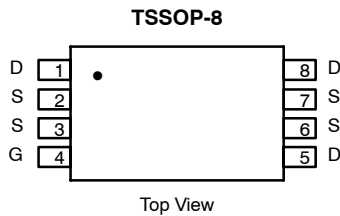


N-Channel 2.5-V (G-S) MOSFET

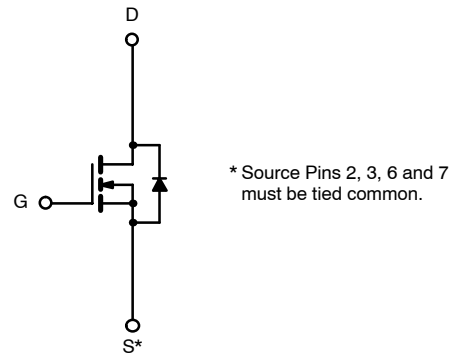
| PRODUCT SUMMARY | | |
|-----------------|---------------------------|-----------|
| V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
| 20 | 0.014 @ $V_{GS} = 4.5$ V | 8.1 |
| | 0.020 @ $V_{GS} = 2.5$ V | 6.6 |

FEATURES

- TrenchFET® Power MOSFET
- 100% R_g Tested



Ordering Information: Si6466ADQ-T1



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} | 20 | | V |
| Gate-Source Voltage | | V_{GS} | ± 8 | | |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a | $T_A = 25^\circ\text{C}$ | I_D | 8.1 | 6.8 | A |
| | $T_A = 70^\circ\text{C}$ | | 6.6 | 5.4 | |
| Pulsed Drain Current (10 μs Pulse Width) | | I_{DM} | 30 | | |
| Continuous Source Current (Diode Conduction) ^a | | I_S | 1.35 | 0.95 | |
| Maximum Power Dissipation ^a | $T_A = 25^\circ\text{C}$ | P_D | 1.5 | 1.05 | W |
| | $T_A = 70^\circ\text{C}$ | | 1.0 | 0.67 | |
| 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 | $t \leq 10$ sec | R_{thJA} | 65 | 83 | $^\circ\text{C/W}$ |
| | Steady State | | 100 | 120 | |
| Maximum Junction-to-Foot | Steady State | R_{thJF} | 43 | 52 | |

Notes

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

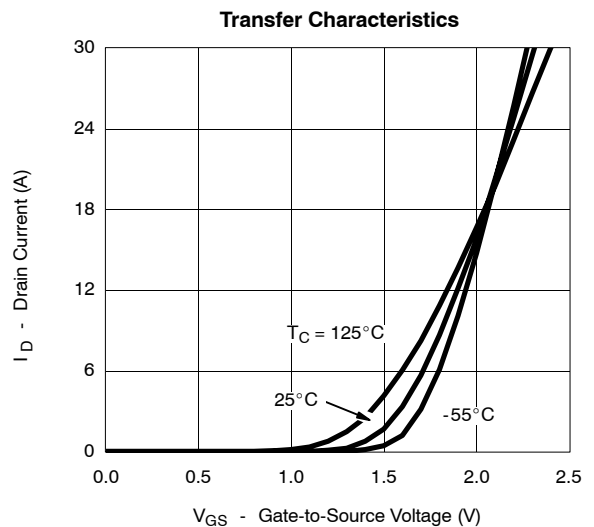
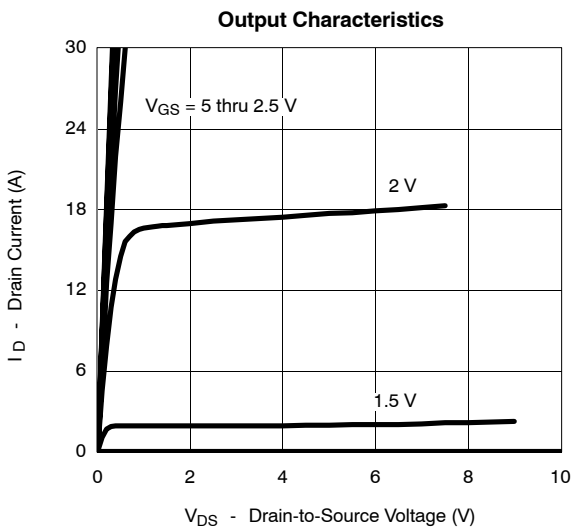


| SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED) | | | | | | |
|--|---------------------|---|------|-------|-------|------|
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
| Static | | | | | | |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250 μA | 0.45 | | | V |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ± 8 V | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 16 V, V _{GS} = 0 V | | | 1 | μA |
| | | V _{DS} = 16 V, V _{GS} = 0 V, T _J = 70 °C | | | 10 | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} = 5 V, V _{GS} = 4.5 V | 20 | | | A |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = 4.5 V, I _D = 8.1 A | | 0.011 | 0.014 | Ω |
| | | V _{GS} = 2.5 V, I _D = 6.6 A | | 0.017 | 0.020 | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = 10 V, I _D = 8.1 A | | 30 | | S |
| Diode Forward Voltage ^a | V _{SD} | I _S = 1.35 A, V _{GS} = 0 V | | 0.65 | 1.1 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = 10 V, V _{GS} = 5 V, I _D = 8.1 A | | 18 | 27 | nC |
| Gate-Source Charge | Q _{gs} | | | 3.2 | | |
| Gate-Drain Charge | Q _{gd} | | | 4 | | |
| Gate Resistance | R _g | | 0.5 | | 1.8 | Ω |
| Turn-On Delay Time | t _{d(on)} | V _{DD} = 10 V, R _L = 10 Ω I _D ≅ 1 A, V _{GEN} = 4.5 V, R _G = 6 Ω | | 27 | 45 | ns |
| Rise Time | t _r | | | 34 | 50 | |
| Turn-Off Delay Time | t _{d(off)} | | | 76 | 120 | |
| Fall Time | t _f | | | 30 | 50 | |
| Source-Drain Reverse Recovery Time | t _{rr} | I _F = 1.5 A, di/dt = 100 A/μs | | 35 | 70 | |

Notes

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

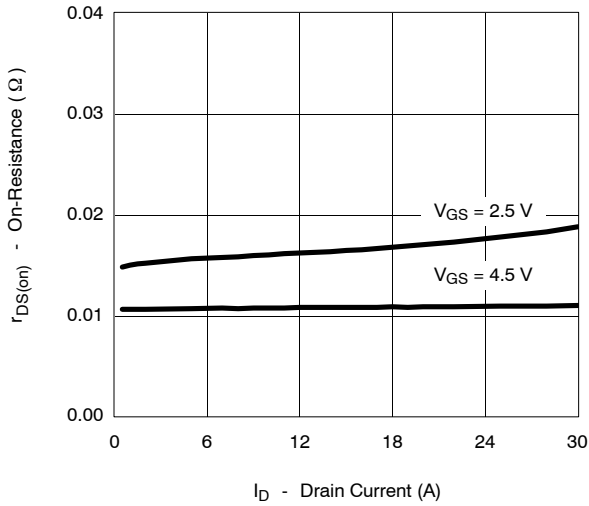
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



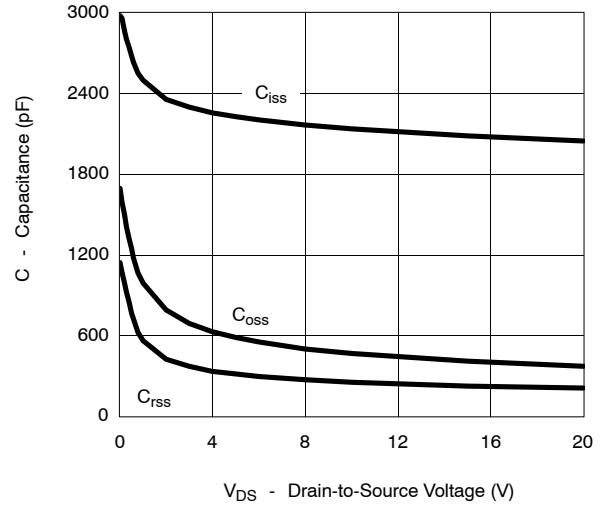


TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

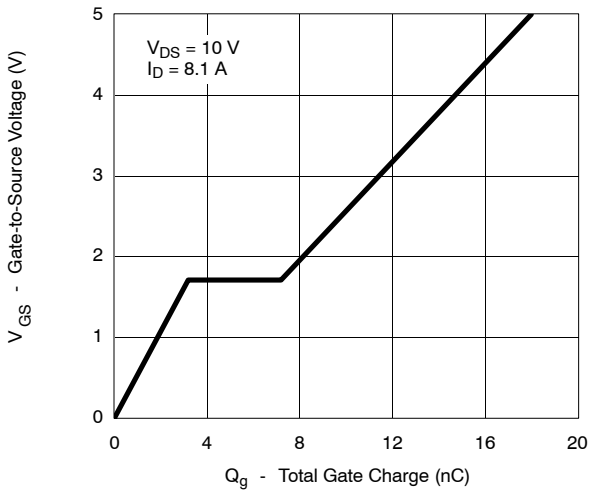
On-Resistance vs. Drain Current



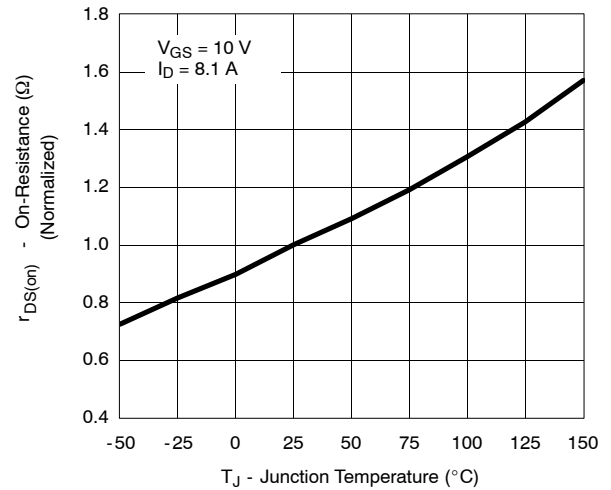
Capacitance



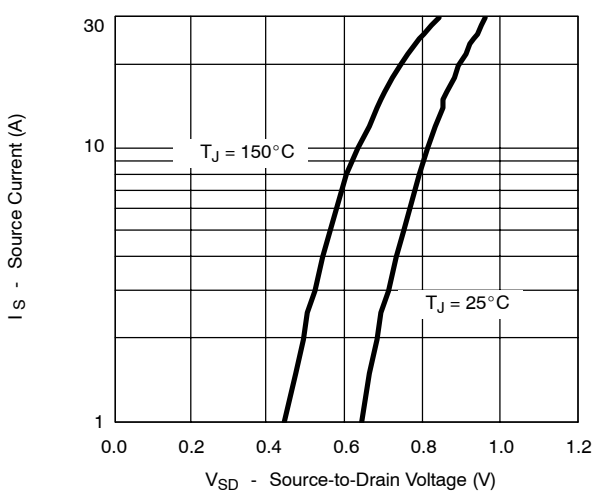
Gate Charge



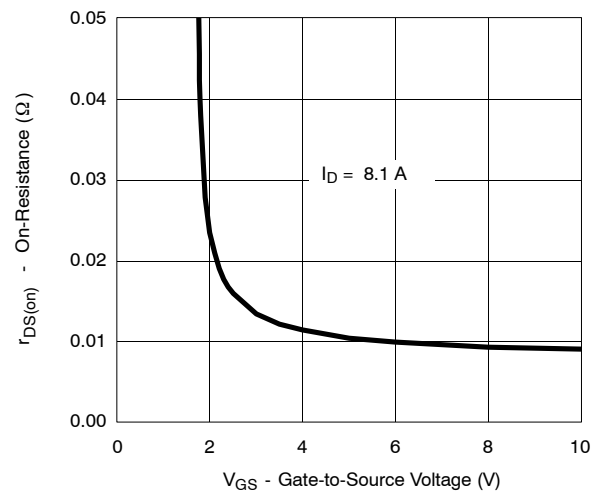
On-Resistance vs. Junction Temperature



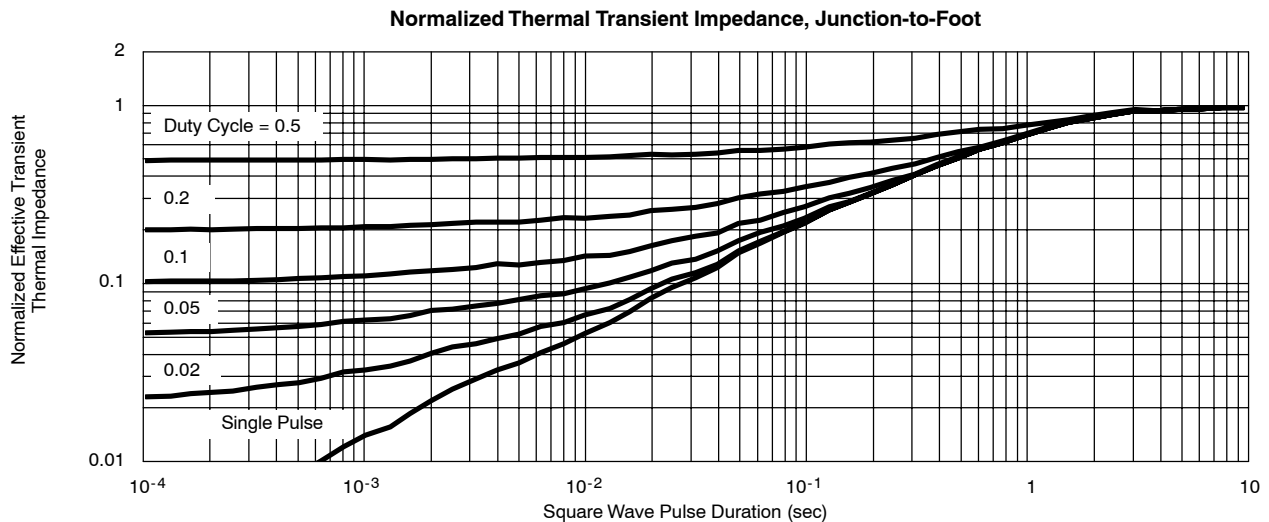
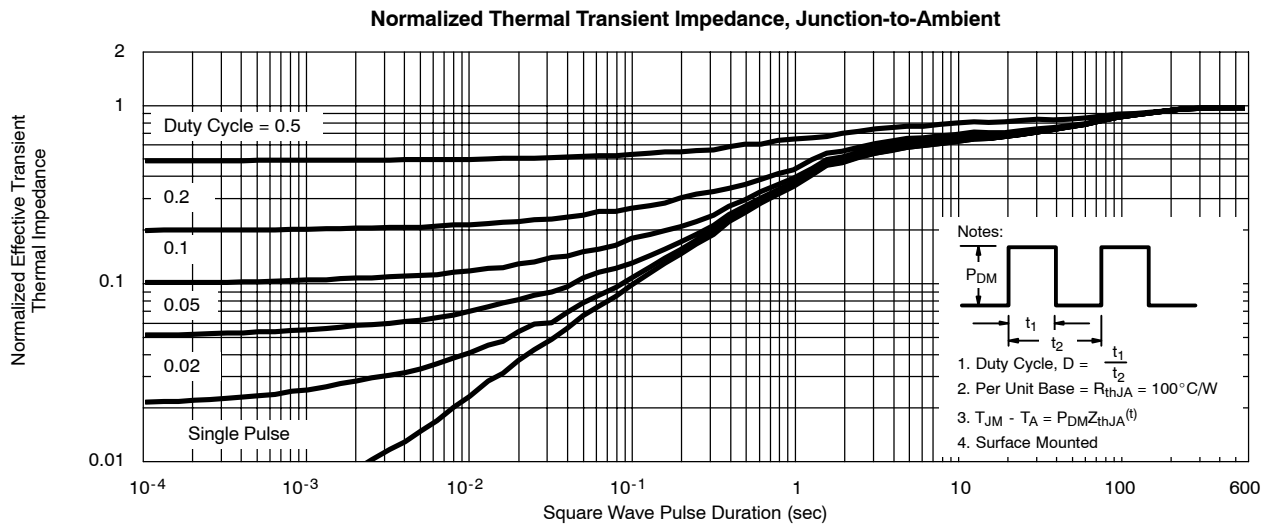
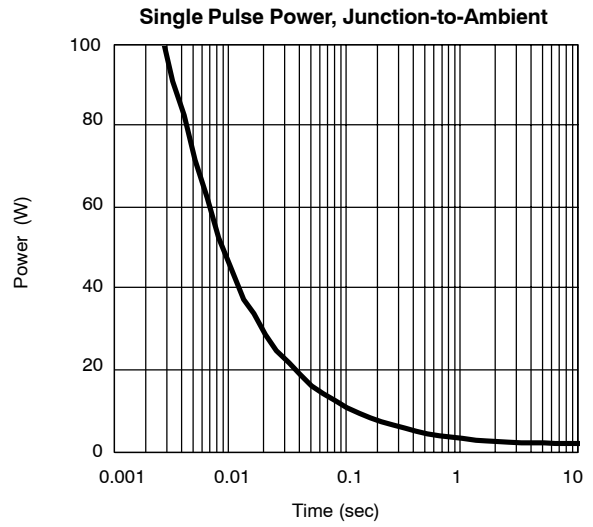
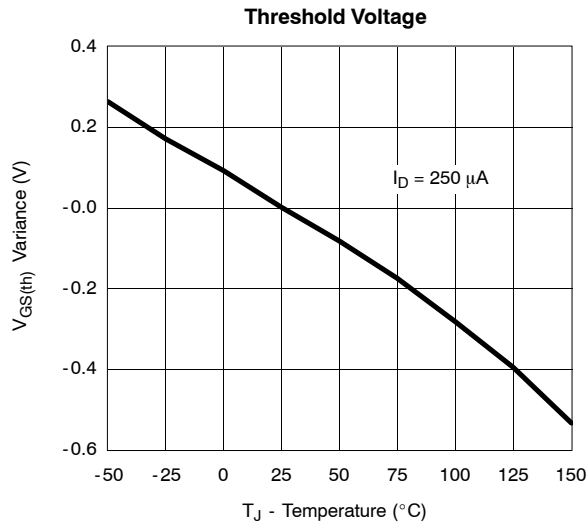
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





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