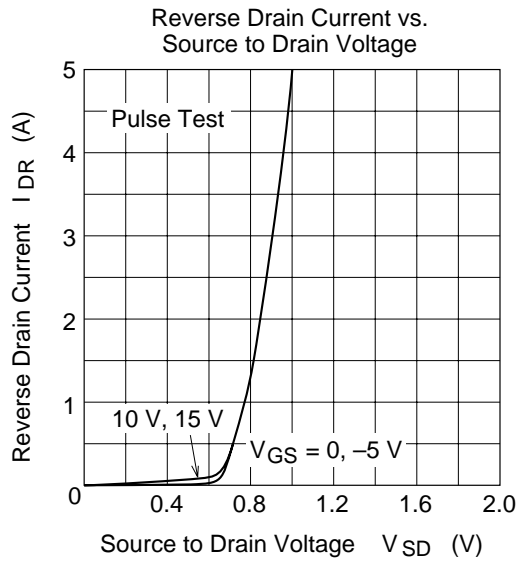
Static Drain to Source on State Resistance vs. Temperature



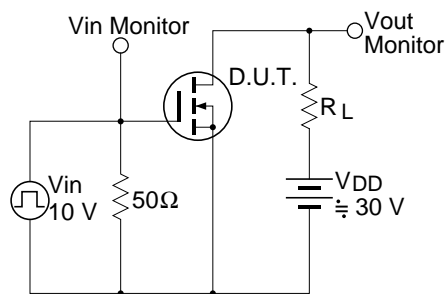
Forward Transfer Admittance vs. Drain Current



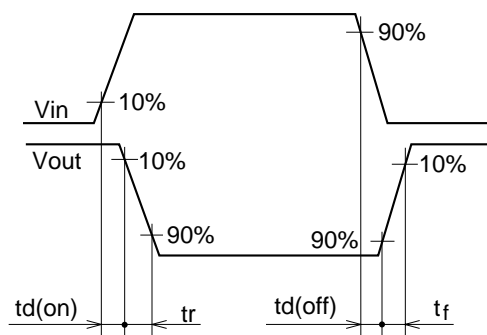


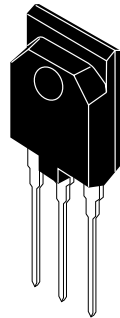
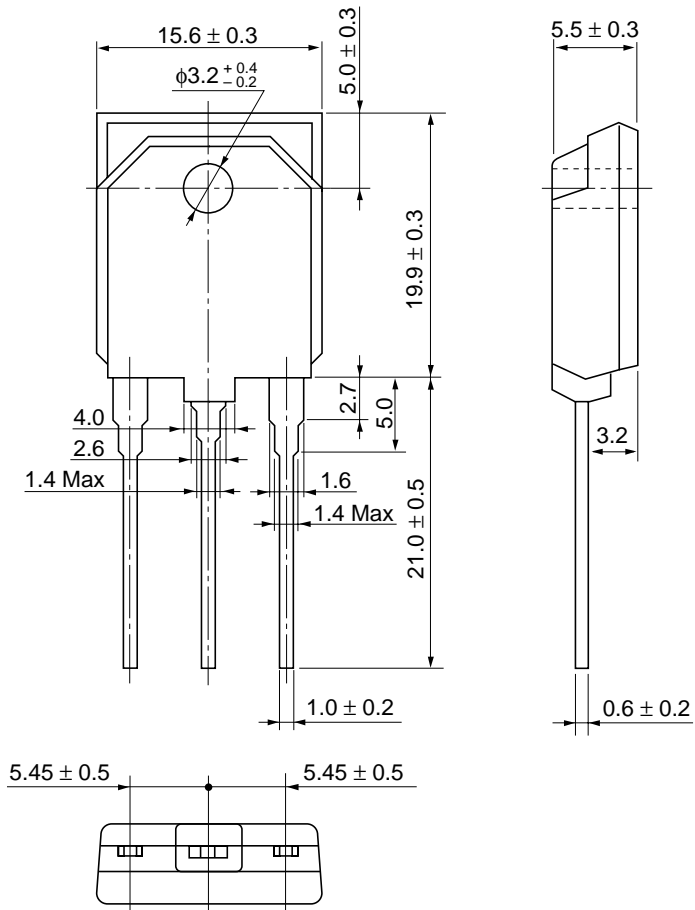


Switching Time Test Circuit



Waveform





Hitachi Code	TO-3PFM
JEDEC	—
EIAJ	—
Weight (reference value)	5.6 g



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