

MOS Field Effect Transistor 2SK3433

■ Features

- Super low on-state resistance:
 $R_{DS(on)1} = 26\text{m}\Omega$ MAX. ($V_{GS} = 10\text{V}$, $I_D = 42\text{A}$)
 $R_{DS(on)2} = 41\text{m}\Omega$ MAX. ($V_{GS} = 4\text{V}$, $I_D = 42\text{A}$)
- Low C_{iss} : $C_{iss} = 1500\text{pF}$ 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} | 60 | V |
| Gate to source voltage | V_{GS} | ± 20 | V |
| Drain current | I_D | ± 40 | A |
| | I_{dp}^* | ± 160 | A |
| Power dissipation | P_D | $T_c=25^\circ\text{C}$ | 47 |
| | | $T_A=25^\circ\text{C}$ | 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 | Testconditions | Min | Typ | Max | Unit |
|-------------------------------------|---------------|--|-----|------|----------|------------------|
| Drain cut-off current | I_{DSS} | $V_{DS}=60\text{V}, V_{GS}=0$ | | | 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} $ | $V_{DS}=10\text{V}, I_D=20\text{A}$ | 11 | 22 | | S |
| Drain to source on-state resistance | $R_{DS(on)1}$ | $V_{GS}=10\text{V}, I_D=20\text{A}$ | | 22 | 26 | $\text{m}\Omega$ |
| | $R_{DS(on)2}$ | $V_{GS}=4\text{V}, I_D=20\text{A}$ | | 29 | 41 | $\text{m}\Omega$ |
| Input capacitance | C_{iss} | $V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$ | | 1500 | | pF |
| Output capacitance | C_{oss} | | | | 250 | pF |
| Reverse transfer capacitance | C_{rss} | | | 120 | | pF |
| Turn-on delay time | t_{on} | $I_D=20\text{A}, V_{GS(on)}=10\text{V}, R_G=10\Omega, V_{DD}=30\text{V}$ | | 35 | | ns |
| Rise time | t_r | | | 320 | | ns |
| Turn-off delay time | t_{off} | | | 89 | | ns |
| Fall time | t_f | | | 120 | | ns |
| Total Gate Charge | Q_G | $I_D=40\text{A}, V_{DD}=48\text{V}, V_{GS}=10\text{V}$ | | 30 | | nC |
| Gate to Source Charge | Q_{GS} | | | 5 | | nC |
| Gate to Drain Charge | Q_{GD} | | | 8 | | nC |