

## 2SK2495

## Silicon N-Channel Power F-MOS FET

## ■ Features

- Avalanche energy capacity guaranteed
- High-speed switching
- No secondary breakdown

## ■ Applications

- High-speed switching (switching power supply)
- For high-frequency power amplification

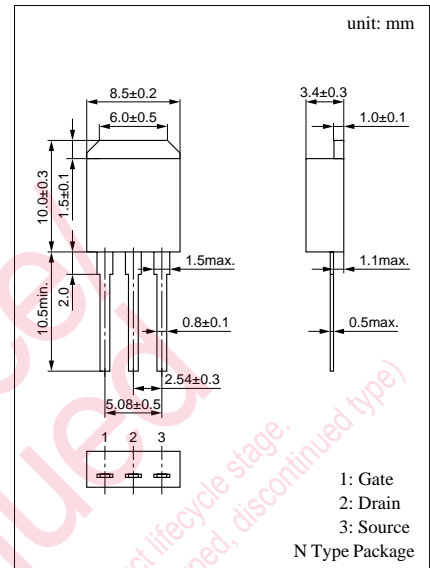
■ Absolute Maximum Ratings ( $T_C = 25^\circ\text{C}$ )

Parameter	Symbol	Ratings	Unit
Drain to Source breakdown voltage	$V_{\text{DSS}}$	250	V
Gate to Source voltage	$V_{\text{GSS}}$	$\pm 30$	V
Drain current	DC	$I_{\text{D}}$	$\pm 2$ A
	Pulse	$I_{\text{DP}}$	$\pm 4$ A
Avalanche energy capacity	EAS*	10	mJ
Allowable power dissipation	$T_C = 25^\circ\text{C}$	$P_{\text{D}}$	30 W
	$T_a = 25^\circ\text{C}$		1.3
Channel temperature	$T_{\text{ch}}$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

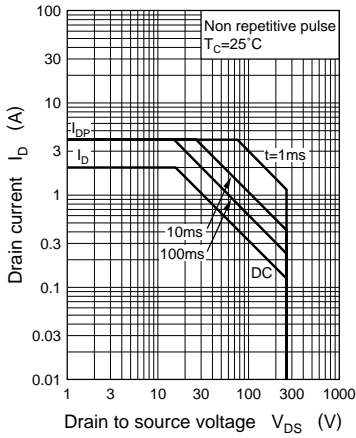
\*  $L = 5\text{mH}$ ,  $I_L = 2\text{A}$ ,  $V_{\text{DD}} = 30\text{V}$ , 1 pulse

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

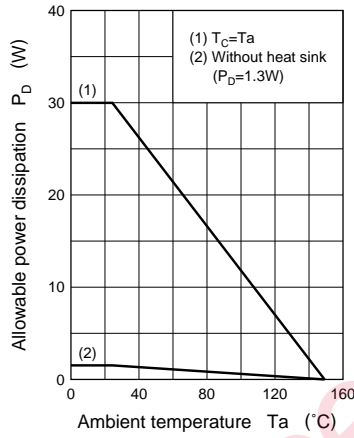
Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	$I_{\text{DSS}}$	$V_{\text{DS}} = 200\text{V}$ , $V_{\text{GS}} = 0$			100	$\mu\text{A}$
Gate to Source leakage current	$I_{\text{GSS}}$	$V_{\text{GS}} = \pm 30\text{V}$ , $V_{\text{DS}} = 0$			$\pm 1$	$\mu\text{A}$
Drain to Source breakdown voltage	$V_{\text{DSS}}$	$I_{\text{D}} = 1\text{mA}$ , $V_{\text{GS}} = 0$	250			V
Gate threshold voltage	$V_{\text{th}}$	$V_{\text{DS}} = 10\text{V}$ , $I_{\text{D}} = 1\text{mA}$	1		5	V
Drain to Source ON-resistance	$R_{\text{DS(on)}}$	$V_{\text{GS}} = 10\text{V}$ , $I_{\text{D}} = 1\text{A}$		1.2	2	$\Omega$
Forward transfer admittance	$ Y_{\text{fs}} $	$V_{\text{DS}} = 25\text{V}$ , $I_{\text{D}} = 1\text{A}$	0.5	1		S
Diode forward voltage	$V_{\text{DSF}}$	$I_{\text{DR}} = 2\text{A}$ , $V_{\text{GS}} = 0$			-1.6	V
Input capacitance (Common Source)	$C_{\text{iss}}$	$V_{\text{DS}} = 10\text{V}$ , $V_{\text{GS}} = 0$ , $f = 1\text{MHz}$		220		pF
Output capacitance (Common Source)	$C_{\text{oss}}$			60		pF
Reverse transfer capacitance (Common Source)	$C_{\text{rss}}$			20		pF
Turn-on time (delay time)	$t_{\text{d(on)}}$	$V_{\text{DD}} = 200\text{V}$ , $I_{\text{D}} = 2\text{A}$ $V_{\text{GS}} = 10\text{V}$ , $R_{\text{L}} = 100\Omega$		10		ns
Rise time	$t_{\text{r}}$			20		ns
Fall time	$t_{\text{f}}$			45		ns
Turn-off time (delay time)	$t_{\text{d(off)}}$			90		ns
Thermal resistance between channel and case	$R_{\text{th(ch-c)}}$				4.17	$^\circ\text{C/W}$
Thermal resistance between channel and atmosphere	$R_{\text{th(ch-a)}}$				96.2	$^\circ\text{C/W}$



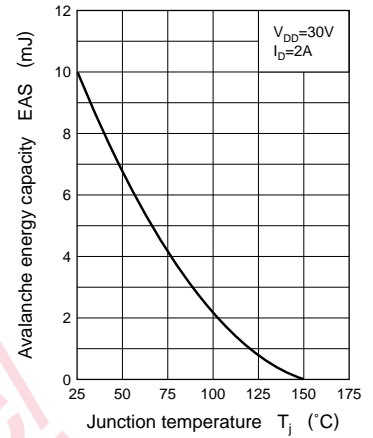
Area of safe operation (ASO)



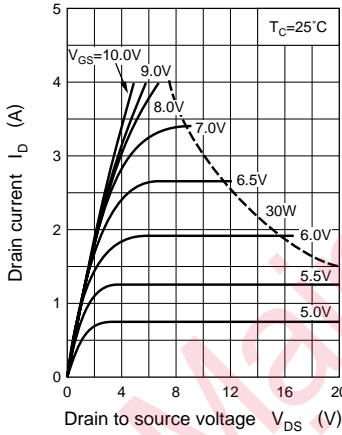
$P_D - T_a$



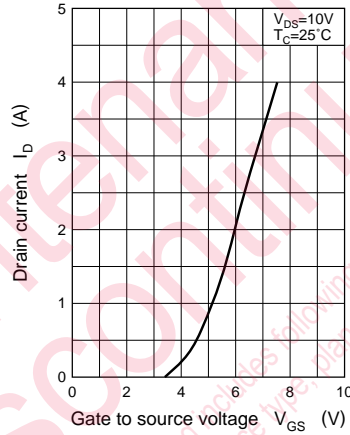
EAS —  $T_j$



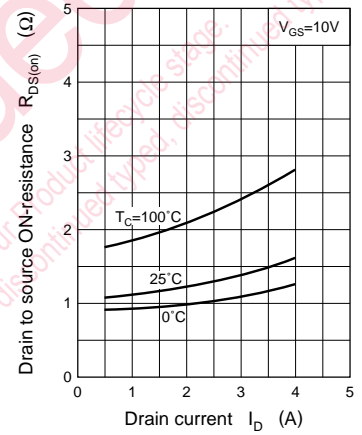
$I_D - V_{DS}$



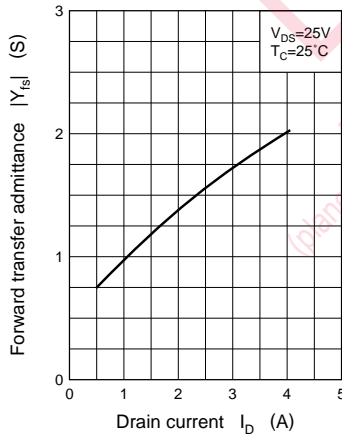
$I_D - V_{GS}$



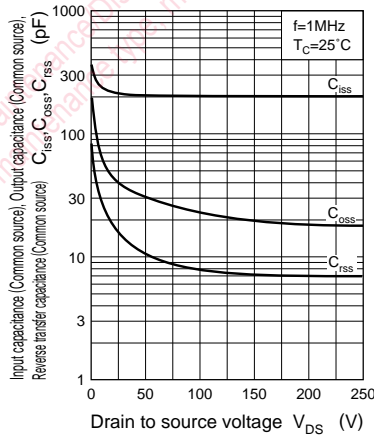
$R_{DS(on)} - I_D$



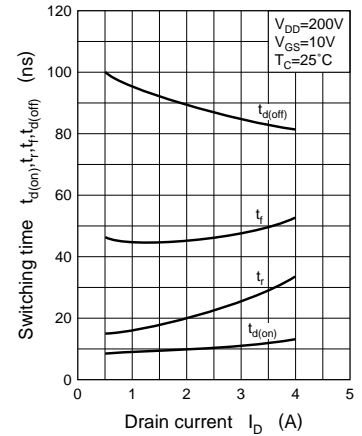
$|Y_{fs}| - I_D$



$C_{iss}, C_{oss}, C_{rss} - V_{DS}$



$t_{d(on)}, t_r, t_f, t_{d(off)} - I_D$



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