

2SK1610

Silicon N-Channel Power F-MOS FET

■ Features

- High avalanche energy capacity
- V_{GS} : 30V guaranteed
- Low $R_{DS(on)}$, high-speed switching characteristic

■ Applications

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

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

Parameter	Symbol	Rated	Unit
Drain to Source breakdown voltage	V_{DSS}	500	V
Gate to Source voltage	V_{GSS}	± 30	V
Drain current	DC	I_D	± 13 A
	Pulse	I_{DP}	± 26 A
Avalanche energy capacity	EAS*	170	mJ
Allowable power dissipation	$T_C = 25^\circ\text{C}$	P_D	120 W
	$T_a = 25^\circ\text{C}$		2.5 W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

* Single pulse

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

Parameter	Symbol	Conditions	min	typ	max	Unit	
Drain to Source cut-off current	I_{DSS}	$V_{DS} = 400\text{V}, V_{GS} = 0$			0.1	mA	
Gate to Source leakage current	I_{GSS}	$V_{GS} = \pm 30\text{V}, V_{DS} = 0$			± 1	μA	
Drain to Source breakdown voltage	V_{DSS}	$I_D = 1\text{mA}, V_{GS} = 0$	500			V	
Avalanche energy capacity	EAS*	$L = 2\text{mH}, I_D = 13\text{A}, V_{DD} = 50\text{V}$	170			mJ	
Gate threshold voltage	V_{th}	$V_{DS} = 25\text{V}, I_D = 1\text{mA}$	1		5	V	
Drain to Source ON-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 7\text{A}$		0.45	0.6	Ω	
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25\text{V}, I_D = 7\text{A}$	5	8		S	
Input capacitance (Common Source)	C_{iss}	$V_{DS} = 20\text{V}, V_{GS} = 0, f = 1\text{MHz}$		1700		pF	
Output capacitance (Common Source)	C_{oss}				300		pF
Reverse transfer capacitance (Common Source)	C_{rss}				120		pF
Turn-on time	t_{on}	$V_{GS} = 10\text{V}, I_D = 7\text{A}$ $V_{DD} = 150\text{V}, R_L = 21.4\Omega$		100		ns	
Fall time	t_f				90		ns
Turn-off time (delay time)	$t_{d(off)}$				210		ns

* Avalanche energy capacity test circuit



