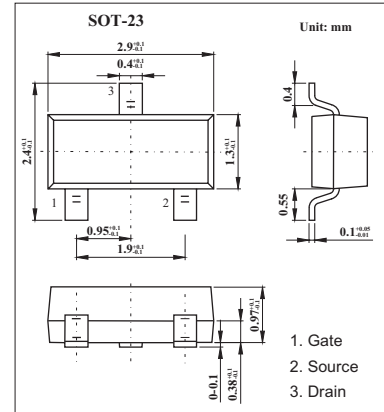
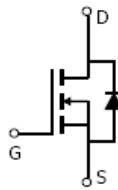


KO3414(AO3414)

Features

- $V_{DS} = 20V$
- $I_D = 4.2A$ ($V_{GS}=4.5V$)
- $R_{DS(ON)} < 50m\Omega$ ($V_{GS} = 4.5V$)
- $R_{DS(ON)} < 63m\Omega$ ($V_{GS} = 2.5V$)
- $R_{DS(ON)} < 87m\Omega$ ($V_{GS} = 1.8V$)



Absolute Maximum Ratings $T_a = 25^\circ C$

| Parameter | Symbol | Rating | Unit |
|--|----------------|------------|--------------|
| Drain-Source Voltage | V_{DS} | 20 | V |
| Gate-Source Voltage | V_{GS} | ± 8 | V |
| Continuous Drain Current *1 $T_A=25^\circ C$ | I_D | 4.2 | A |
| Current *1 $T_A=70^\circ C$ | | 3.2 | |
| Pulsed Drain Current *2 | I_{DM} | 15 | |
| Power Dissipation *1 $T_A=25^\circ C$ | P_D | 1.4 | W |
| $T_A=70^\circ C$ | | 0.9 | |
| Thermal Resistance.Junction-to-Ambient *1 | R_{thJA} | 125 | $^\circ C/W$ |
| Thermal Resistance.Junction-to-Case | R_{thJC} | 80 | $^\circ C/W$ |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55 to 150 | $^\circ C$ |

*1The value of R_{thJA} is measured with the device mounted on 1in² FR-4 board with 2oz.

Copper, in a still air environment with $T_A = 25^\circ C$

■ Electrical Characteristics Ta = 25°C

| 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 | | | 1 | μA |
| | | V _{DS} =16V, V _{GS} =0V, T _J =55°C | | | 5 | |
| Gate-Body leakage current | I _{GSS} | V _{DS} =0V, V _{GS} =±8V | | | ±100 | nA |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} I _D =250μA | 0.4 | 0.6 | 1 | V |
| Static Drain-Source On-Resistance | R _{DS(ON)} | V _{GS} =4.5V, I _D =4.2A | | 41 | 50 | mΩ |
| | | V _{GS} =4.5V, I _D =4.2A T _J =125°C | | 58 | 70 | |
| | | V _{GS} =2.5V, I _D =3.7A | | 52 | 63 | |
| | | V _{GS} =1.8V, I _D =3.2A | | 67 | 87 | |
| 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 =4.2A | | 11 | | S |
| Input Capacitance | C _{iss} | V _{GS} =0V, V _{DS} =-10V, f=1MHz | | 436 | | pF |
| Output Capacitance | C _{oss} | | | 66 | | pF |
| Reverse Transfer Capacitance | C _{rss} | | | 44 | | pF |
| Gate resistance | R _g | | V _{GS} =0V, V _{DS} =0V, f=1MHz | | 3 | |
| Total Gate Charge | Q _g | V _{GS} =4.5V, V _{DS} =-10V, I _D =4.2A | | 6.2 | | nC |
| Gate Source Charge | Q _{gs} | | | 1.6 | | nC |
| Gate Drain Charge | Q _{gd} | | | 0.5 | | nC |
| Turn-On DelayTime | t _{D(on)} | V _{GS} =4.5V, V _{DS} =10V, R _L =2.7Ω, R _{GEN} =6Ω | | 5.5 | | ns |
| Turn-On Rise Time | t _r | | | 6.3 | | ns |
| Turn-Off DelayTime | t _{D(off)} | | | 40 | | ns |
| Turn-Off FallTime | t _f | | | 12.7 | | ns |
| Body Diode Reverse Recovery Time | t _{rr} | I _F =4A, di/dt=100A/μs | | 12.3 | | ns |
| Body Diode Reverse Recovery Charge | Q _{rr} | I _F =4A, di/dt=100A/μs | | 3.5 | | nC |
| Maximum Body-Diode Continuous Current | I _S | | | | 2 | A |
| Diode Forward Voltage | V _{SD} | I _S =1A, V _{GS} =0V | | 0.76 | 1 | V |