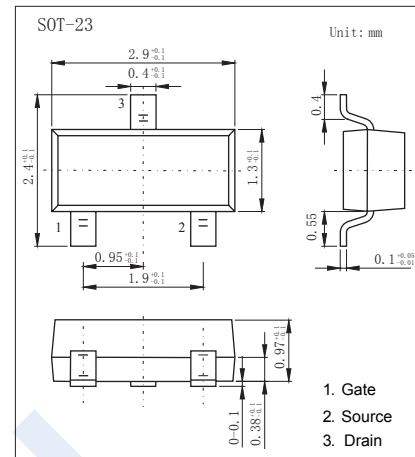
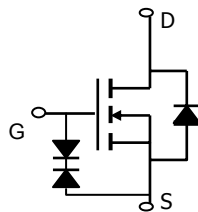


## N-Channel MOSFET

### AO3434 (KO3434)

#### ■ Features

- $V_{DS} (V) = 30V$
- $I_D = 4.2 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 52m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 75m\Omega (V_{GS} = 4.5V)$
- ESD Protected



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

| Parameter                               | Symbol     | 10 Sec           | Steady State | Unit         |   |
|---|------------|------------------|--------------|--------------|---|
| Drain-Source Voltage                    | $V_{DS}$   | 30               |              | V            |   |
| Gate-Source Voltage                     | $V_{GS}$   | $\pm 20$         |              |              |   |
| Continuous Drain Current                | $I_D$      | $T_A=25^\circ C$ | 4.2          | 3.5          | A |
|   |            | $T_A=70^\circ C$ | 3.3          | 2.8          |   |
| Pulsed Drain Current                    | $I_{DM}$   | 30               |              |              |   |
| Power Dissipation                       | $P_D$      | $T_A=25^\circ C$ | 1.4          | 1            | W |
|   |            | $T_A=70^\circ C$ | 0.9          | 0.64         |   |
| Thermal Resistance.Junction- to-Ambient | $R_{thJA}$ | 90               | 125          | $^\circ C/W$ |   |
| 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

### AO3434 (KO3434)

#### ■ 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 μ A, 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> =±16V   |                 |      | ±10  | μA   |  |
| Gate Threshold Voltage                | V <sub>GS(th)</sub> | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μ A                             | 1               |      | 1.8  | V    |  |
| Static Drain-Source On-Resistance     | R <sub>DS(on)</sub> | V <sub>GS</sub> =10V, I <sub>D</sub> =4.2A   |                 |      | 52   | mΩ   |  |
|                                       |                     | V <sub>GS</sub> =10V, I <sub>D</sub> =4.2A, T <sub>J</sub> =125°C                      |                 |      | 74   |      |  |
|                                       |                     | V <sub>GS</sub> =4.5V, I <sub>D</sub> =2A  |                 |      | 75   |      |  |
| On State Drain Current                | I <sub>D(ON)</sub>  | V <sub>GS</sub> =10V, V <sub>DS</sub> =5V  | 30              |      |      | A    |  |
| Forward Transconductance              | g <sub>FS</sub>     | V <sub>DS</sub> =5V, I <sub>D</sub> =4.2A  |                 | 8.5  |      | S    |  |
| Input Capacitance                     | C <sub>iss</sub>    | V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1MHz                                      |                 | 269  | 340  | pF   |  |
| Output Capacitance                    | C <sub>oss</sub>    |  |                 | 65   |      |      |  |
| Reverse Transfer Capacitance          | C <sub>rss</sub>    |  |                 | 41   |      |      |  |
| Gate Resistance                       | R <sub>g</sub>      | V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz                                       |                 | 1    | 1.5  | Ω    |  |
| Total Gate Charge (10V)               | Q <sub>g</sub>      | V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, I <sub>D</sub> =4.2A                       |                 | 5.7  | 7.2  | nC   |  |
| Total Gate Charge (4.5V)              |                     |  |                 | 3    |      |      |  |
| Gate Source Charge                    |                     |  | Q <sub>gs</sub> |      | 1.37 |      |  |
| Gate Drain Charge                     |                     |  | Q <sub>gd</sub> |      | 0.65 |      |  |
| Turn-On DelayTime                     | t <sub>d(on)</sub>  | V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, R <sub>L</sub> =3.6 Ω, R <sub>G</sub> =3 Ω |                 |      | 3.8  | ns   |  |
| Turn-On Rise Time                     | t <sub>r</sub>      |  |                 |      | 8    |      |  |
| Turn-Off DelayTime                    | t <sub>d(off)</sub> |  |                 |      | 23   |      |  |
| Turn-Off Fall Time                    | t <sub>f</sub>      |  |                 |      | 5.5  |      |  |
| Body Diode Reverse Recovery Time      | t <sub>rr</sub>     | I <sub>F</sub> = 4.2A, di/dt= 100A/μ s   |                 | 15.5 | 21   | nC   |  |
| Body Diode Reverse Recovery Charge    | Q <sub>rr</sub>     |  |                 | 7.1  |      |      |  |
| Maximum Body-Diode Continuous Current | I <sub>S</sub>      |  |                 |      | 1.8  | A    |  |
| Diode Forward Voltage                 | V <sub>SD</sub>     | I <sub>S</sub> =1A, V <sub>GS</sub> =0V  |                 |      | 1    | V    |  |

#### ■ Marking

|         |      |
|---------|------|
| Marking | B4** |
|---------|------|

## N-Channel MOSFET AO3434 (KO3434)

■ Typical Characteristics

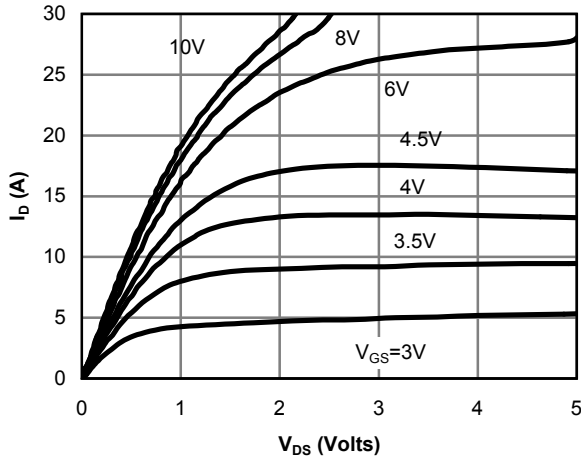


Fig 1: On-Region Characteristics

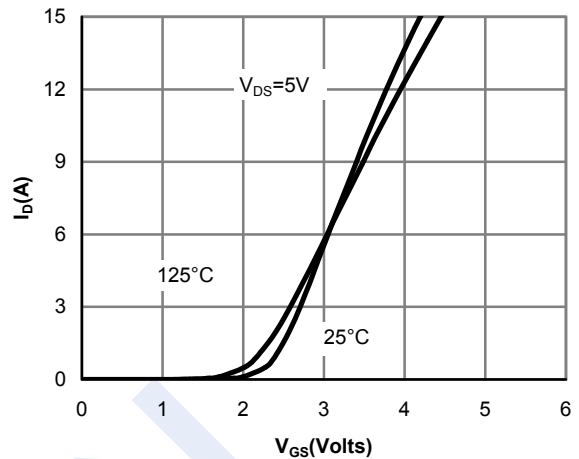


Figure 2: Transfer Characteristics

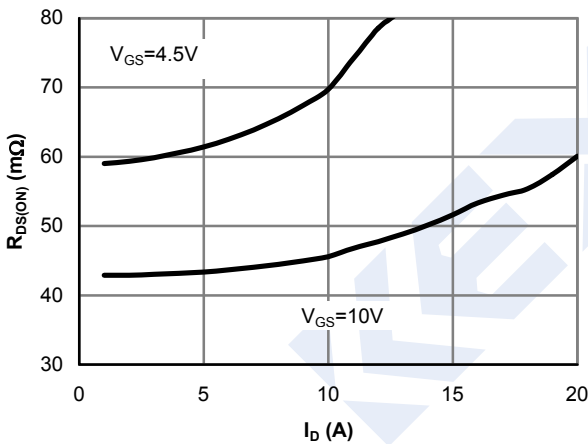


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

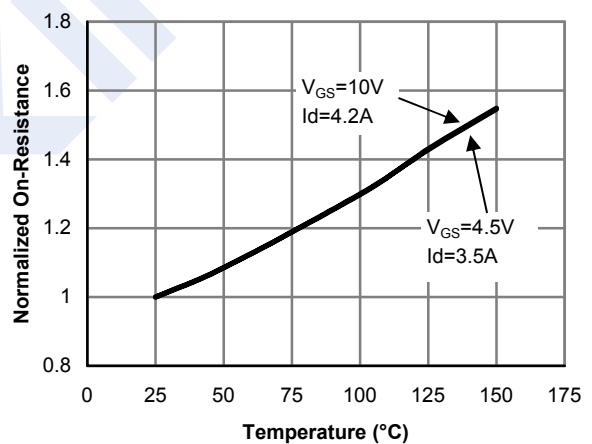


Figure 4: On-Resistance vs. Junction Temperature

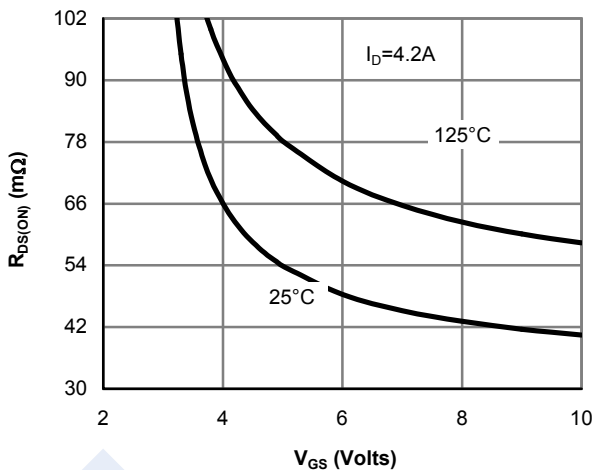


Figure 5: On-Resistance vs. Gate-Source Voltage

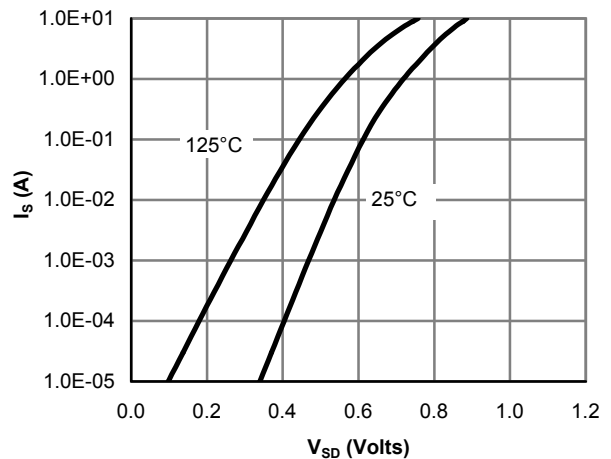


Figure 6: Body-Diode Characteristics

## N-Channel MOSFET AO3434 (KO3434)

### Typical Characteristics

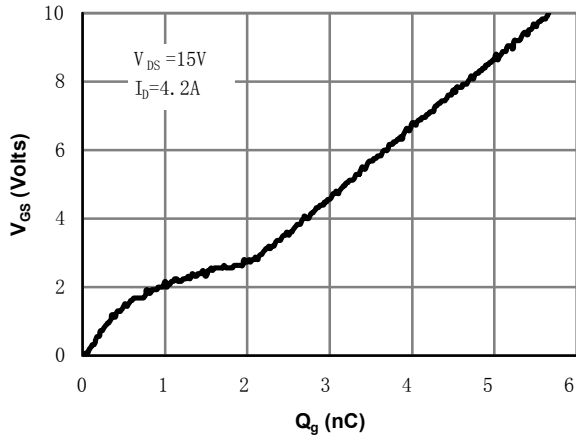


Figure 7: Gate-Charge Characteristics

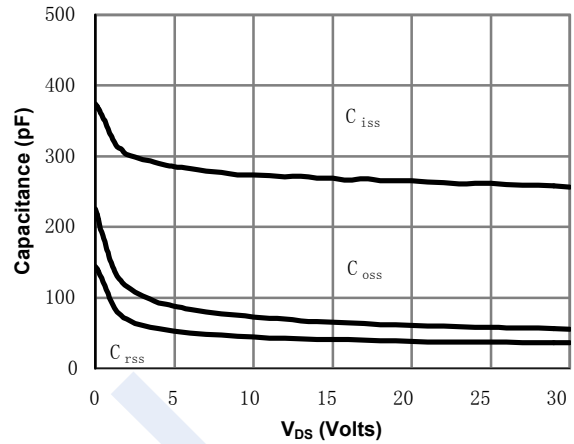


Figure 8: Capacitance Characteristics

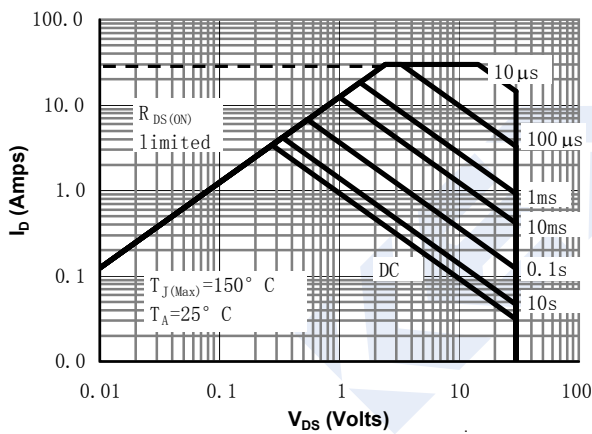


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

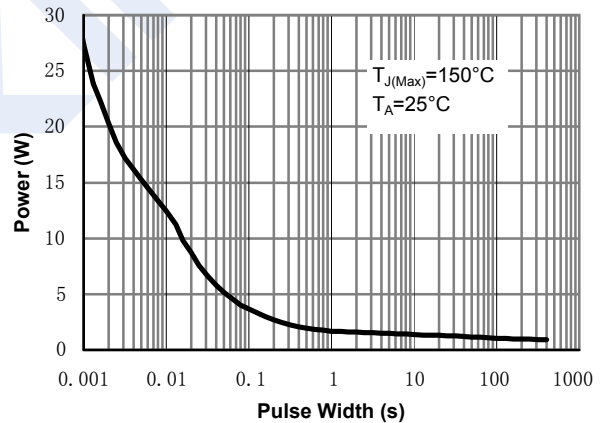


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

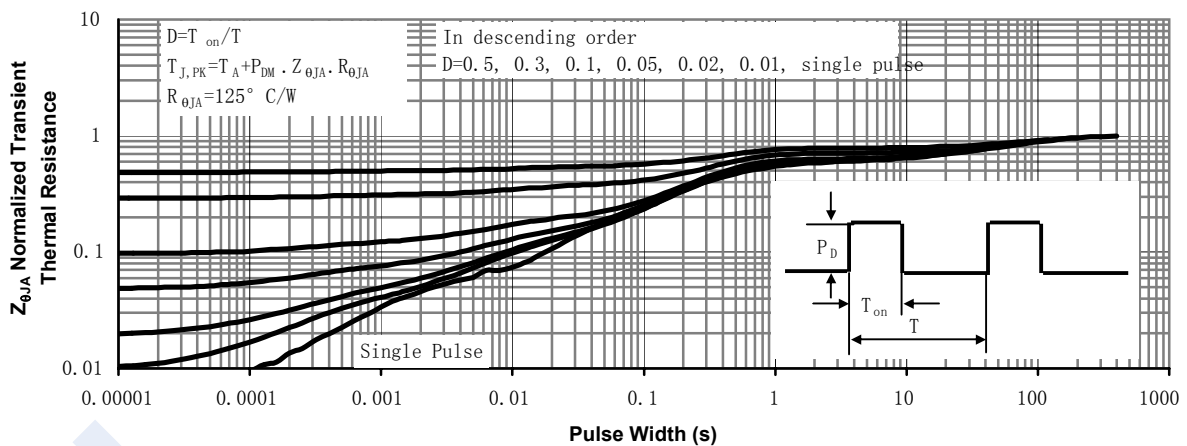


Figure 11: Normalized Maximum Transient Thermal Impedance