

MOS Field Effect Transistor

2SK3900

■ Features

- Low On-state resistance
 $R_{DS(on)1} = 8.0\text{m}\Omega$ MAX. ($V_{GS} = 10\text{V}$, $I_D = 41\text{A}$)
 $R_{DS(on)2} = 10\text{m}\Omega$ MAX. ($V_{GS} = 4.5\text{V}$, $I_D = 41\text{A}$)
- Low C_{iss} : $C_{iss} = 3500\text{pF}$ TYP.



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

Parameter	Symbol	Rating	Unit	
Drain to source voltage	V_{DSS}	60	V	
Gate to source voltage	V_{GSS}	± 20	V	
Drain current	I_D	± 82	A	
	I_{dp}^*	± 246	A	
Power dissipation	P_D	$T_A = 25^\circ\text{C}$	1.5	W
		$T_C = 25^\circ\text{C}$	104	
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}	$V_{DS} = 60\text{V}, V_{GS} = 0$			10	μA	
Gate leakage current	I_{GSS}	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$			± 10	μA	
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} $	$V_{DS} = 10\text{V}, I_D = 41\text{A}$	28.1	56		S	
Drain to source on-state resistance	$R_{DS(on)1}$	$V_{GS} = 10\text{V}, I_D = 41\text{A}$		6.3	8.0	$\text{m}\Omega$	
	$R_{DS(on)2}$	$V_{GS} = 4.5\text{V}, I_D = 41\text{A}$		7.4	10	$\text{m}\Omega$	
Input capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$		3500		pF	
Output capacitance	C_{oss}			660		pF	
Reverse transfer capacitance	C_{rss}			240		pF	
Turn-on delay time	t_{on}				18		ns
Rise time	t_r	$I_D = 41\text{A}, V_{GS(on)} = 10\text{V}, R_G = 0\ \Omega, V_{DD} = 30\text{V}$		11		ns	
Turn-off delay time	t_{off}				62		ns
Fall time	t_f				5.5		ns
Total Gate Charge	Q_G	$V_{DD} = 48\text{V}$		65.5		nC	
Gate to Source Charge	Q_{GS}	$V_{GS} = 10\text{V}$		11.5		nC	
Gate to Drain Charge	Q_{GD}	$I_D = 82\text{A}$		16.5		nC	