

MOS Field Effect Transistor

2SK3713

■ Features

- Super high $V_{GS(off)}$: $V_{GS(off)} = 3.8$ to 5.8 V
- Low C_{rss} : $C_{rss} = 6.5$ pF TYP.
- Low Q_G : $Q_G = 25$ nC TYP.
- Low on-state resistance:
 $R_{DS(on)} = 0.83 \Omega$ MAX. ($V_{GS} = 10$ V, $I_D = 5$ A)



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain to source voltage	V_{DS}	600	V
Gate to source voltage	V_{GS}	± 30	V
Drain current	I_D	± 10	A
	I_{DP}^*	± 35	A
Power dissipation	P_D	$T_A=25^\circ\text{C}$	1.5
		$T_C=25^\circ\text{C}$	100
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 $\leq 1\%$

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit	
Drain cut-off current	I_{DSS}	$V_{DS}=600\text{V}, V_{GS}=0$			10	μA	
Gate leakage current	I_{GSS}	$V_{GS} = \pm 30\text{V}, V_{DS}=0$			± 100	nA	
Gate cut off voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	3.8	4.8	5.8	V	
Forward transfer admittance	$ Y_{fs} $	$V_{DS}=10\text{V}, I_D=5\text{A}$	2.5	4.6		S	
Drain to source on-state resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=5\text{A}$		0.68	0.83	Ω	
Input capacitance	C_{iss}	$V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$		1460		pF	
Output capacitance	C_{oss}				250		pF
Reverse transfer capacitance	C_{rss}				6.5		pF
Turn-on delay time	t_{on}				26		ns
Rise time	t_r	$I_D=5\text{A}, V_{GS(on)}=10\text{V}, R_G=0 \Omega, V_{DD}=150\text{V}$		8.5		ns	
Turn-off delay time	t_{off}				30		ns
Fall time	t_f				5.2		ns
Total Gate Charge	Q_G	$V_{DD} = 450\text{V}$		25		nC	
Gate to Source Charge	Q_{GS}	$V_{GS} = 10$ V		12		nC	
Gate to Drain Charge	Q_{GD}	$I_D = 10\text{A}$		9		nC	