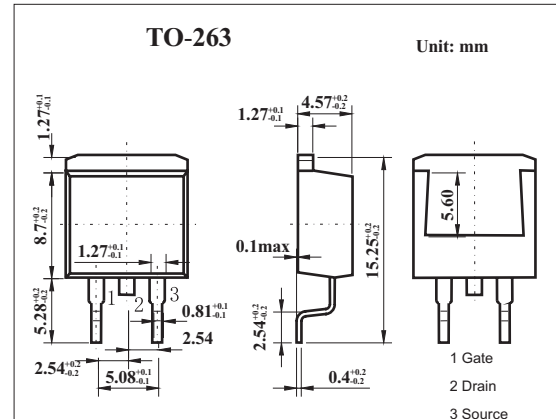


## MOS Field Effect Transistor

### 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  | $V_{GS}$   | $\pm 20$    | V                |
| Drain current           | $I_D$      | $\pm 40$    | A                |
|                         | $I_{dp}^*$ | $\pm 160$   | A                |
| Power dissipation       | $P_D$      | 47          | W                |
|                         |            | 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       | $\mu\text{A}$    |
| 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 | 2.0  | 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               |