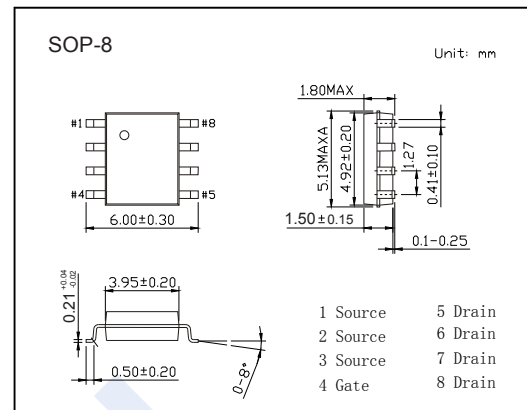
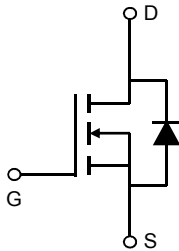


N-Channel MOSFET

AO4240 (KO4240)

■ Features

- $V_{DS} (V) = 40V$
- $I_D = 24 A (V_{GS} = 10V)$
- $R_{BS(ON)} < 3.3m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 4.3m\Omega (V_{GS} = 4.5V)$



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

| Parameter | Symbol | Rating | Unit | |
|---|------------|------------------|------------|--------------|
| Drain-Source Voltage | V_{DS} | 40 | V | |
| Gate-Source Voltage | V_{GS} | ± 20 | | |
| Continuous Drain Current | I_D | $T_A=25^\circ C$ | 24 | A |
| | | $T_A=70^\circ C$ | 19 | |
| Pulsed Drain Current | I_{DM} | 170 | | |
| Avalanche Current | I_{AS} | 75 | | |
| Avalanche energy | $L=0.1mH$ | E_{AS} | 281 | mJ |
| Power Dissipation | P_D | $T_A=25^\circ C$ | 3.1 | W |
| | | $T_A=70^\circ C$ | 2 | |
| Thermal Resistance.Junction- to-Ambient | R_{thJA} | $t \leq 10s$ | 40 | $^\circ C/W$ |
| | | Steady-State | 75 | |
| Thermal Resistance.Junction- to-Lead | R_{thJL} | 24 | | |
| Junction Temperature | T_J | 150 | $^\circ C$ | |
| Storage Temperature Range | T_{stg} | -55 to 150 | | |

N-Channel MOSFET

AO4240 (KO4240)

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit | |
|---------------------------------------|---------------------|---|-----------------|------|------|------|--|
| Drain-Source Breakdown Voltage | V _{DSS} | I _D =250 uA, V _{GS} =0V | 40 | | | V | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =40V, V _{GS} =0V | | | 1 | uA | |
| | | V _{DS} =40V, V _{GS} =0V, T _J =55°C | | | 5 | | |
| Gate-Body Leakage Current | I _{GSS} | V _{DS} =0V, V _{GS} =±20V | | | ±100 | nA | |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250uA | 1.2 | | 2.3 | V | |
| Static Drain-Source On-Resistance | R _{DS(on)} | V _{GS} =10V, I _D =20A | | | 3.3 | m Ω | |
| | | V _{GS} =10V, I _D =20A T _J =125°C | | | 4.9 | | |
| | | V _{GS} =4.5V, I _D =20A | | | 4.3 | | |
| On State Drain Current | I _{D(ON)} | V _{GS} =10V, V _{DS} =5V | 170 | | | A | |
| Forward Transconductance | g _{FS} | V _{DS} =5V, I _D =20A | | 90 | | S | |
| Input Capacitance | C _{iss} | V _{GS} =0V, V _{DS} =20V, f=1MHz | | 4245 | | pF | |
| Output Capacitance | C _{oss} | | | 1170 | | | |
| Reverse Transfer Capacitance | C _{rss} | | | 69 | | | |
| Gate Resistance | R _g | V _{GS} =0V, V _{DS} =0V, f=1MHz | 0.5 | | 1.5 | Ω | |
| Total Gate Charge (10V) | Q _g | V _{GS} =10V, V _{DS} =20V, I _D =20A | | 62 | 87 | nC | |
| Total Gate Charge (4.5V) | | | | 28 | 40 | | |
| Gate Source Charge | | | Q _{gs} | | 10.5 | | |
| Gate Drain Charge | | | Q _{gd} | | 8 | | |
| Turn-On DelayTime | t _{d(on)} | V _{GS} =10V, V _{DS} =20V, R _L =1Ω, R _{GEN} =3Ω | | 9 | | ns | |
| Turn-On Rise Time | t _r | | | 11.5 | | | |
| Turn-Off DelayTime | t _{d(off)} | | | 42 | | | |
| Turn-Off Fall Time | t _f | | | 21 | | | |
| Body Diode Reverse Recovery Time | t _{rr} | I _F = 20A, di/dt= 500A/us | | 23 | | nC | |
| Body Diode Reverse Recovery Charge | Q _{rr} | | | 74 | | | |
| Maximum Body-Diode Continuous Current | I _S | | | | 4.5 | A | |
| Diode Forward Voltage | V _{SD} | I _S =1A, V _{GS} =0V | | | 1 | V | |

Note : The static characteristics in Figures 1 to 6 are obtained using <300 μs pulses, duty cycle 0.5% max.

■ Marking

| | |
|---------|--------|
| Marking | 4240 |
| | KC**** |

N-Channel MOSFET AO4240 (KO4240)

■ Typical Characteristics

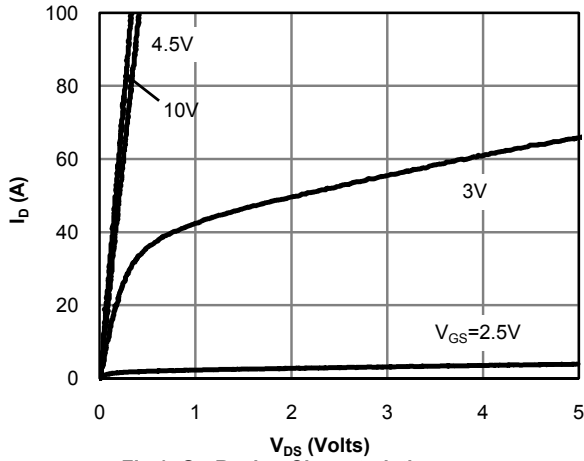


Fig 1: On-Region Characteristics

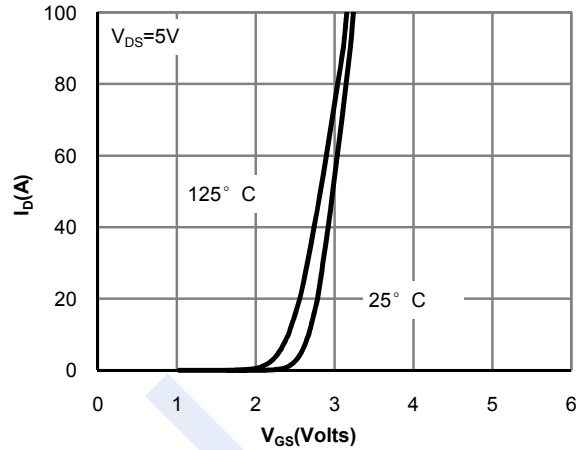


Figure 2: Transfer Characteristics

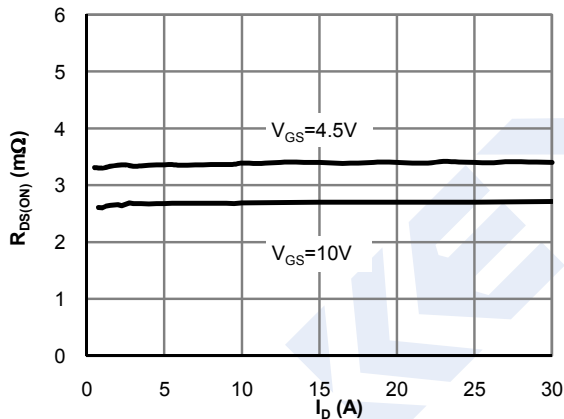


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

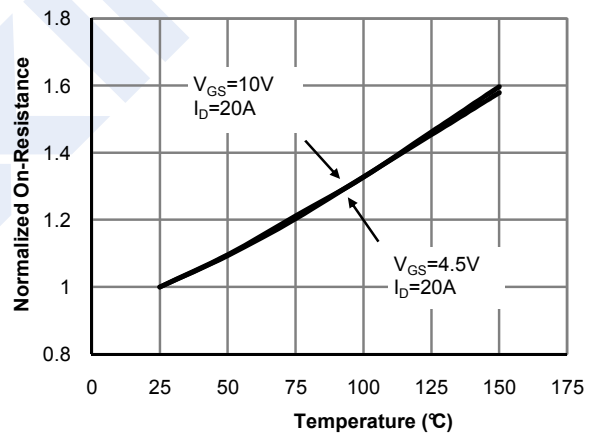


Figure 4: On-Resistance vs. Junction Temperature

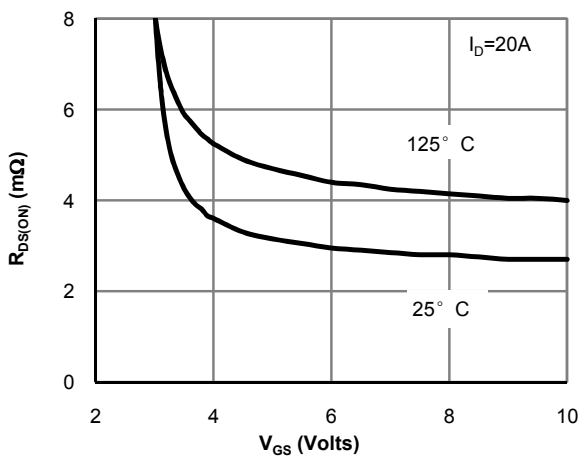


Figure 5: On-Resistance vs. Gate-Source Voltage

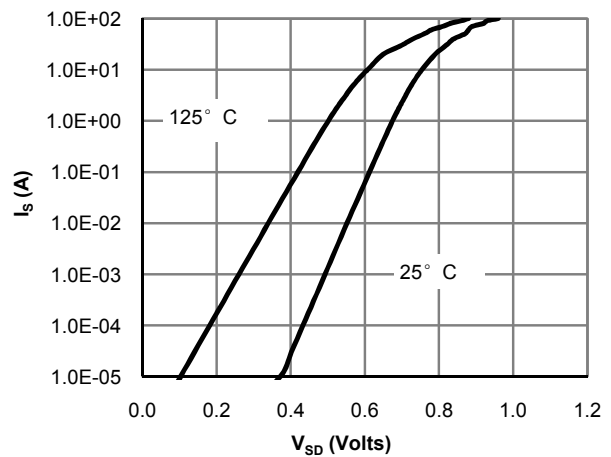


Figure 6: Body-Diode Characteristics

N-Channel MOSFET AO4240 (KO4240)

■ Typical Characteristics

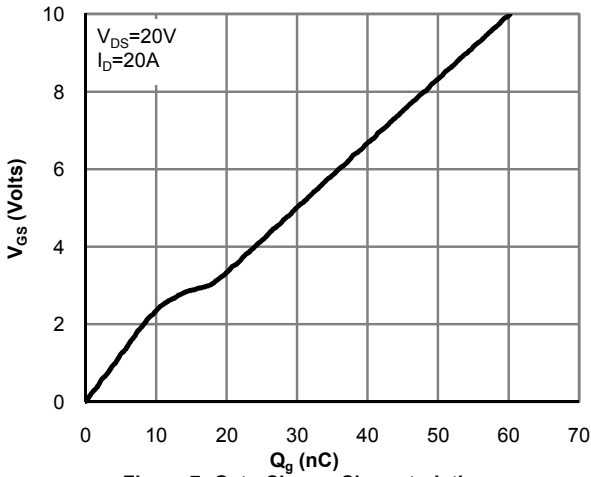


Figure 7: Gate-Charge Characteristics

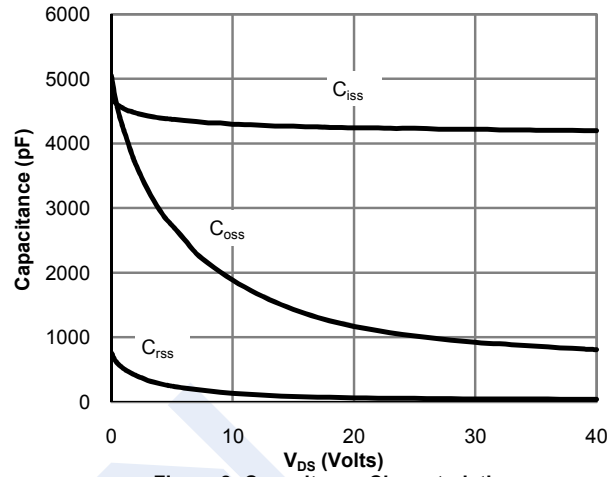


Figure 8: Capacitance Characteristics

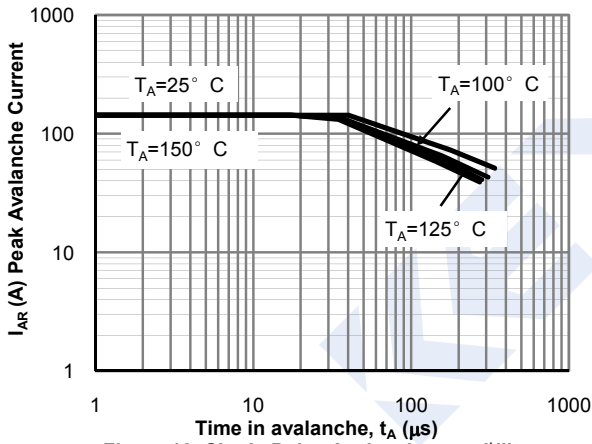


Figure 12: Single Pulse Avalanche capability (Note C)

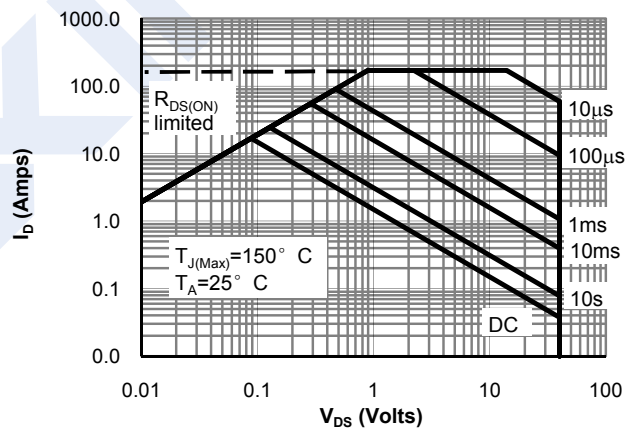


Figure 10: Maximum Forward Biased Safe Operating Area (NOTE F)

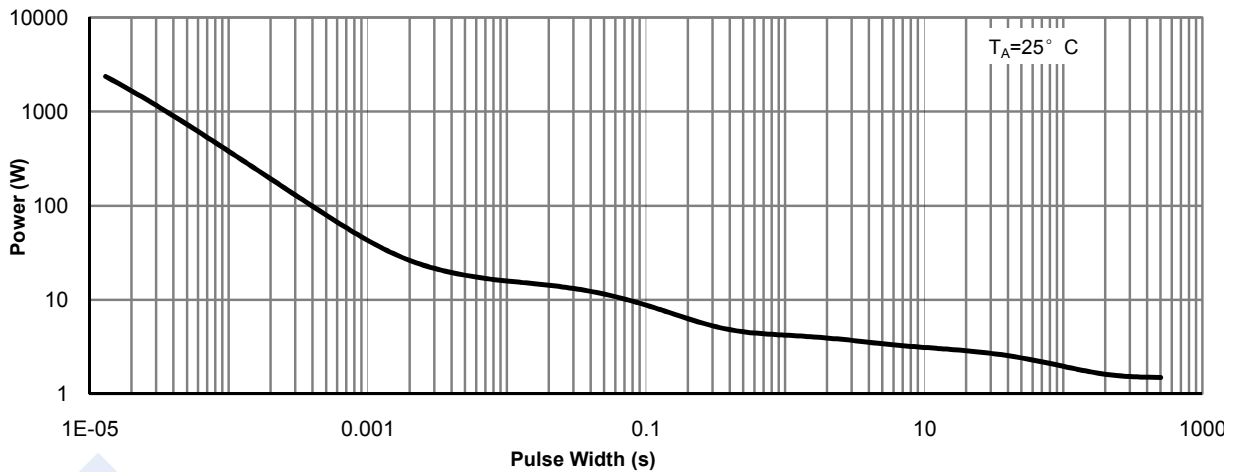


Figure 11: Single Pulse Power Rating Junction-to-Ambient (NOTE F)

N-Channel MOSFET AO4240 (KO4240)

■ Typical Characteristics

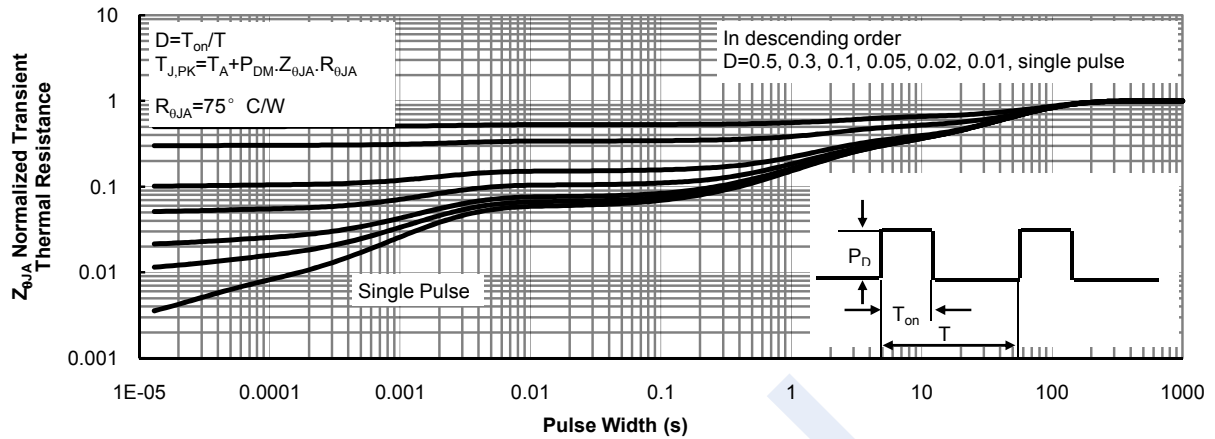


Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)