

2SK1478

Silicon N-Channel Power F-MOS FET

■ Features

- Low ON-resistance $R_{DS(on)}$: $R_{DS(on)} = 0.4\Omega$ (typ.)
- High-speed switching: $t_f = 44\text{ns}$ (typ.)
- No secondary breakdown
- High breakdown voltage, large allowable power dissipation

■ Applications

- Contactless relay
- Diving circuit for a solenoid
- Driving circuit for a motor
- Control equipment
- Switching power supply

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

Parameter	Symbol	Ratings	Unit	
Drain to Source breakdown voltage	V_{DSS}	250	V	
Gate to Source voltage	V_{GSS}	± 20	V	
Drain current	DC	I_D	± 8	A
	Pulse	I_{DP}	± 16	A
Allowable power dissipation	$T_C = 25^\circ\text{C}$	P_D	40	W
	$T_a = 25^\circ\text{C}$		2	
Channel temperature	T_{ch}	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	

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

Parameter	Symbol	Conditions	min	typ	max	Unit	
Drain to Source cut-off current	I_{DSS}	$V_{DS} = 200\text{V}, V_{GS} = 0$			0.1	mA	
Gate to Source leakage current	I_{GSS}	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$			± 1	μA	
Drain to Source breakdown voltage	V_{DSS}	$I_D = 1\text{mA}, V_{GS} = 0$	250			V	
Gate threshold voltage	V_{th}	$V_{DS} = 25\text{V}, I_D = 1\text{mA}$	1		5	V	
Drain to Source ON-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 5\text{A}$		0.4	0.6	Ω	
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25\text{V}, I_D = 5\text{A}$	2.7	4.7		S	
Input capacitance (Common Source)	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$		1100		pF	
Output capacitance (Common Source)	C_{oss}				200		pF
Reverse transfer capacitance (Common Source)	C_{rss}				60		pF
Turn-on time	t_{on}	$V_{GS} = 10\text{V}, I_D = 5\text{A}$ $V_{DD} = 100\text{V}, R_L = 20\Omega$		72		ns	
Fall time	t_f				44		ns
Turn-off time (delay time)	$t_{d(off)}$				136		ns



