

MOS Field Effect Transistor

2SK3814

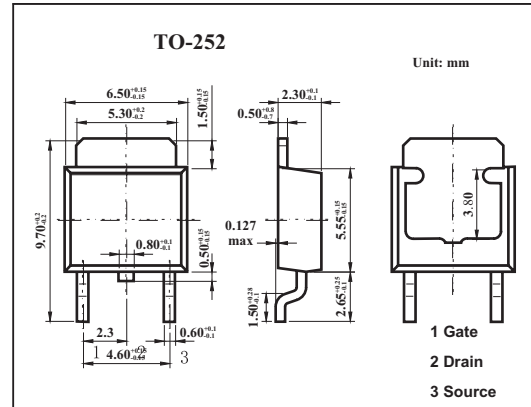
■ Features

- Low On-state resistance

$R_{DS(on)1} = 8.7\text{m}\Omega$ MAX. ($V_{GS} = 10\text{V}$, $I_D = 30\text{A}$)

$R_{DS(on)2} = 10.5\text{m}\Omega$ MAX. ($V_{GS} = 4.5\text{V}$, $I_D = 30\text{A}$)

- Low C_{iss} : $C_{iss} = 5450\text{pF}$ TYP.



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

Parameter	Symbol	Rating	Unit	
Drain to source voltage	V_{DS}	60	V	
Gate to source voltage	V_{GS}	± 20	V	
Drain current	I_D	± 60	A	
	I_{dp}^*	± 240	A	
Power dissipation	P_D	$T_A=25^\circ\text{C}$	1.0	W
		$T_c=25^\circ\text{C}$	84	
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}	$V_{DS}=60\text{V}, V_{GS}=0$			10	μA
Gate leakage current	I_{GSS}	$V_{GS}=\pm 20\text{V}, V_{DS}=0$			± 100	nA
Gate cut off voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	1.5	2.0	2.5	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS}=10\text{V}, I_D=30\text{A}$	21	44		S
Drain to source on-state resistance	$R_{DS(on)1}$	$V_{GS}=10\text{V}, I_D=30\text{A}$		7.0	8.7	m Ω
	$R_{DS(on)2}$	$V_{GS}=4.5\text{V}, I_D=30\text{A}$		7.9	10.5	m Ω
Input capacitance	C_{iss}	$V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$		5450		pF
Output capacitance	C_{oss}			550		pF
Reverse transfer capacitance	C_{rss}			350		pF
Turn-on delay time	t_{on}			23		ns
Rise time	t_r	$I_D=30\text{A}, V_{GS(on)}=10\text{V}, R_G=0\ \Omega, V_{DD}=30\text{V}$		8.5		ns
Turn-off delay time	t_{off}			85		ns
Fall time	t_f			7.7		ns
Total Gate Charge	Q_G	$V_{DD} = 48\text{V}$		95		nC
Gate to Source Charge	Q_{GS}	$V_{GS} = 10\text{V}$		17		nC
Gate to Drain Charge	Q_{GD}	$I_D = 60\text{A}$		26		nC