

## MOS Field Effect Transistor

### 2SK3918

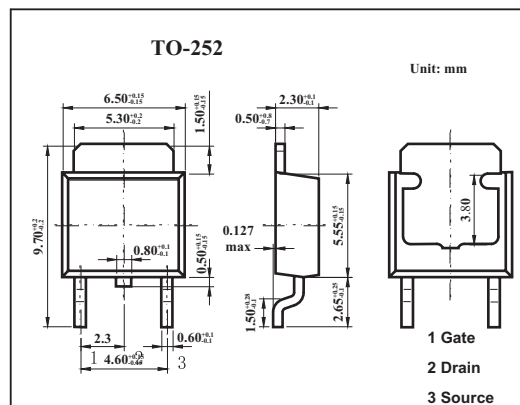
#### ■ Features

- Low on-state resistance

$R_{DS(on)1} = 7.5 \text{ m}\Omega \text{ MAX. (} V_{GS} = 10 \text{ V, } I_D = 24 \text{ A)}$

- Low Ciss: Ciss = 1300 pF TYP.

- 5 V drive available



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

Parameter	Symbol	Rating	Unit
Drain to source voltage	$V_{DS}$	25	V
Gate to source voltage	$V_{GS}$	$\pm 20$	V
Drain current	$I_D$	$\pm 48$	A
	$I_{dp}^*$	$\pm 192$	A
Power dissipation	$P_D$	$T_a=25^\circ\text{C}$	1.0
		$T_c=25^\circ\text{C}$	29
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	$I_{DSS}$	$V_{DS}=25\text{V}, V_{GS}=0$			10	$\mu\text{A}$
Gate leakage current	$I_{GSS}$	$V_{GS}=\pm 20\text{V}, V_{DS}=0$			$\pm 100$	nA
Gate cut off voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	2.5	2.5	3.0	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS}=10\text{V}, I_D=12\text{A}$	6	12		S
Drain to source on-state resistance	$R_{DS(on)1}$	$V_{GS}=10\text{V}, I_D=24\text{A}$		5.9	7.5	m $\Omega$
	$R_{DS(on)2}$	$V_{GS}=5.0\text{V}, I_D=12\text{A}$		11	22.2	m $\Omega$
Input capacitance	$C_{iss}$	$V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$		1300		pF
Output capacitance	$C_{oss}$				310	pF
Reverse transfer capacitance	$C_{rss}$				220	pF
Turn-on delay time	$t_{on}$	$I_D=24\text{A}, V_{GS(on)}=10\text{V}, R_G=10 \Omega, V_{DD}=12.5\text{V}$		13		ns
Rise time	$t_r$			14		ns
Turn-off delay time	$t_{off}$			38		ns
Fall time	$t_f$			14		ns
Total Gate Charge	$Q_G$	$V_{DD} = 20\text{V}$		28		nC
Gate to Source Charge	$Q_{GS}$	$V_{GS} = 10 \text{ V}$		5		nC
Gate to Drain Charge	$Q_{GD}$	$I_D = 48\text{A}$		10		nC
Body Diode Forward Voltage	$V_{F(S-D)}$	$I_F = 48\text{A}, V_{GS} = 0 \text{ V}$		0.98		V
Reverse Recovery Time	$t_{rr}$	$I_F = 48 \text{ A}, V_{GS} = 0 \text{ V}$		27		ns
Reverse Recovery Charge	$Q_{rr}$	$di/dt = 100 \text{ A}/\mu\text{s}$		15		nC