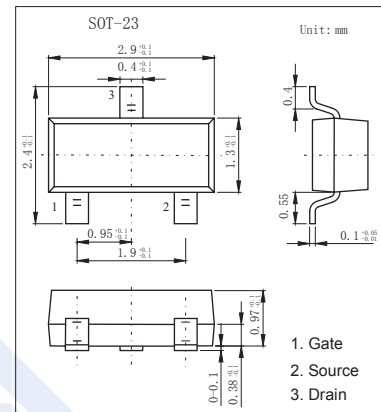


P-Channel MOSFET

AO3419-HF (KO3419-HF)

■ Features

- $V_{DS} (V) = -20V$
- $I_D = -3.5 A$
- $R_{DS(ON)} < 75m\Omega$ ($V_{GS} = -10V$)
- $R_{DS(ON)} < 95m\Omega$ ($V_{GS} = -4.5V$)
- $R_{DS(ON)} < 145m\Omega$ ($V_{GS} = -2.5V$)
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



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

| Parameter | Symbol | Rating | Unit |
|--|-----------------|------------|--------------|
| Drain-Source Voltage | V_{DS} | -20 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Continuous Drain Current *1 $T_A=25^\circ C$ | I_D | -3.5 | A |
| Current *1 $T_A=70^\circ C$ | | -2.8 | |
| 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 | $R_{\theta JA}$ | 125 | $^\circ C/W$ |
| Thermal Resistance.Junction-to-Case | $R_{\theta JC}$ | 60 | $^\circ C/W$ |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55 to 150 | $^\circ C$ |

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

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

*2 Repetitive rating, pulse width limited by junction temperature.

P-Channel MOSFET

AO3419-HF (K03419-HF)

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Testconditions | Min | Typ | Max | Unit |
|---------------------------------------|---------------------|--|-------|-------|-------|------|
| Drain-Source Breakdown Voltage | V _{DSS} | I _D =250 μA, V _{GS} =0V | -20 | | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =-16V, V _{GS} =0V | | | -0.5 | μA |
| | | V _{DS} =-16V, V _{GS} =0V, T _J =55°C | | | -2.5 | |
| Gate-Body leakage current | I _{GSS} | V _{DS} =0V, V _{GS} =±10V | | | ±1 | μA |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} I _D =-250 μA | -0.7 | | -1.4 | V |
| Static Drain-Source On-Resistance | R _{DS(on)} | V _{GS} =-10V, I _D =-3.5A | | | 75 | mΩ |
| | | V _{GS} =-10V, I _D =-3.5A T _J =125°C | | | 105 | |
| | | V _{GS} =-4.5V, I _D =-3A | | | 95 | |
| | | V _{GS} =-2.5V, I _D =-1A | | | 145 | |
| 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 =-3.5A | | 6.8 | | S |
| Input Capacitance | C _{iss} | V _{GS} =0V, V _{DS} =-10V, f=1MHz | | 512 | 620 | pF |
| Output Capacitance | C _{oss} | | | 77 | | pF |
| Reverse Transfer Capacitance | C _{rss} | | | 62 | | pF |
| Gate resistance | R _g | V _{GS} =0V, V _{DS} =0V, f=1MHz | | 9.2 | 13 | Ω |
| Total Gate Charge | Q _g | V _{GS} =-4.5V, V _{DS} =-10V, I _D =-3.5A | | 5.5 | 6.6 | nC |
| Gate Source Charge | Q _{gs} | | | 0.8 | | nC |
| Gate Drain Charge | Q _{gd} | | | 1.9 | | nC |
| Turn-On DelayTime | t _{d(on)} | V _{GS} =-10V, V _{DS} =-10V, R _L =2.8 Ω, R _{GEN} =3 Ω | | 5 | | ns |
| Turn-On Rise Time | t _r | | | 6.7 | | ns |
| Turn-Off DelayTime | t _{d(off)} | | | 28 | | ns |
| Turn-Off Fall Time | t _f | | | 13.5 | | ns |
| Body Diode Reverse Recovery Time | t _{rr} | I _F =-3.5A, di/dt=100A/μs | | 9.8 | 12 | ns |
| Body Diode Reverse Recovery Charge | Q _{rr} | I _F =-3.5A, di/dt=100A/μs | | 2.7 | | nC |
| Maximum Body-Diode Continuous Current | I _S | | | | -2 | A |
| Diode Forward Voltage | V _{SD} | I _S =-1A, V _{GS} =0V | -0.65 | -0.81 | -0.95 | V |

■ Marking

| | |
|---------|------------------|
| Marking | AL* _F |
|---------|------------------|

P-Channel MOSFET AO3419-HF (K03419-HF)

■ Typical Characteristics

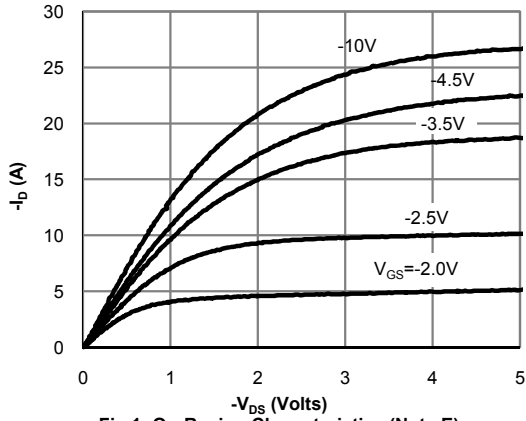


Fig 1: On-Region Characteristics (Note E)

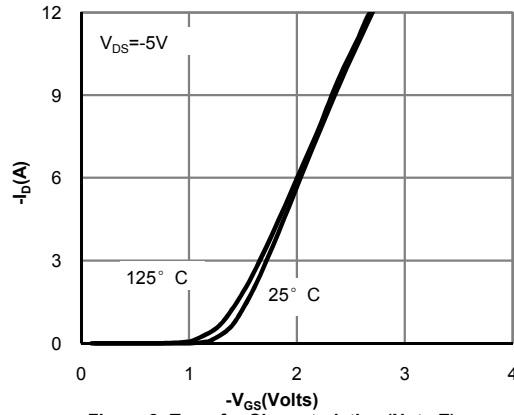


Figure 2: Transfer Characteristics (Note E)

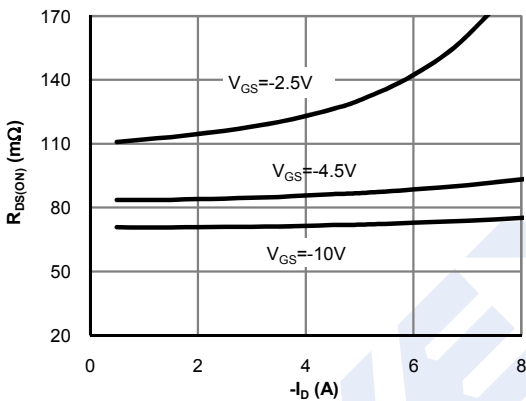


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

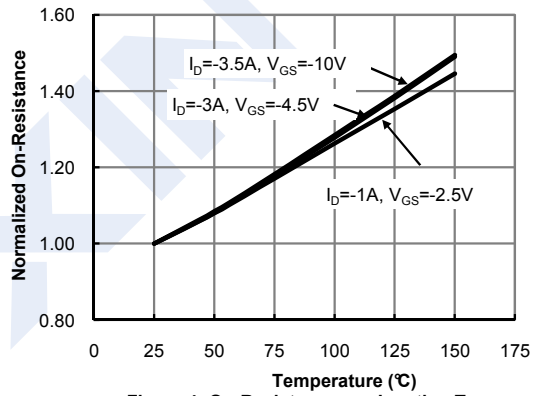


Figure 4: On-Resistance vs. Junction Temperature (Note E)

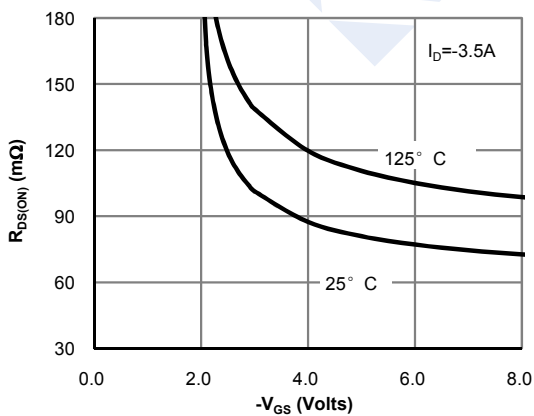


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

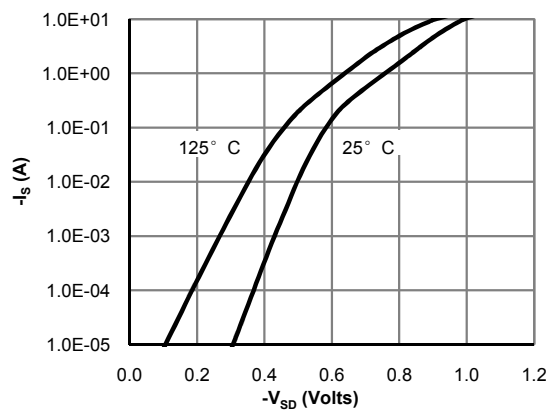


Figure 6: Body-Diode Characteristics (Note E)

P-Channel MOSFET AO3419-HF (K03419-HF)

■ Typical Characteristics

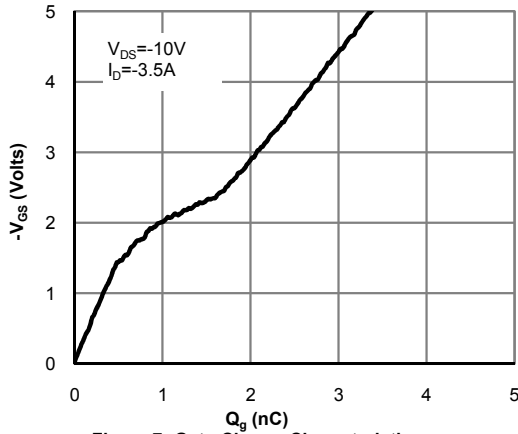


Figure 7: Gate-Charge Characteristics

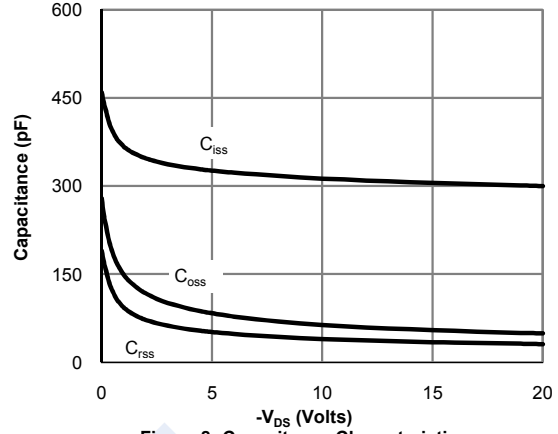


Figure 8: Capacitance Characteristics

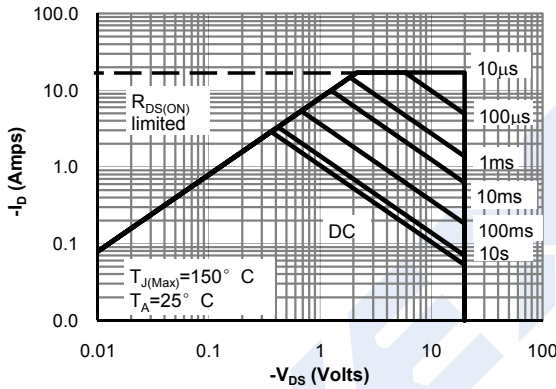


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

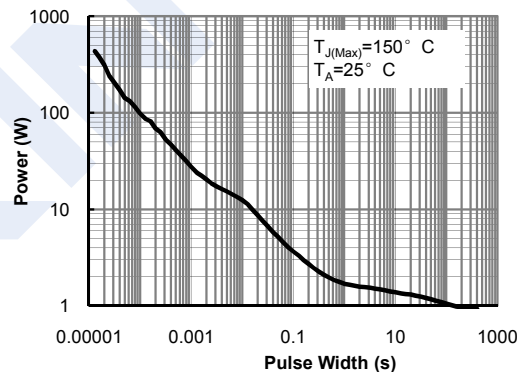


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

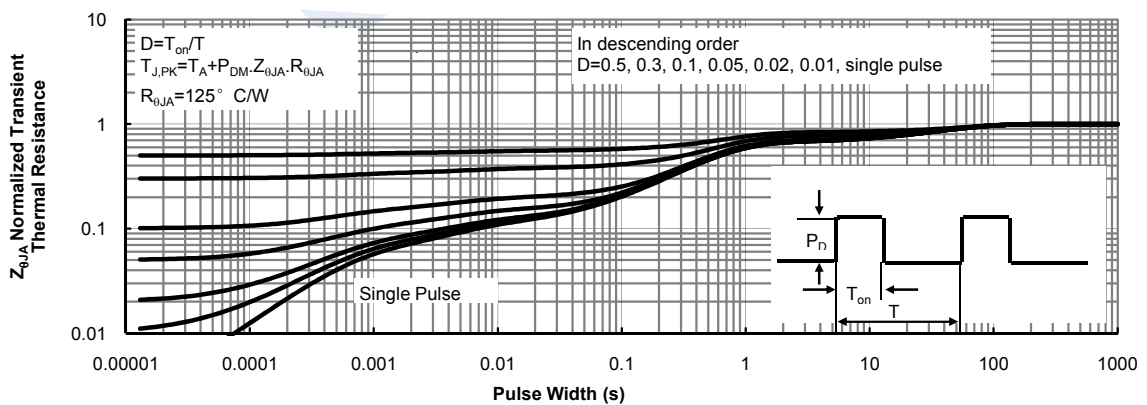


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)