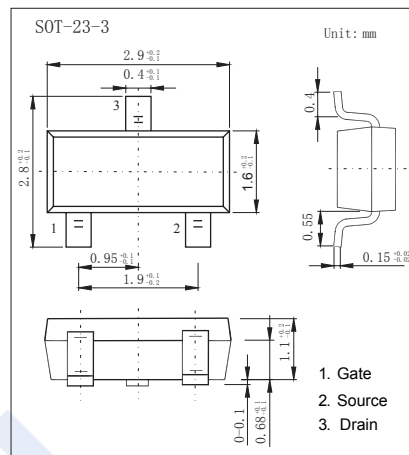
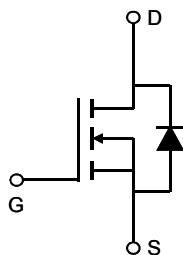


## N-Channel MOSFET

### AO3418 (KO3418)

#### ■ Features

- $V_{DS} (V) = 30V$
- $I_D = 3.8 A$  ( $V_{GS} = 10V$ )
- $R_{DS(ON)} < 55m\Omega$  ( $V_{GS} = 10V$ )
- $R_{DS(ON)} < 65m\Omega$  ( $V_{GS} = 4.5V$ )
- $R_{DS(ON)} < 85m\Omega$  ( $V_{GS} = 2.5V$ )



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

| Parameter                               |                    | Symbol     | Rating     | Unit         |
|-----------------------------------------|--------------------|------------|------------|--------------|
| Drain-Source Voltage                    |                    | $V_{DS}$   | 30         | V            |
| Gate-Source Voltage                     |                    | $V_{GS}$   | $\pm 12$   |              |
| Continuous Drain Current                | $T_A = 25^\circ C$ | $I_D$      | 3.8        | A            |
|                                         | $T_A = 70^\circ C$ |            | 3.1        |              |
| Pulsed Drain Current                    |                    | $I_{DM}$   | 15         |              |
| Power Dissipation                       | $T_A = 25^\circ C$ | $P_D$      | 1.4        | W            |
|                                         | $T_A = 70^\circ C$ |            | 0.9        |              |
| Thermal Resistance.Junction- to-Ambient | $t \leq 10s$       | $R_{thJA}$ | 90         | $^\circ C/W$ |
|                                         | Steady-State       |            | 125        |              |
| Thermal Resistance.Junction- to-Lead    |                    | $R_{thJL}$ | 80         |              |
| Junction Temperature                    |                    | $T_J$      | 150        | $^\circ C$   |
| Storage Temperature Range               |                    | $T_{stg}$  | -55 to 150 |              |

## N-Channel MOSFET

## AO3418 (KO3418)

■ Electrical Characteristics Ta = 25°C

| Parameter                             | Symbol              | Test Conditions                                                                         | Min | Typ  | Max  | Unit |
|---------------------------------------|---------------------|-----------------------------------------------------------------------------------------|-----|------|------|------|
| Drain-Source Breakdown Voltage        | V <sub>DSS</sub>    | I <sub>D</sub> =250 μA, V <sub>GS</sub> =0V                                             | 30  |      |      | V    |
| Zero Gate Voltage Drain Current       | I <sub>DSS</sub>    | V <sub>DS</sub> =30V, V <sub>GS</sub> =0V                                               |     |      | 1    | μA   |
|                                       |                     | V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C                         |     |      | 5    |      |
| Gate-Body Leakage Current             | I <sub>GSS</sub>    | V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V                                              |     |      | ±100 | nA   |
| Gate Threshold Voltage                | V <sub>GS(th)</sub> | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA                               | 0.5 |      | 1.5  | V    |
| Static Drain-Source On-Resistance     | R <sub>DS(on)</sub> | V <sub>GS</sub> =10V, I <sub>D</sub> =3.8A                                              |     |      | 55   | mΩ   |
|                                       |                     | V <sub>GS</sub> =10V, I <sub>D</sub> =3.8A T <sub>J</sub> =125°C                        |     |      | 84   |      |
|                                       |                     | V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.5A                                             |     |      | 65   |      |
|                                       |                     | V <sub>GS</sub> =2.5V, I <sub>D</sub> =1A                                               |     |      | 85   |      |
| On State Drain Current                | I <sub>D(ON)</sub>  | V <sub>GS</sub> =10V, V <sub>DS</sub> =5V                                               | 15  |      |      | A    |
| Forward Transconductance              | g <sub>FS</sub>     | V <sub>DS</sub> =5V, I <sub>D</sub> =3.8A                                               |     | 14   |      | S    |
| Input Capacitance                     | C <sub>iss</sub>    | V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1MHz                                       | 185 |      | 285  | pF   |
| Output Capacitance                    | C <sub>oss</sub>    |                                                                                         | 25  |      | 45   |      |
| Reverse Transfer Capacitance          | C <sub>rss</sub>    |                                                                                         | 10  |      | 25   |      |
| Gate Resistance                       | R <sub>g</sub>      | V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz                                        | 2.1 |      | 6.5  | Ω    |
| Total Gate Charge (10V)               | Q <sub>g</sub>      | V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, I <sub>D</sub> =3.8A                        |     | 10   | 12   | nC   |
| Total Gate Charge (4.5V)              |                     |                                                                                         |     | 4.7  |      |      |
| Gate Source Charge                    | Q <sub>gs</sub>     |                                                                                         |     | 0.95 |      |      |
| Gate Drain Charge                     | Q <sub>gd</sub>     |                                                                                         |     | 1.6  |      |      |
| Turn-On DelayTime                     | t <sub>d(on)</sub>  |                                                                                         |     | 3.5  |      |      |
| Turn-On Rise Time                     | t <sub>r</sub>      | V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, R <sub>L</sub> =3.95 Ω, R <sub>G</sub> =3 Ω |     | 1.5  |      | ns   |
| Turn-Off DelayTime                    | t <sub>d(off)</sub> |                                                                                         |     | 17.5 |      |      |
| Turn-Off Fall Time                    | t <sub>f</sub>      |                                                                                         |     | 2.5  |      |      |
| Body Diode Reverse Recovery Time      | t <sub>rr</sub>     |                                                                                         |     | 8.5  | 11   |      |
| Body Diode Reverse Recovery Charge    | Q <sub>rr</sub>     | I <sub>F</sub> = 3.8A, di/dt= 100A/μs                                                   |     | 2.6  | 3.5  | nC   |
| Maximum Body-Diode Continuous Current | I <sub>S</sub>      |                                                                                         |     |      | 1.5  | A    |
| Diode Forward Voltage                 | V <sub>SD</sub>     | I <sub>S</sub> =1A, V <sub>GS</sub> =0V                                                 |     |      | 1    | V    |

\* The static characteristics in Figures 1 to 6 are obtained using &lt;300μs pulses, duty cycle 0.5% max.

## ■ Marking

|         |      |
|---------|------|
| Marking | AK** |
|---------|------|

## N-Channel MOSFET

### AO3418 (KO3418)

#### ■ Typical Characteristics

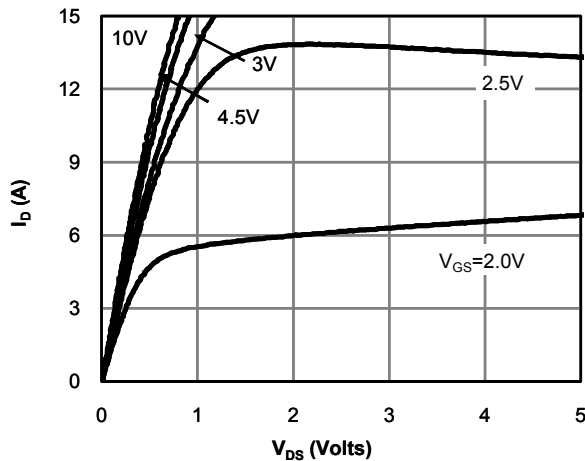


Figure 1: On-Region Characteristics (Note E)

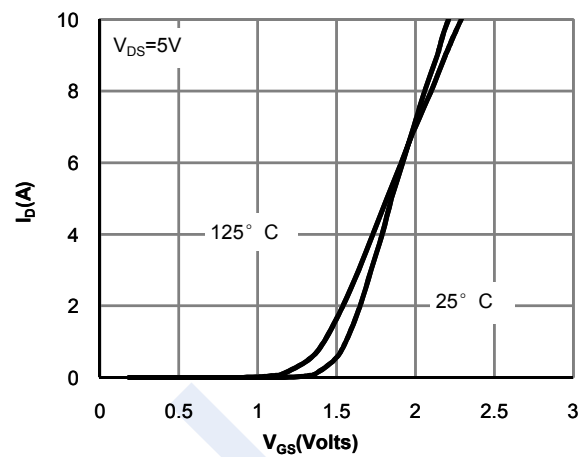


Figure 2: Transfer Characteristics (Note E)

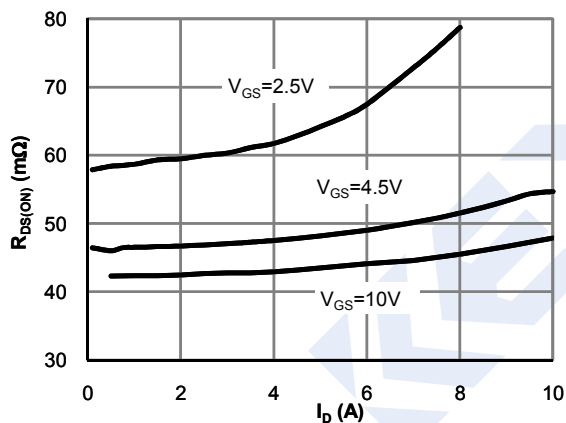


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

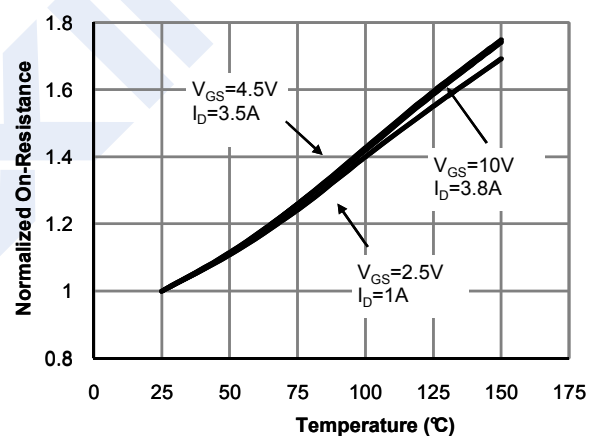


Figure 4: On-Resistance vs. Junction Temperature (Note E)

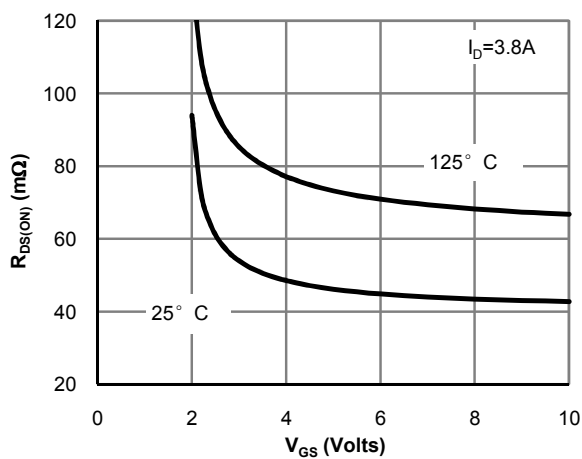


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

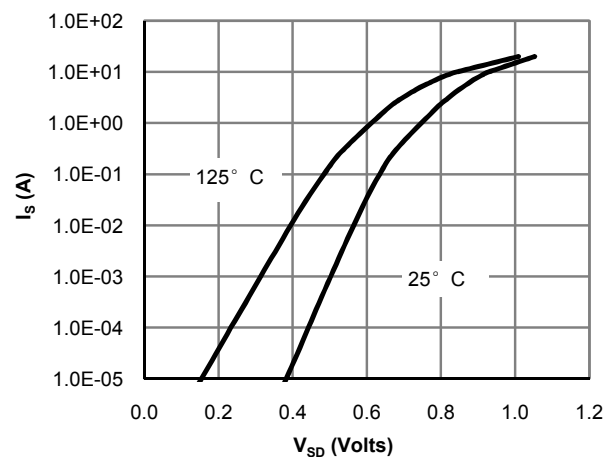


Figure 6: Body-Diode Characteristics (Note E)

## N-Channel MOSFET

## AO3418 (KO3418)

## ■ Typical Characteristics

