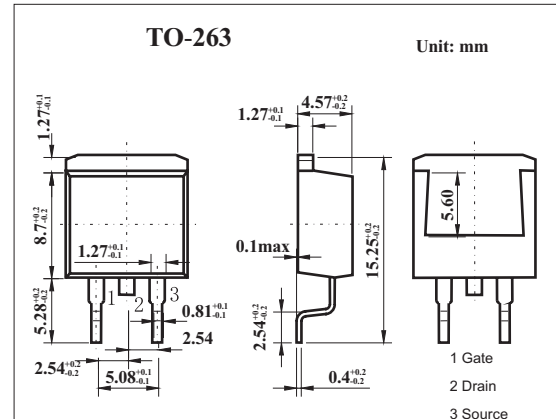


MOS Field Effect Transistor 2SK3405

■ 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} | ± 20 | V |
| Drain current | I_D | ± 48 | A |
| | I_{dp}^* | ± 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 | 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 | | 2.5 | 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 | $I_D=48\text{A}, V_{DD}=16\text{V}, V_{GS}=10\text{V}$ | | 34 | | nC |
| Gate to Source Charge | Q_{GS} | | | 6.6 | | nC |
| Gate to Drain Charge | Q_{GD} | | | 11 | | nC |