

## MOS Field Effect Transistor 2SK3405

### Features

- 4.5-V drive available
- Low on-state resistance  
 $R_{DS(on)1} = 9.0\text{m}\Omega$  MAX. ( $V_{GS} = 10\text{V}$ ,  $I_D = 24\text{A}$ )
- Low gate charge  
 $Q_G = 34\text{ nC}$  TYP. ( $I_D = 48\text{A}$ ,  $V_{DD} = 16\text{V}$ ,  $V_{GS} = 10\text{V}$ )
- Built-in gate protection diode
- Surface mount device available



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

Parameter	Symbol	Rating	Unit
Drain to source voltage	$V_{DS}$	20	V
Gate to source voltage	$V_{GS}$	$\pm 20$	V
Drain current	$I_D$	$\pm 48$	A
	$I_{dp}^*$	$\pm 192$	A
Power dissipation	$T_c=25^\circ\text{C}$	50	W
	$T_A=25^\circ\text{C}$	1.5	W
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	$I_{DSS}$	$V_{DS}=20\text{V}, V_{GS}=0$			10	$\mu\text{A}$
Gate leakage current	$I_{GSS}$	$V_{GS}=\pm 20\text{V}, V_{DS}=0$			$\pm 10$	$\mu\text{A}$
Gate cutoff voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	1.5		2.5	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS}=10\text{V}, I_D=24\text{A}$	12.5			S
Drain to source on-state resistance	$R_{DS(on)1}$	$V_{GS}=10\text{V}, I_D=24\text{A}$		6.5	9.0	$\text{m}\Omega$
	$R_{DS(on)2}$	$V_{GS}=4.5\text{V}, I_D=24\text{A}$		9.9	14.0	$\text{m}\Omega$
Input capacitance	$C_{iss}$	$V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$		1800		pF
Output capacitance	$C_{oss}$			770		pF
Reverse transfer capacitance	$C_{rss}$			400		pF
Turn-on delay time	$t_{on}$			21		ns
Rise time	$t_r$	$I_D=24\text{A}, V_{GS(on)}=10\text{V}, R_G=10\Omega, V_{DD}=10\text{V}$		13		ns
Turn-off delay time	$t_{off}$			64		ns
Fall time	$t_f$			25		ns
Total Gate Charge	$Q_G$				34	
Gate to Source Charge	$Q_{GS}$	$I_D=48\text{A}, V_{DD}=16\text{V}, V_{GS}=10\text{V}$		6.6		nC
Gate to Drain Charge	$Q_{GD}$			11		nC