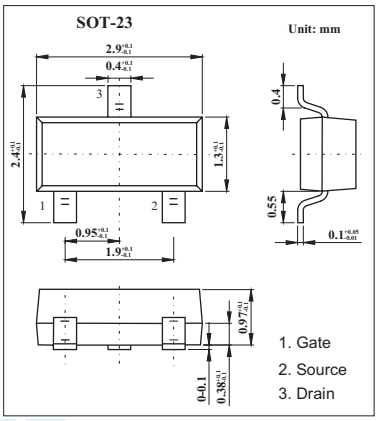
# P-Channel Enhancement Mode Field Effect Transistor KO3419(AO3419)




## Features

- $V_{DS\ (V)}$ = -20V
- $I_D$ = -3.5 A
- $R_{DS(ON)}$ < 75mΩ ($V_{GS}$ = -10V)
- $R_{DS(ON)}$ < 95mΩ ($V_{GS}$ = -4.5V)
- $R_{DS(ON)}$ < 145mΩ ($V_{GS}$ = -2.5V)

## Absolute Maximum Ratings Ta = 25℃

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | -20 | V |
| Gate-Source Voltage | $V_{GS}$ | ±12 | V |
| Continuous Drain $T_A$=25℃ | $I_D$ | -3.5 | A |
| Current *1 $T_A$=70℃ | | -2.8 | |
| Pulsed Drain Current *2 | $I_{DM}$ | -15 | |
| Power Dissipation *1 $T_A$=25℃ | $P_D$ | 1.4 | W |
| $T_A$=70℃ | | 0.9 | |
| Thermal Resistance.Junction-to-Ambient | $R_{\theta JA}$ | 125 | ℃/W |
| Thermal Resistance.Junction-to-Case | $R_{\theta JC}$ | 60 | ℃/W |
| Junction and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to 150 | ℃ |

*1The value of $R_{\theta JA}$ is measured with the device mounted on 1in $^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A$ =25℃

*2 Repetitive rating, pulse width limited by junction temperature.

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■ Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Testconditons | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $V_{DSS}$ | $I_D$=250μA, $V_{GS}$=0V | -20 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=-16V, $V_{GS}$=0V | | | -0.5 | μA |
| | | $V_{DS}$=-16V, $V_{GS}$=0V ,$T_J$=55℃ | | | -2.5 | |
| Gate-Body leakage current | $I_{GSS}$ | $V_{DS}$=0V, $V_{GS}$=±10V | | | ±1 | μA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$ $I_D$=-250μA | -0.7 | -0.9 | -1.4 | V |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}$=-10V, $I_D$=-3.5A | | 59 | 75 | mΩ |
| | | $V_{GS}$=-10V, $I_D$=-3.5A $T_J$=125℃ | | 83 | 105 | |
| | | $V_{GS}$=-4.5V, $I_D$=-3A | | 76 | 95 | |
| | | $V_{GS}$=-2.5V, $I_D$=-1A | | 111 | 145 | |
| On state drain current | $I_{D(ON)}$ | $V_{GS}$=-4.5V, $V_{DS}$=-5V | -15 | | | A |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$=-5V, $I_D$=-3.5A | | 6.8 | | S |
| Input Capacitance | $C_{iss}$ | $V_{GS}$=0V, $V_{DS}$=-10V, f=1MHz | | 512 | 620 | pF |
| Output Capacitance | $C_{oss}$ | | | 77 | | pF |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 62 | | pF |
| Gate resistance | $R_g$ | $V_{GS}$=0V, $V_{DS}$=0V, f=1MHz | | 9.2 | 13 | Ω |
| Total Gate Charge | $Q_g$ | $V_{GS}$=-4.5V, $V_{DS}$=- =-10V, $I_D$=-3.5A | | 5.5 | 6.6 | nC |
| Gate Source Charge | $Q_{gs}$ | | | 0.8 | | nC |
| Gate Drain Charge | $Q_{gd}$ | | | 1.9 | | nC |
| Turn-On DelayTime | $t_{D(on)}$ | $V_{GS}$=-10V, $V_{DS}$=-10V, $R_L$=2.8Ω ,$R_{GEN}$=3Ω | | 5 | | ns |
| Turn-On Rise Time | $t_r$ | | | 6.7 | | ns |
| Turn-0ff DelayTime | $t_{D(off)}$ | | | 28 | | ns |
| Turn-Off Fall Time | $t_f$ | | | 13.5 | | ns |
| Body Diode Reverse Recovery Time | $t_{rr}$ | $I_F$=-3.5A, $d_I/d_t$=100A/□s | | 9.8 | 12 | ns |
| Body Diode Reverse Recovery Charge | $Q_{rr}$ | $I_F$=-3.5A, $d_I/d_t$=100A/□s | | 2.7 | | nC |
| Maximum Body-Diode Continuous Current | $I_S$ | | | | -2 | A |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=-1A,$V_{GS}$=0V | -0.65 | -0.81 | -0.95 | V |