

MOS Field Effect Transistor

2SK3740

■ Features

- Gate voltage rating: ± 30 V
- Low on-state resistance
 $R_{DS(on)} = 160$ m Ω MAX. ($V_{GS} = 10$ V, $I_D = 10$ A)
- Low gate charge
 $Q_G = 47$ nC TYP. ($V_{DD} = 200$ V, $V_{GS} = 10$ V, $I_D = 20$ A)
- Surface mount package available



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

Parameter	Symbol	Rating	Unit	
Drain to source voltage	V_{DS}	250	V	
Gate to source voltage	V_{GS}	± 30	V	
Drain current	I_D	± 20	A	
	I_{DP}^*	± 60	A	
Power dissipation	P_D	$T_A=25^\circ\text{C}$	1.5	W
		$T_C=25^\circ\text{C}$	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	Testconditions	Min	Typ	Max	Unit	
Drain cut-off current	I_{DSS}	$V_{DS}=250\text{V}, V_{GS}=0$			10	μA	
Gate leakage current	I_{GSS}	$V_{GS}=\pm 30\text{V}, V_{DS}=0$			± 10	μA	
Gate cut off voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	2.5	3.5	4.5	V	
Forward transfer admittance	$ Y_{fs} $	$V_{DS}=10\text{V}, I_D=10\text{A}$	7.0	15		S	
Drain to source on-state resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=10\text{A}$		0.12	0.16	Ω	
Input capacitance	C_{iss}	$V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$		1720		pF	
Output capacitance	C_{oss}				330		pF
Reverse transfer capacitance	C_{rss}				170		pF
Turn-on delay time	t_{on}	$I_D=10\text{A}, V_{GS(on)}=10\text{V}, R_G=0\Omega, V_{DD}=125\text{V}$		17		ns	
Rise time	t_r				17		ns
Turn-off delay time	t_{off}				49		ns
Fall time	t_f				9		ns
Total Gate Charge	Q_G	$V_{DD} = 200\text{V}$ $V_{GS} = 10\text{V}$ $I_D = 20\text{A}$		47		nC	
Gate to Source Charge	Q_{GS}				7		nC
Gate to Drain Charge	Q_{GD}				25		nC