

## MOS Field Effect Transistor

### 2SK3901

#### ■ Features

- Low On-state resistance  
 $R_{DS(on)1} = 13\text{m}\Omega$  MAX. ( $V_{GS} = 10\text{V}$ ,  $I_D = 30\text{A}$ )  
 $R_{DS(on)2} = 16.5\text{m}\Omega$  MAX. ( $V_{GS} = 4.5\text{V}$ ,  $I_D = 30\text{A}$ )
- Low  $C_{iss}$ :  $C_{iss} = 1950\text{pF}$  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	$V_{GSS}$	$\pm 20$	V
Drain current	$I_D$	$\pm 60$	A
	$I_{DP}^*$	$\pm 150$	A
Power dissipation	PD	$T_a = 25^\circ\text{C}$	1.5
		$T_c = 25^\circ\text{C}$	64
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	$\mu\text{A}$
Gate leakage current	$I_{GSS}$	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$			$\pm 10$	$\mu\text{A}$
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} $	$V_{DS} = 10\text{V}, I_D = 30\text{A}$	18	36		S
Drain to source on-state resistance	$R_{DS(on)1}$	$V_{GS} = 10\text{V}, I_D = 30\text{A}$		10.3	13	$\text{m}\Omega$
	$R_{DS(on)2}$	$V_{GS} = 4.5\text{V}, I_D = 30\text{A}$		12.1	16.5	$\text{m}\Omega$
Input capacitance	$C_{iss}$	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$		1950		pF
Output capacitance	$C_{oss}$			380		pF
Reverse transfer capacitance	$C_{rss}$			150		pF
Turn-on delay time	$t_{on}$			12		ns
Rise time	$t_r$	$I_D = 30\text{A}, V_{GS(on)} = 10\text{V}, R_G = 0\ \Omega, V_{DD} = 30\text{V}$		6		ns
Turn-off delay time	$t_{off}$			48		ns
Fall time	$t_f$			5.0		ns
Total Gate Charge	$Q_G$		$V_{DD} = 48\text{V}$		40	
Gate to Source Charge	$Q_{GS}$	$V_{GS} = 10\text{V}$		7.5		nC
Gate to Drain Charge	$Q_{GD}$	$I_D = 60\text{A}$		10.0		nC