

## 2SK2225

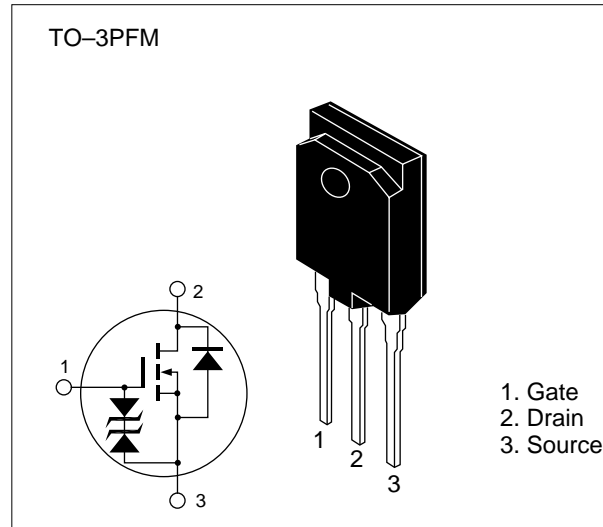
### Silicon N Channel MOS FET

#### 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



**Table 1 Absolute Maximum Ratings** ( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	1500	V
Gate to source voltage	$V_{GSS}$	$\pm 20$	V
Drain current	$I_D$	2	A
Drain peak current	$I_{D(\text{pulse})}^*$	7	A
Body–drain diode reverse drain current	$I_{DR}$	2	A
Channel dissipation	$P_{ch}^{**}$	50	W
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	$-55$ to $+150$	$^\circ\text{C}$

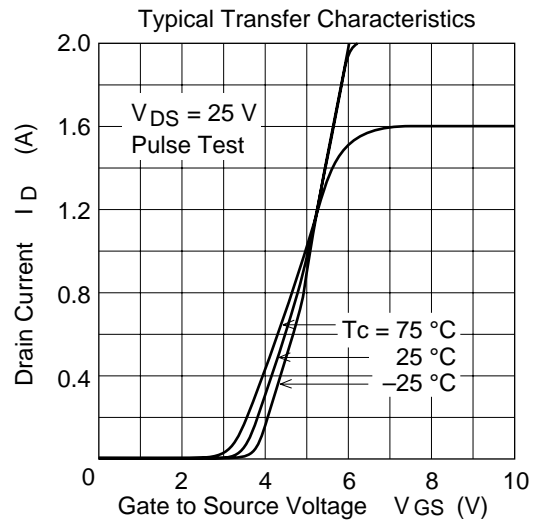
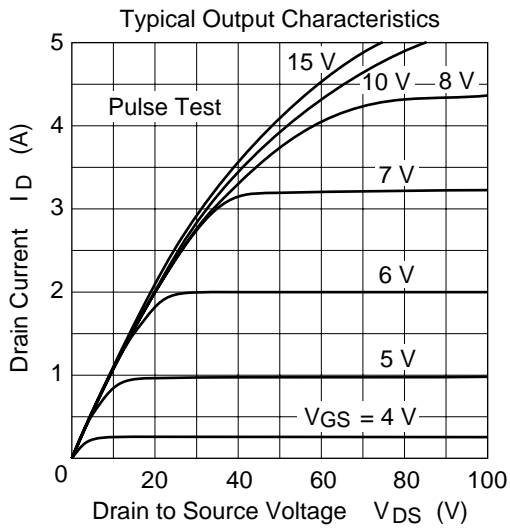
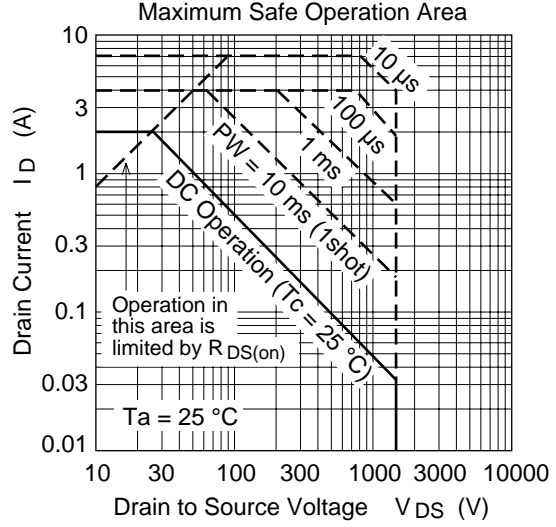
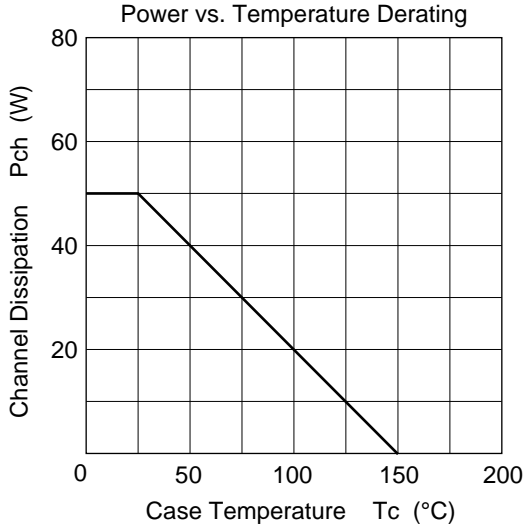
\*  $PW \leq 10\ \mu\text{s}$ , duty cycle  $\leq 1\ \%$

\*\* Value at  $T_c = 25\ ^\circ\text{C}$

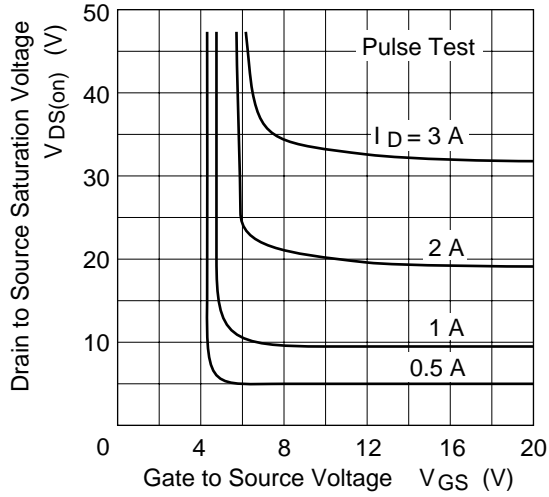
**Table 2 Electrical Characteristics** (Ta = 25°C)

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	$I_{GSS}$	—	—	$\pm 1$	$\mu\text{A}$	$V_{GS} = \pm 20 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	500	$\mu\text{A}$	$V_{DS} = 1200 \text{ V}$ , $V_{GS} = 0$
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	$\Omega$	$I_D = 1 \text{ A}$ $V_{GS} = 15 \text{ V}^*$
Forward transfer admittance	$ y_{fs} $	0.45	0.75	—	S	$I_D = 1 \text{ A}$ $V_{DS} = 20 \text{ V}^*$
Input capacitance	$C_{iss}$	—	990	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	$C_{oss}$	—	125	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	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-drain diode forward voltage	$V_{DF}$	—	0.9	—	V	$I_F = 2 \text{ A}$ , $V_{GS} = 0$
Body-drain diode reverse recovery time	$t_{rr}$	—	1750	—	ns	$I_F = 20 \text{ A}$ , $V_{GS} = 0$ , $di_F / dt = 100 \text{ A} / \mu\text{s}$

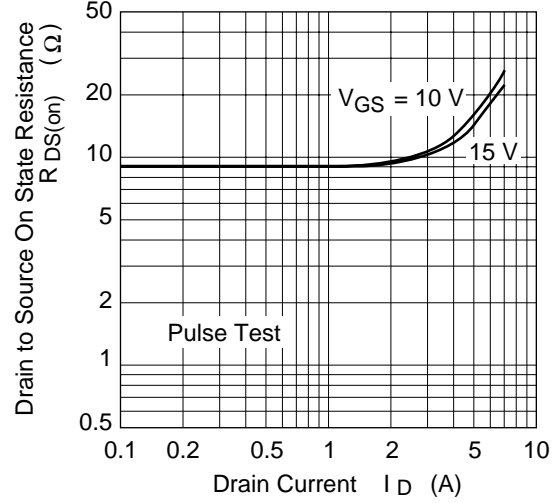
\* Pulse Test



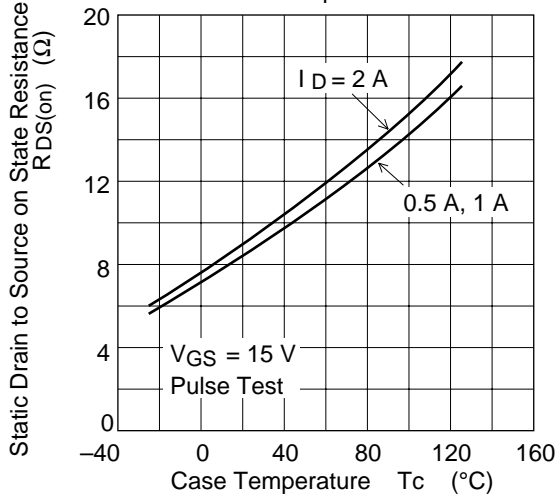
Drain to Source Saturation Voltage vs. Gate to Source Voltage



Static Drain to Source State Resistance vs. Drain Current



Static Drain to Source on State Resistance vs. Temperature



Forward Transfer Admittance vs. Drain Current

