

MOS Field Effect Transistor 2SK3481

■ Features

- Super low on-state resistance:
 $R_{DS(on)1} = 50 \text{ m}\Omega \text{ MAX. (} V_{GS} = 10 \text{ V, } I_D = 15 \text{ A)}$
 $R_{DS(on)2} = 58 \text{ m}\Omega \text{ MAX. (} V_{GS} = 4.5 \text{ V, } I_D = 15 \text{ A)}$
- Low C_{iss} : $C_{iss} = 2300 \text{ pF TYP.}$
- Built-in gate protection diode



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

| Parameter | Symbol | Rating | Unit | |
|-------------------------|------------|------------------------|------------------|---|
| Drain to source voltage | V_{DS} | 100 | V | |
| Gate to source voltage | V_{GS} | ± 20 | V | |
| Drain current | I_D | ± 30 | A | |
| | I_{DP}^* | ± 60 | A | |
| Power dissipation | P_D | $T_c=25^\circ\text{C}$ | 56 | W |
| | | $T_a=25^\circ\text{C}$ | 1.5 | |
| 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 | Test conditions | Min | Typ | Max | Unit |
|-------------------------------------|---------------|---|-----|------|----------|------------------|
| Drain cut-off current | I_{DSS} | $V_{DS}=100\text{V}, V_{GS}=0$ | | | 10 | μA |
| Gate leakage current | I_{GSS} | $V_{GS}=\pm 20\text{V}, V_{DS}=0$ | | | ± 10 | μA |
| Gate cutoff 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} $ | $V_{DS}=10\text{V}, I_D=15\text{A}$ | 9 | 18 | | S |
| Drain to source on-state resistance | $R_{DS(on)1}$ | $V_{GS}=10\text{V}, I_D=15\text{A}$ | | 40 | 50 | $\text{m}\Omega$ |
| | $R_{DS(on)2}$ | $V_{GS}=4.5\text{V}, I_D=15\text{A}$ | | 44 | 58 | $\text{m}\Omega$ |
| Input capacitance | C_{iss} | $V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$ | | 2300 | | pF |
| Output capacitance | C_{oss} | | | 230 | | pF |
| Reverse transfer capacitance | C_{rss} | | | 120 | | pF |
| Turn-on delay time | t_{on} | | | | 13 | ns |
| Rise time | t_r | $I_D=15\text{A}, V_{GS(on)}=10\text{V}, R_G=0\Omega, V_{DD}=50\text{V}$ | | 10 | | ns |
| Turn-off delay time | t_{off} | | | 53 | | ns |
| Fall time | t_f | | | 5.0 | | ns |
| Total Gate Charge | Q_G | | | | 48 | |
| Gate to Source Charge | Q_{GS} | $I_D=30\text{A}, V_{DD}=80\text{V}, V_{GS}=10\text{V}$ | | 7.0 | | nC |
| Gate to Drain Charge | Q_{GD} | | | | 12 | |