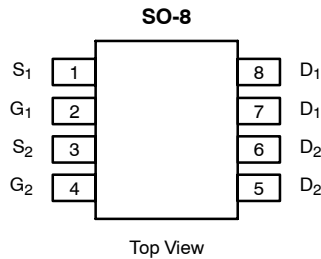


Dual N-Channel 30-V (D-S) MOSFET

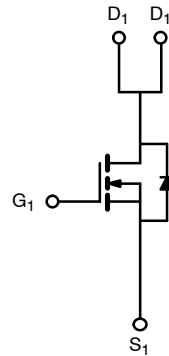
| PRODUCT SUMMARY | | |
|-----------------|---------------------------|-----------|
| V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
| 30 | 0.036 @ $V_{GS} = 10$ V | 5.9 |
| | 0.053 @ $V_{GS} = 4.5$ V | 4.9 |

FEATURES

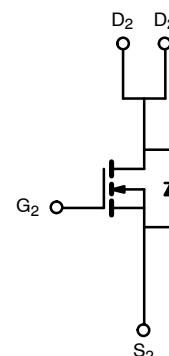
- TrenchFET® Power MOSFET



Ordering Information: Si4936ADY
Si4936ADY-T1 (with Tape and Reel)



N-Channel MOSFET



N-Channel MOSFET

| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED) | | | | | |
|---|----------------|--------------------------|--------------|------------------|-----|
| Parameter | Symbol | 10 secs | Steady State | Unit | |
| Drain-Source Voltage | V_{DS} | 30 | | V | |
| Gate-Source Voltage | V_{GS} | ± 20 | | | |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a | I_D | $T_A = 25^\circ\text{C}$ | 5.9 | 4.4 | A |
| | | $T_A = 70^\circ\text{C}$ | 4.7 | 3.6 | |
| Pulsed Drain Current | I_{DM} | ± 30 | | | |
| Continuous Source Current (Diode Conduction) ^a | I_S | 1.7 | 0.9 | W | |
| Maximum Power Dissipation ^a | P_D | $T_A = 25^\circ\text{C}$ | 2.0 | | 1.1 |
| | | $T_A = 70^\circ\text{C}$ | 1.3 | | 0.7 |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to 150 | | $^\circ\text{C}$ | |

| THERMAL RESISTANCE RATINGS | | | | | |
|--|------------|-----------------|---------|------|---------------------------|
| Parameter | Symbol | Typical | Maximum | Unit | |
| Maximum Junction-to-Ambient ^a | R_{thJA} | $t \leq 10$ sec | 50 | 62.5 | $^\circ\text{C}/\text{W}$ |
| | | Steady State | 90 | 110 | |
| Maximum Junction-to-Foot (Drain) | R_{thJF} | 32 | 40 | | |

Notes

a. Surface Mounted on 1" x 1" FR4 Board.

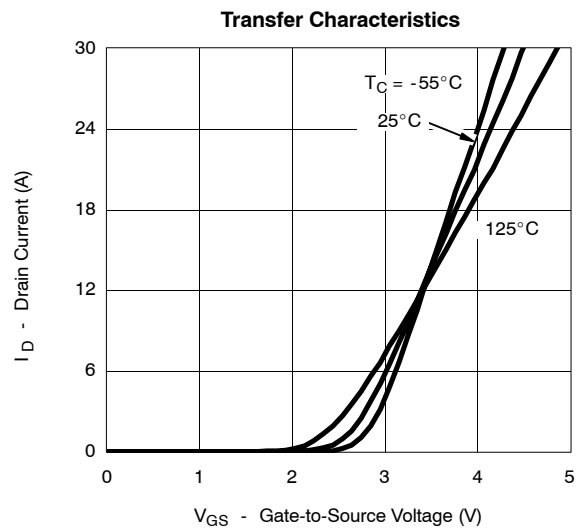
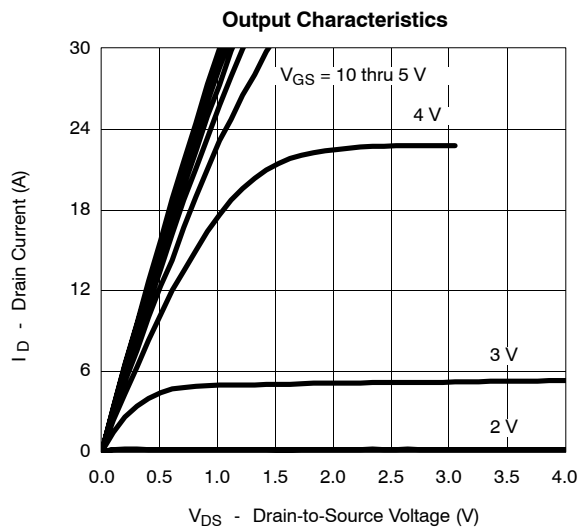
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---------------------|--|-----|-------|-------|------|
| Static | | | | | | |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250 μA | 1.0 | | | V |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ±20 V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 30 V, V _{GS} = 0 V | | | 1 | μA |
| | | V _{DS} = 30 V, V _{GS} = 0 V, T _J = 55 °C | | | 5 | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} ≥ 5 V, V _{GS} = 10 V | 30 | | | A |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = 10 V, I _D = 5.9 A | | 0.032 | 0.036 | Ω |
| | | V _{GS} = 4.5 V, I _D = 4.9 A | | 0.042 | 0.053 | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = 15 V, I _D = 5.9 A | | 15 | | S |
| Diode Forward Voltage ^a | V _{SD} | I _S = 1.7 A, V _{GS} = 0 V | | 0.8 | 1.2 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = 15 V, V _{GS} = 10 V, I _D = 5.9 A | | 13 | 20 | nC |
| Gate-Source Charge | Q _{gs} | | | 2.3 | | |
| Gate-Drain Charge | Q _{gd} | | | 2.0 | | |
| Turn-On Delay Time | t _{d(on)} | V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω | | 6 | 12 | ns |
| Rise Time | t _r | | | 14 | 25 | |
| Turn-Off Delay Time | t _{d(off)} | | | 30 | 60 | |
| Fall Time | t _f | | | 5 | 10 | |
| Source-Drain Reverse Recovery Time | t _{rr} | I _F = 1.7 A, di/dt = 100 A/μs | | 30 | 60 | |

Notes

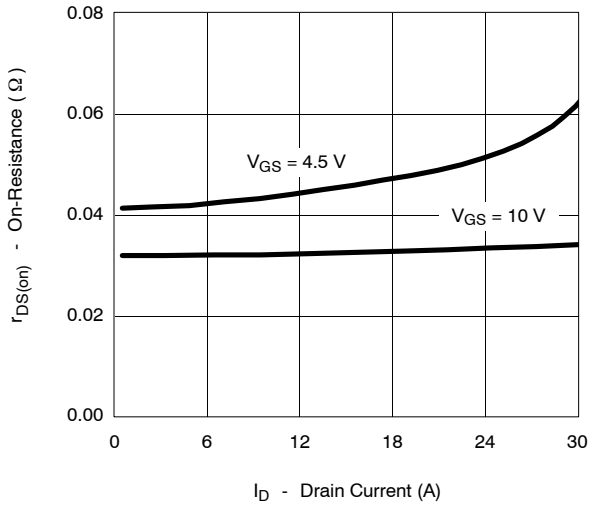
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

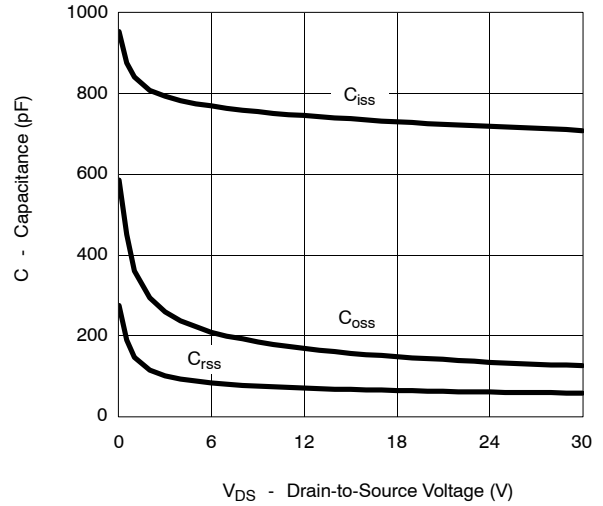


TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

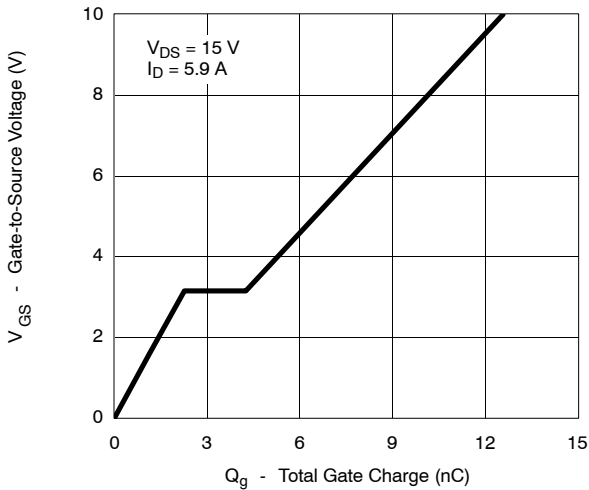
On-Resistance vs. Drain Current



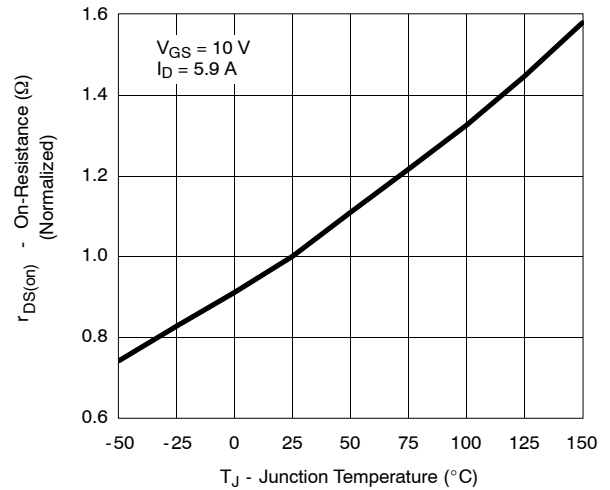
Capacitance



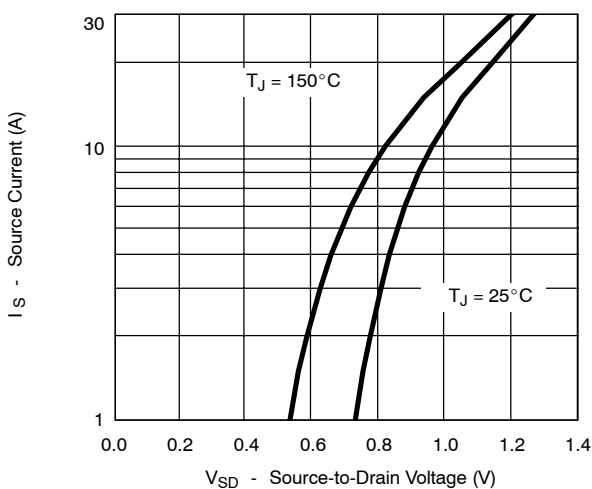
Gate Charge



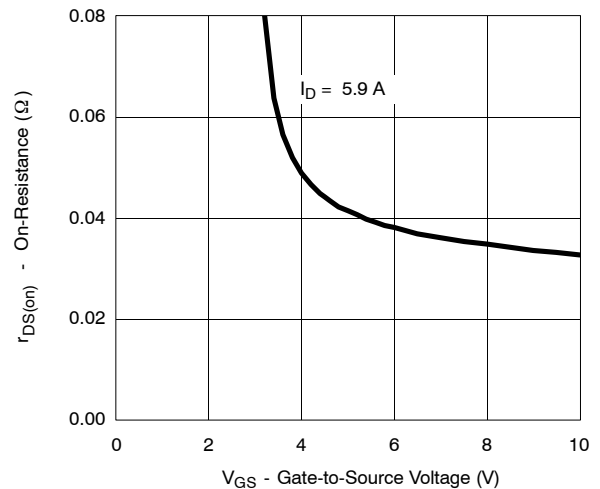
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

