

MOS Field Effect Transistor

2SK3919

■ Features

- Low on-state resistance
 $R_{DS(on)1} = 5.6 \text{ m}\Omega \text{ MAX. (} V_{GS} = 10 \text{ V, } I_D = 32 \text{ A)}$
- Low Ciss: Ciss = 2050 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}	± 20	V
Drain current	I_D	± 64	A
	I_{dp}^*	± 256	A
Power dissipation	P_D	1.0	W
		36	
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	μA
Gate leakage current	I_{GSS}	$V_{GS}=\pm 20\text{V}, V_{DS}=0$			± 100	nA
Gate cut off voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	2.5	2.5	3.0	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS}=10\text{V}, I_D=16\text{A}$	9.7	19		S
Drain to source on-state resistance	$R_{DS(on)1}$	$V_{GS}=10\text{V}, I_D=32\text{A}$		4.5	5.6	m Ω
	$R_{DS(on)2}$	$V_{GS}=5.0\text{V}, I_D=16\text{A}$		6.8	13.7	m Ω
Input capacitance	C_{iss}	$V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$		2050		pF
Output capacitance	C_{oss}			460		pF
Reverse transfer capacitance	C_{rss}			330		pF
Turn-on delay time	t_{on}	$I_D=32\text{A}, V_{GS(on)}=10\text{V}, R_G=10 \Omega, V_{DD}=12.5\text{V}$		16		ns
Rise time	t_r			19		ns
Turn-off delay time	t_{off}			53		ns
Fall time	t_f			22		ns
Total Gate Charge	Q_G	$V_{DD} = 20\text{V}$		42		nC
Gate to Source Charge	Q_{GS}	$V_{GS} = 10 \text{ V}$		8		nC
Gate to Drain Charge	Q_{GD}	$I_D = 64\text{A}$		15		nC
Body Diode Forward Voltage	$V_{F(S-D)}$	$I_F = 64\text{A}, V_{GS} = 0 \text{ V}$		0.97		V
Reverse Recovery Time	t_{rr}	$I_F = 64 \text{ A}, V_{GS} = 0 \text{ V}$		23		ns
Reverse Recovery Charge	Q_{rr}	$di/dt = 100 \text{ A}/\mu\text{s}$		11		nC

