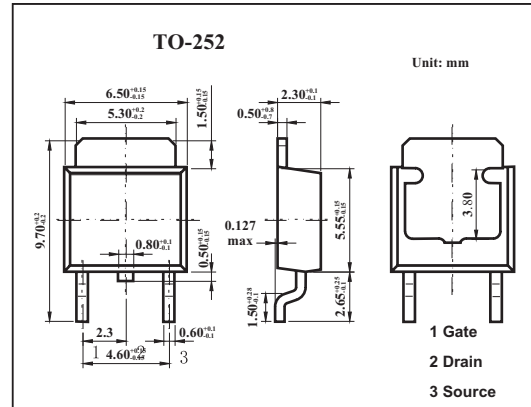


MOS Field Effect Transistor

2SK3643

■ Features

- Low on-state resistance
 $R_{DS(on)1} = 6 \text{ m}\Omega \text{ MAX. (} V_{GS} = 10 \text{ V, } I_D = 32 \text{ A)}$
 $R_{DS(on)2} = 9 \text{ m}\Omega \text{ MAX. (} V_{GS} = 4.5 \text{ V, } I_D = 32 \text{ A)}$
- Low C_{iss} : $C_{iss} = 2400 \text{ pF TYP.}$



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

| Parameter | Symbol | Rating | Unit | |
|-------------------------|------------|--------------------------|------------------|---|
| Drain to source voltage | V_{DS} | 30 | V | |
| Gate to source voltage | V_{GS} | ± 20 | V | |
| Drain current | I_D | ± 64 | A | |
| | I_{dp}^* | ± 256 | A | |
| Power dissipation | P_D | $T_c = 25^\circ\text{C}$ | 40 | W |
| | | $T_a = 25^\circ\text{C}$ | 1.0 | |
| 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} | $V_{DS} = 30 \text{ V, } V_{GS} = 0$ | | | 10 | μA |
| Gate leakage current | I_{GSS} | $V_{GS} = \pm 20 \text{ V, } V_{DS} = 0$ | | | ± 100 | nA |
| Gate cut off voltage | $V_{GS(off)}$ | $V_{DS} = 10 \text{ V, } I_D = 1 \text{ mA}$ | 1.5 | | 2.5 | V |
| Forward transfer admittance | $ Y_{fs} $ | $V_{DS} = 10 \text{ V, } I_D = 32 \text{ A}$ | 19 | 39 | | S |
| Drain to source on-state resistance | $R_{DS(on)1}$ | $V_{GS} = 10 \text{ V, } I_D = 32 \text{ A}$ | | 4.7 | 6 | $\text{m}\Omega$ |
| | $R_{DS(on)2}$ | $V_{GS} = 4.5 \text{ V, } I_D = 32 \text{ A}$ | | 6.3 | 9 | $\text{m}\Omega$ |
| Input capacitance | C_{iss} | $V_{DS} = 10 \text{ V, } V_{GS} = 0, f = 1 \text{ MHz}$ | | 2400 | | pF |
| Output capacitance | C_{oss} | | | 920 | | pF |
| Reverse transfer capacitance | C_{rss} | | | 320 | | pF |
| Turn-on delay time | t_{on} | $I_D = 32 \text{ A, } V_{GS(on)} = 10 \text{ V, } R_G = 10 \Omega, V_{DD} = 15 \text{ V}$ | | 14 | | ns |
| Rise time | t_r | | | 14 | | ns |
| Turn-off delay time | t_{off} | | | 75 | | ns |
| Fall time | t_f | | | 23 | | ns |
| Total Gate Charge | Q_G | $V_{DD} = 24 \text{ V}$ | | 48 | | nC |
| Gate to Source Charge | Q_{GS} | $V_{GS} = 10 \text{ V}$ | | 8.4 | | nC |
| Gate to Drain Charge | Q_{GD} | $I_D = 64 \text{ A}$ | | 12 | | nC |