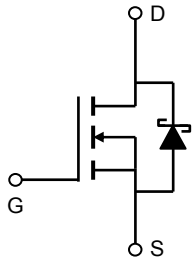
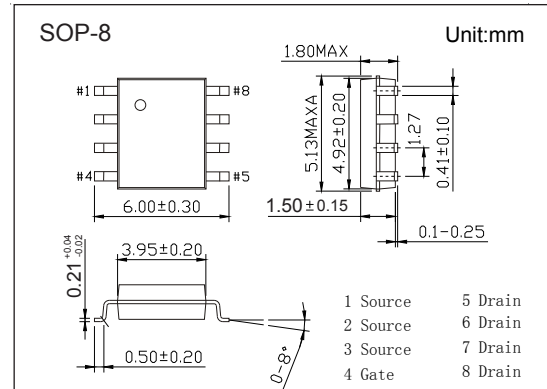


N-Channel MOSFET

AO4720 (KO4720)

■ Features

- $V_{DS} (V) = 30V$
- $I_D = 13 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 11m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 17.5m\Omega (V_{GS} = 4.5V)$
- SRFET™ Soft Recovery MOSFET: Integrated Schottky Diode



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

| Parameter | Symbol | Rating | Unit |
|---|------------|------------------|--------------|
| Drain-Source Voltage | V_{DS} | 30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | I_D | $T_A=25^\circ C$ | 13 |
| | | $T_A=70^\circ C$ | 11 |
| Pulsed Drain Current | I_{DM} | 120 | A |
| Avalanche Current | I_{AR} | 21 | A |
| Repetitive Avalanche Energy | $L=0.3mH$ | E_{AR} | 66 |
| Power Dissipation | P_D | $T_A=25^\circ C$ | 3.1 |
| | | $T_A=70^\circ C$ | 2 |
| Thermal Resistance.Junction- to-Ambient | R_{thJA} | $t \leq 10s$ | 40 |
| | | Steady-State | 75 |
| Thermal Resistance.Junction- to-Lead | R_{thJL} | 24 | $^\circ C/W$ |
| Junction Temperature | T_J | 150 | $^\circ C$ |
| Storage Temperature Range | T_{stg} | -55 to 150 | $^\circ C$ |

N-Channel MOSFET

AO4720 (KO4720)

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit | |
|---------------------------------------|---------------------|--|-----------------|------|------|------|--|
| Drain-Source Breakdown Voltage | V _{DSS} | I _D =250μA, V _{GS} =0V | 30 | | | V | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =30V, V _{GS} =0V | | | 0.1 | mA | |
| | | V _{DS} =30V, V _{GS} =0V, T _J =125°C | | | 20 | | |
| 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 =250μA | 1.3 | | 2 | V | |
| Static Drain-Source On-Resistance | R _{DS(on)} | V _{GS} =10V, I _D =13A | | | 11 | mΩ | |
| | | V _{GS} =10V, I _D =13A, T _J =125°C | | | 17.3 | | |
| | | V _{GS} =4.5V, I _D =11A | | | 17.5 | | |
| On State Drain Current | I _{D(ON)} | V _{GS} =10V, V _{DS} =5V | 120 | | | A | |
| Forward Transconductance | g _{FS} | V _{DS} =5V, I _D =13A | | 37 | | S | |
| Input Capacitance | C _{iss} | V _{GS} =0V, V _{DS} =15V, f=1MHz | | 1267 | 1600 | pF | |
| Output Capacitance | C _{oss} | | | 308 | | | |
| Reverse Transfer Capacitance | C _{rss} | | | 118 | | | |
| Gate Resistance | R _g | V _{GS} =0V, V _{DS} =0V, f=1MHz | | 1.3 | 2 | Ω | |
| Total Gate Charge (10V) | Q _g | V _{GS} =10V, V _{DS} =15V, I _D =13A | | 21 | 30 | nC | |
| Total Gate Charge (4.5V) | | | | 10.4 | 14 | | |
| Gate Source Charge | | | Q _{gs} | | 3 | | |
| Gate Drain Charge | | | Q _{gd} | | 3.6 | | |
| Turn-On DelayTime | t _{d(on)} | V _{GS} =10V, V _{DS} =15V, R _L =1.2Ω, R _{GEN} =3Ω | | 5.2 | | ns | |
| Turn-On Rise Time | t _r | | | 3.8 | | | |
| Turn-Off DelayTime | t _{d(off)} | | | 21.2 | | | |
| Turn-Off Fall Time | t _f | | | 4.4 | | | |
| Body Diode Reverse Recovery Time | t _{rr} | I _F =13A, di/dt=300A/us | | 11.2 | 17 | ns | |
| Body Diode Reverse Recovery Charge | Q _{rr} | | | 10.5 | | | |
| Maximum Body-Diode Continuous Current | I _S | | | | 5 | A | |
| Diode Forward Voltage | V _{SD} | I _S =1A, V _{GS} =0V | | | 0.5 | V | |

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

■ Marking

| | |
|---------|----------------|
| Marking | 4720 KC**** |
|---------|----------------|

N-Channel MOSFET AO4720 (KO4720)

■ Typical Characteristics

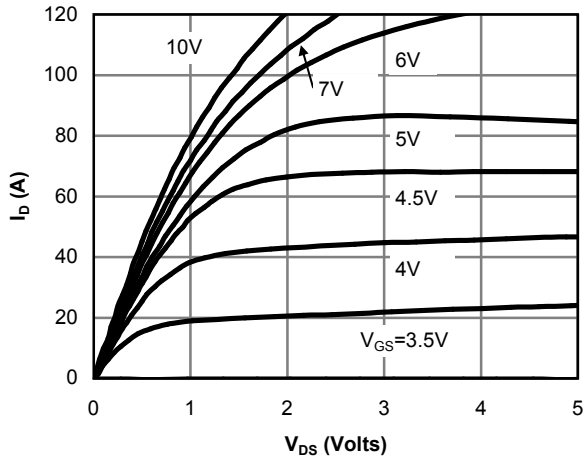


Figure 1: On-Region Characteristics

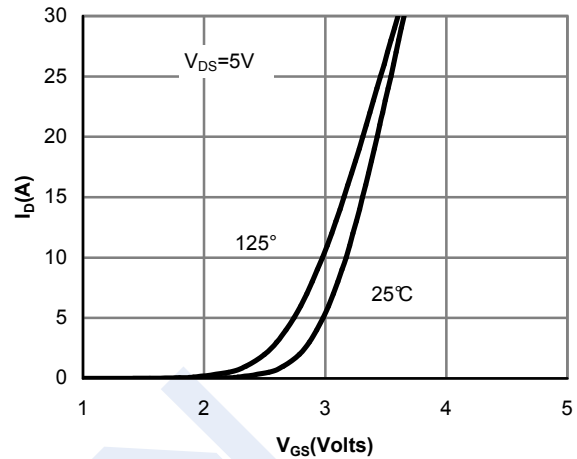


Figure 2: Transfer Characteristics

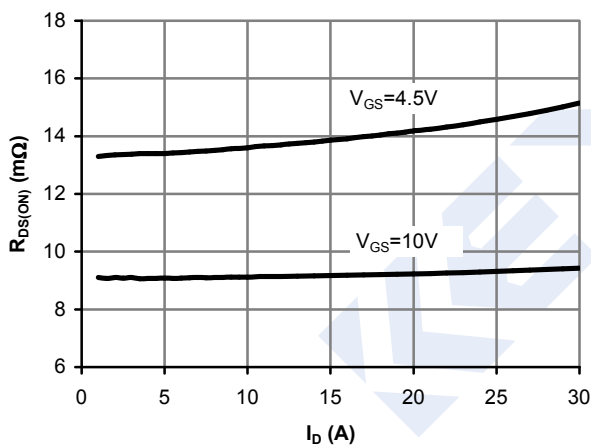


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

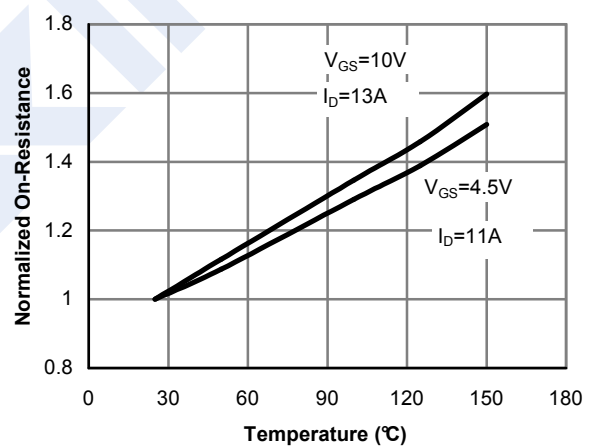


Figure 4: On-Resistance vs. Junction Temperature

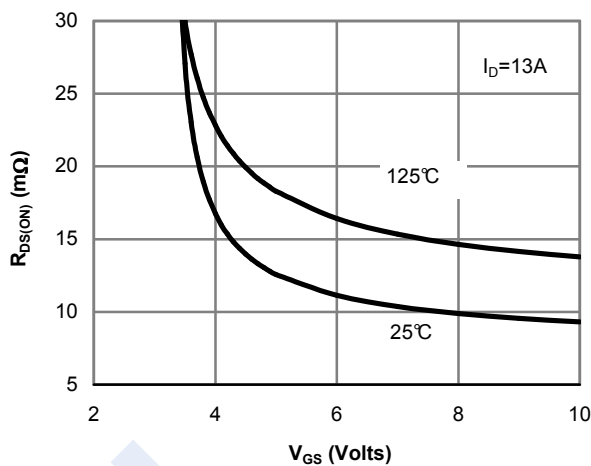


Figure 5: On-Resistance vs. Gate-Source Voltage

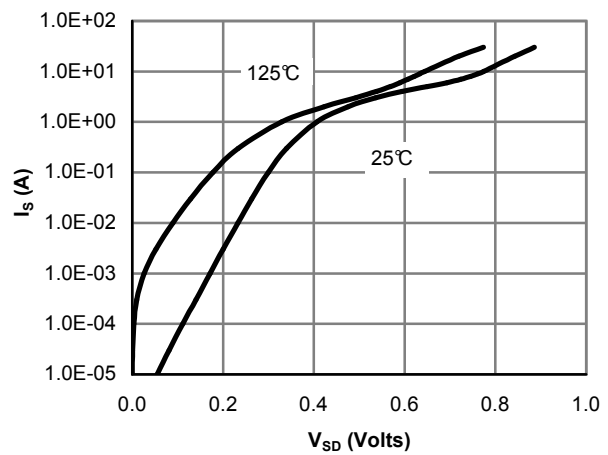


Figure 6: Body-Diode Characteristics

N-Channel MOSFET AO4720 (KO4720)

■ Typical Characteristics

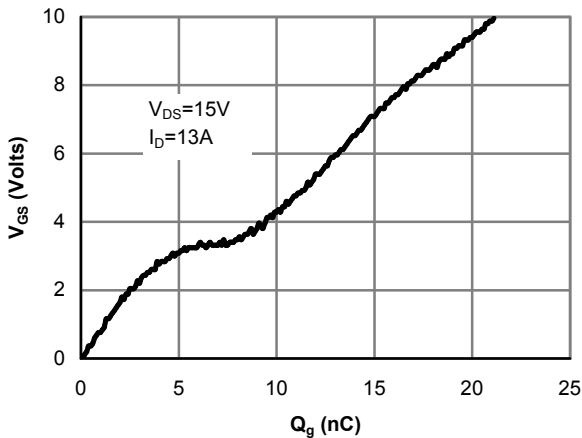


Figure 7: Gate-Charge Characteristics

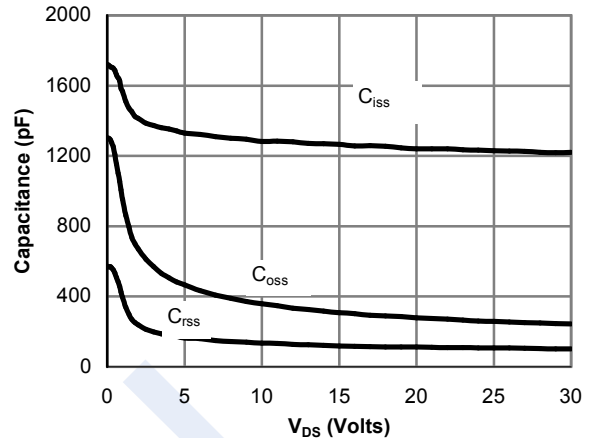


Figure 8: Capacitance Characteristics

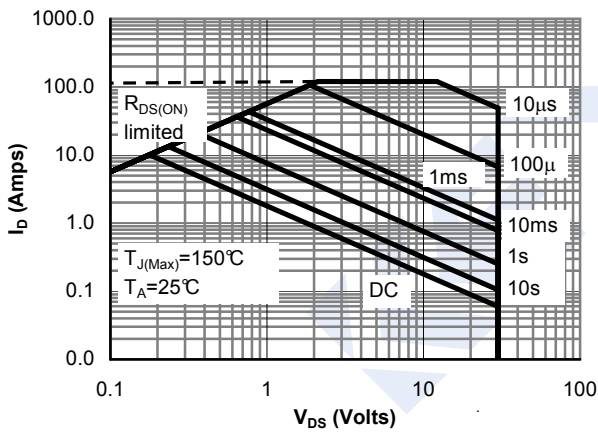


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

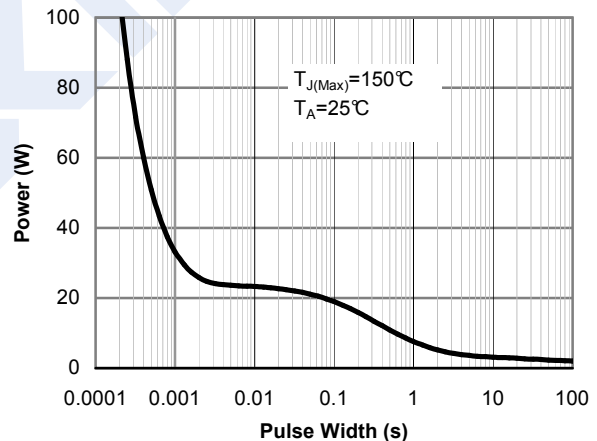


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

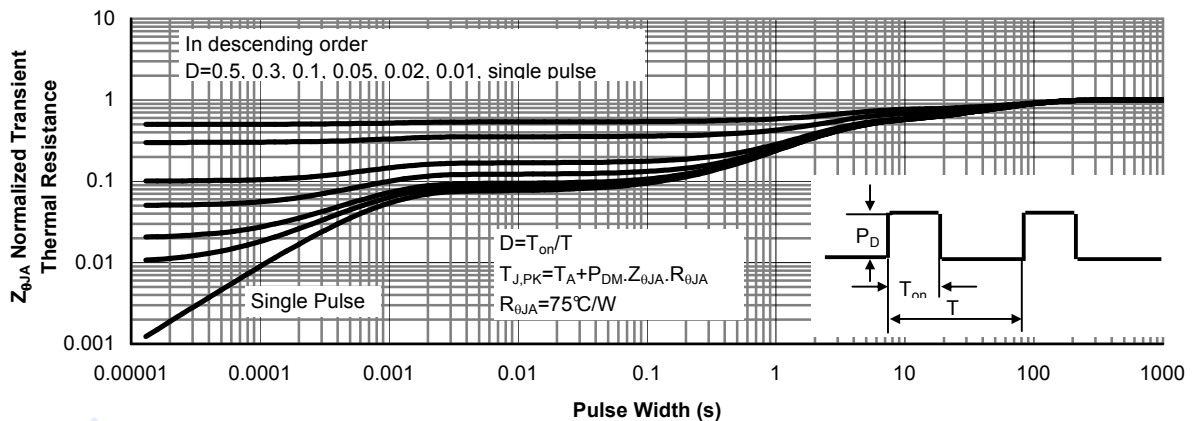


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)