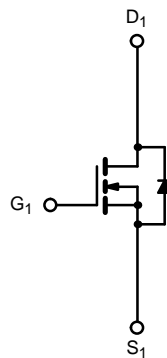
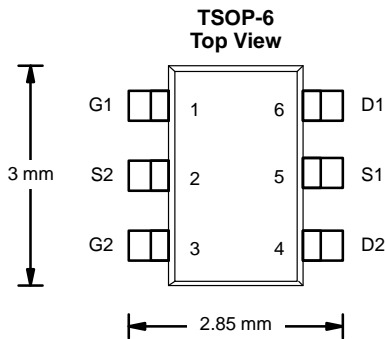




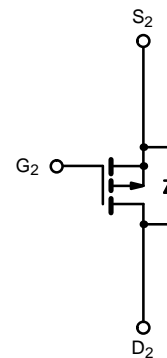
N- and P-Channel 30-V (D-S) MOSFET

| PRODUCT SUMMARY | | | |
|-----------------|--------------|---------------------------|-----------|
| | V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
| N-Channel | 30 | 0.105 @ $V_{GS} = 10$ V | ± 2.5 |
| | | 0.175 @ $V_{GS} = 4.5$ V | ± 2.0 |
| P-Channel | -30 | 0.200 @ $V_{GS} = -10$ V | ± 1.8 |
| | | 0.360 @ $V_{GS} = -4.5$ V | ± 1.2 |

TrenchFET[®]
Power MOSFETs



N-Channel MOSFET



P-Channel MOSFET

| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED) | | | | |
|---|----------------|--------------------------|-----------|------------------|
| Parameter | Symbol | N-Channel | P-Channel | Unit |
| Drain-Source Voltage | V_{DS} | 30 | -30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | ± 20 | |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^{a, b} | I_D | $T_A = 25^\circ\text{C}$ | ± 2.5 | A |
| | | $T_A = 70^\circ\text{C}$ | ± 2.0 | |
| Pulsed Drain Current | I_{DM} | ± 8 | ± 7 | A |
| Continuous Source Current (Diode Conduction) ^{a, b} | I_S | 1.05 | -1.05 | |
| Maximum Power Dissipation ^{a, b} | P_D | $T_A = 25^\circ\text{C}$ | 1.15 | W |
| | | $T_A = 70^\circ\text{C}$ | 0.73 | |
| 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} | $t \leq 5$ sec | 93 | $^\circ\text{C/W}$ |
| | | Steady State | 130 | |
| Maximum Junction-to-Lead | R_{thJL} | 75 | 90 | |

Notes

- a. Surface Mounted on FR4 Board.
- b. $t \leq 5$ sec



| 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 | N-Ch | 1.0 | | | V |
| | | V _{DS} = V _{GS} , I _D = -250 μA | P-Ch | -1.0 | | | |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ±20 V | N-Ch P-Ch | | | ±100 ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 24 V, V _{GS} = 0 V | N-Ch | | | 1 | μA |
| | | V _{DS} = -24 V, V _{GS} = 0 V | P-Ch | | | -1 | |
| | | V _{DS} = 24 V, V _{GS} = 0 V, T _J = 55 °C | N-Ch | | | 5 | |
| | | V _{DS} = -24 V, V _{GS} = 0 V, T _J = 55 °C | P-Ch | | | -5 | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} = 5 V, V _{GS} = 10 V | N-Ch | 5 | | | A |
| | | V _{DS} = -5 V, V _{GS} = -10 V | P-Ch | -5 | | | |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = 10 V, I _D = 2.5 A | N-Ch | | 0.085 | 0.105 | Ω |
| | | V _{GS} = -10 V, I _D = -1.8 A | P-Ch | | 0.165 | 0.200 | |
| | | V _{GS} = 4.5 V, I _D = 2.0 A | N-Ch | | 0.140 | 0.175 | |
| | | V _{GS} = -4.5 V, I _D = -1.2 A | P-Ch | | 0.298 | 0.360 | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = 10 V, I _D = 2.5 A | N-Ch | | 4.3 | | S |
| | | V _{DS} = -15 V, I _D = -1.8 A | P-Ch | | 2.4 | | |
| Diode Forward Voltage ^a | V _{SD} | I _S = 1.05 A, V _{GS} = 0 V | N-Ch | | 0.81 | 1.10 | V |
| | | I _S = -1.05 A, V _{GS} = 0 V | P-Ch | | -0.83 | -1.10 | |
| Dynamic^b | | | | | | | |
| Total Gate Charge | Q _g | N-Channel V _{DS} = 15 V, V _{GS} = 5 V, I _D = 1.8 A P-Channel V _{DS} = -15 V, V _{GS} = -5 V, I _D = -1.8 A | N-Ch | | 2.1 | 3.2 | nC |
| Gate-Source Charge | Q _{gs} | | P-Ch | | 2.4 | 3.6 | |
| | | | N-Ch | | 0.7 | | |
| Gate-Drain Charge | Q _{gd} | | P-Ch | | 0.9 | | |
| | | N-Ch | | 0.7 | | | |
| Turn-On Delay Time | t _{d(on)} | N-Channel V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω P-Channel V _{DD} = -15 V, R _L = 15 Ω I _D ≅ -1 A, V _{GEN} = -10 V, R _G = 6 Ω | N-Ch | | 7 | 11 | ns |
| | | | P-Ch | | 8 | 12 | |
| Rise Time | t _r | | N-Ch | | 9 | 14 | |
| | | | P-Ch | | 12 | 18 | |
| Turn-Off Delay Time | t _{d(off)} | | N-Ch | | 13 | 20 | |
| | | | P-Ch | | 12 | 18 | |
| Fall Time | t _f | | N-Ch | | 5 | 8 | |
| | | | P-Ch | | 7 | 11 | |
| Source-Drain Reverse Recovery Time | t _{rr} | I _F = 1.05 A, di/dt = 100 A/μs | N-Ch | | 35 | 60 | |
| | | I _F = -1.05 A, di/dt = 100 A/μs | P-Ch | | 30 | 60 | |

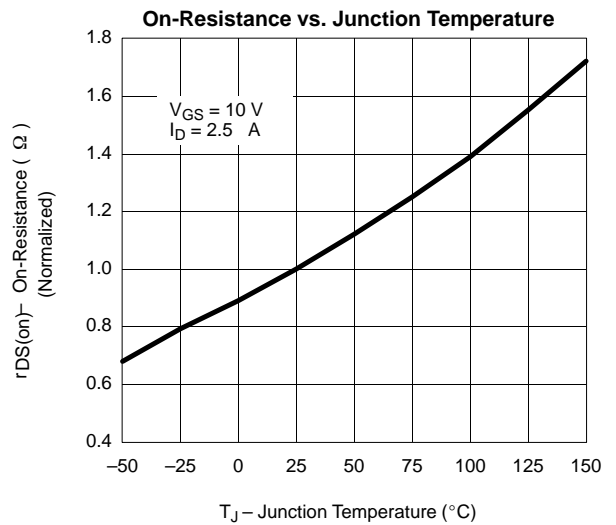
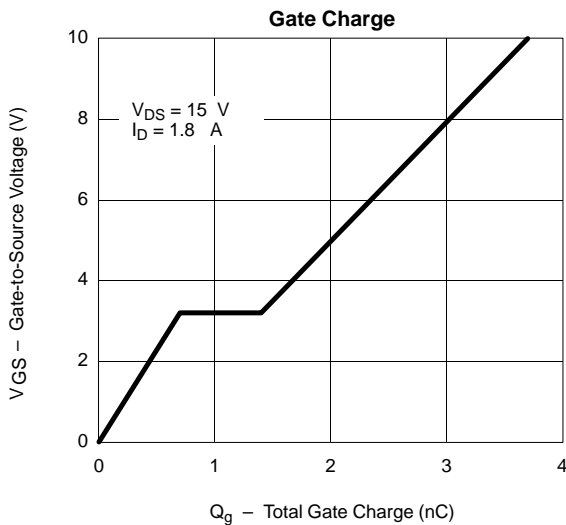
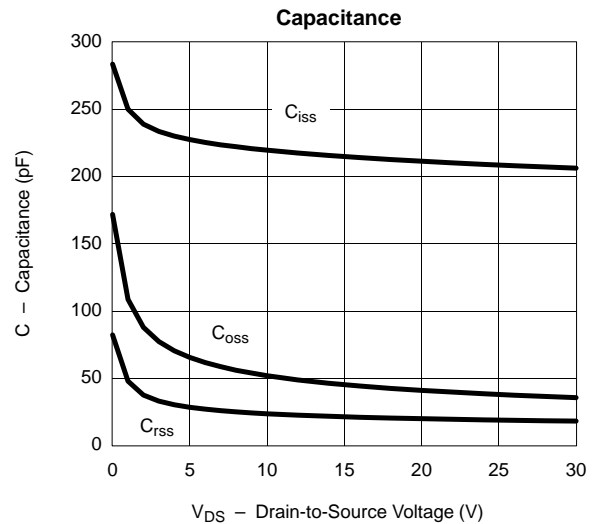
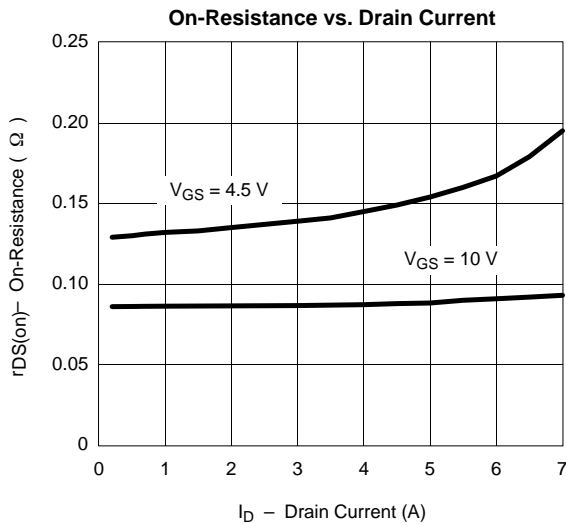
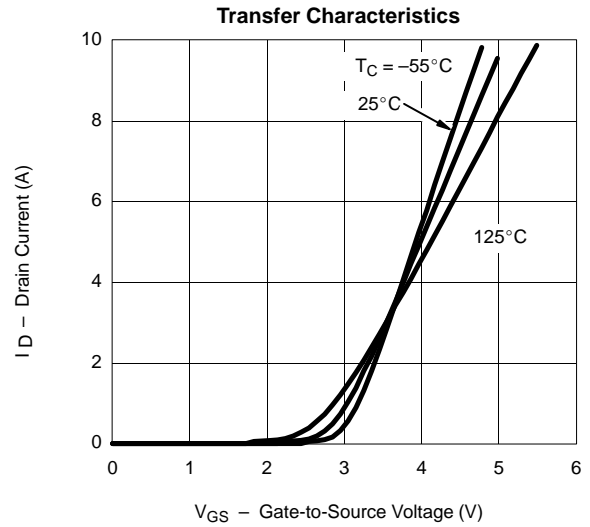
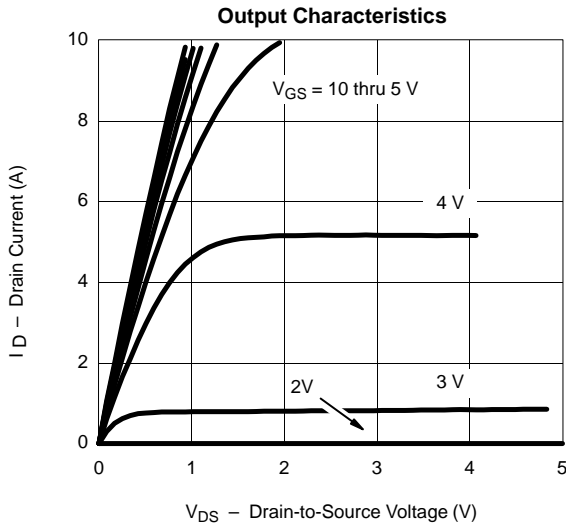
Notes

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



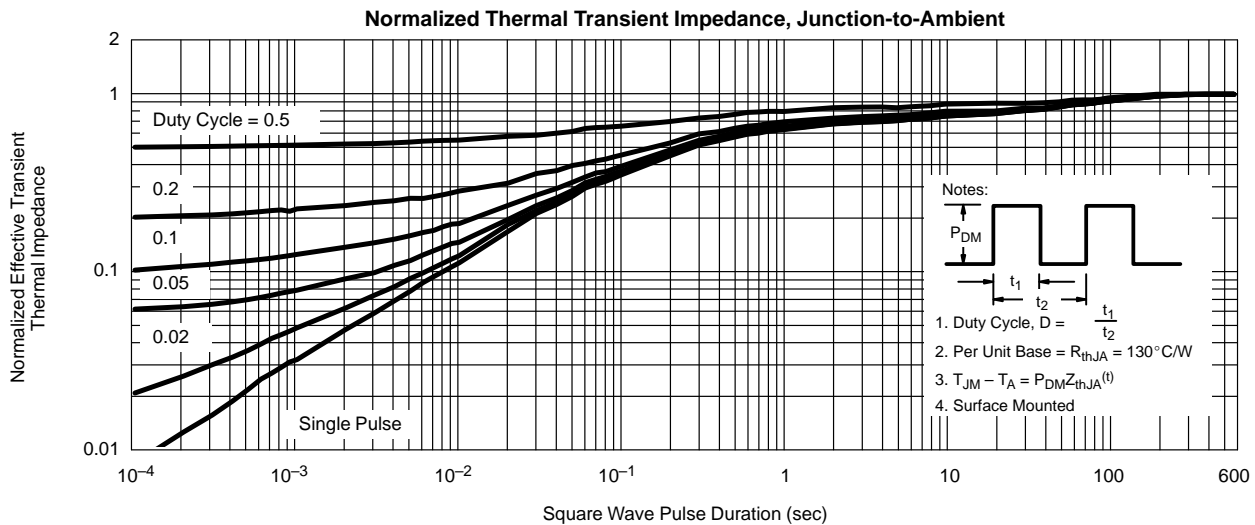
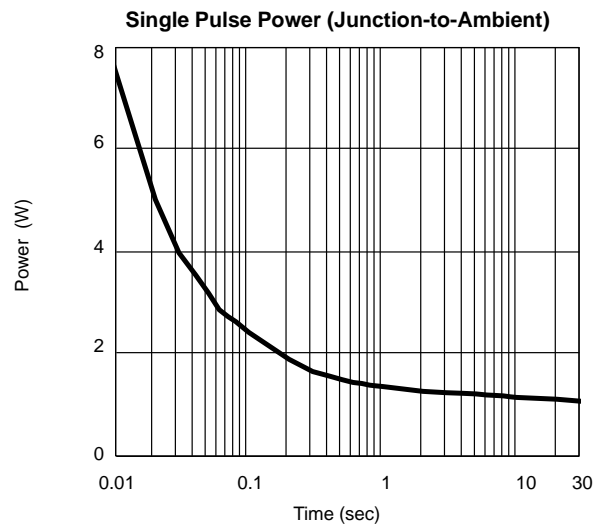
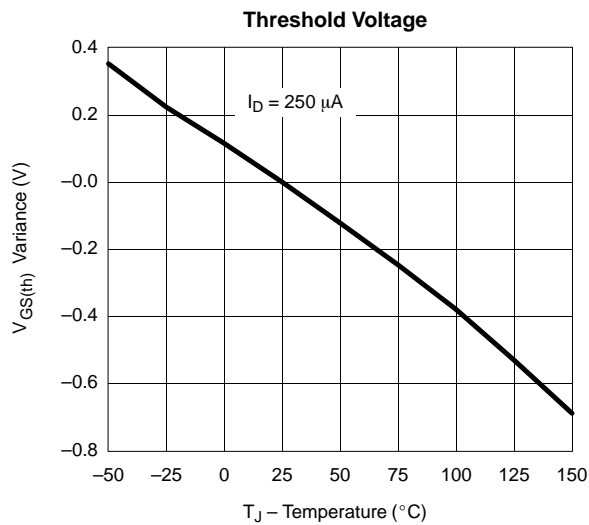
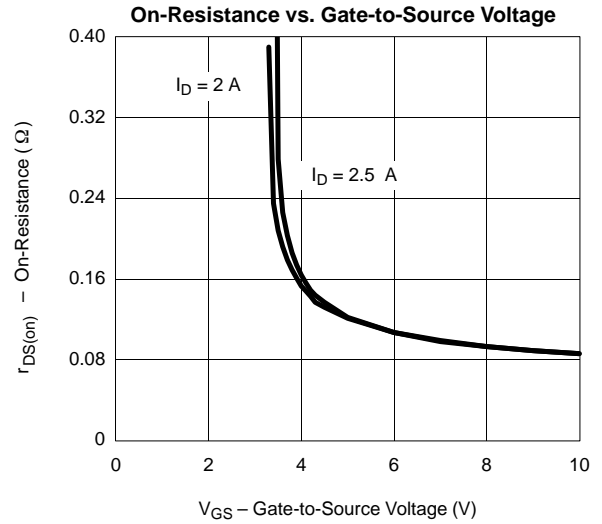
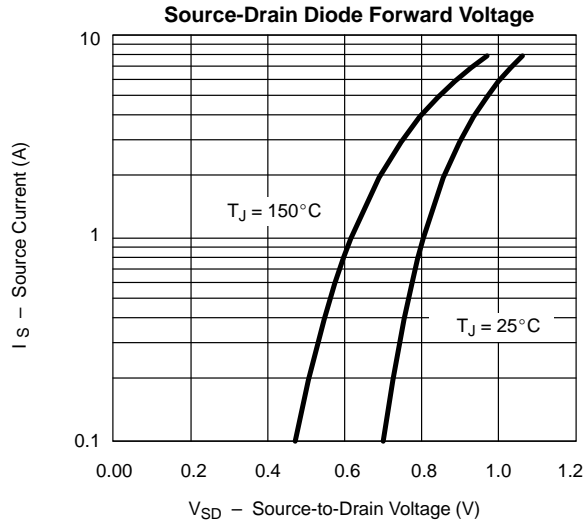
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL



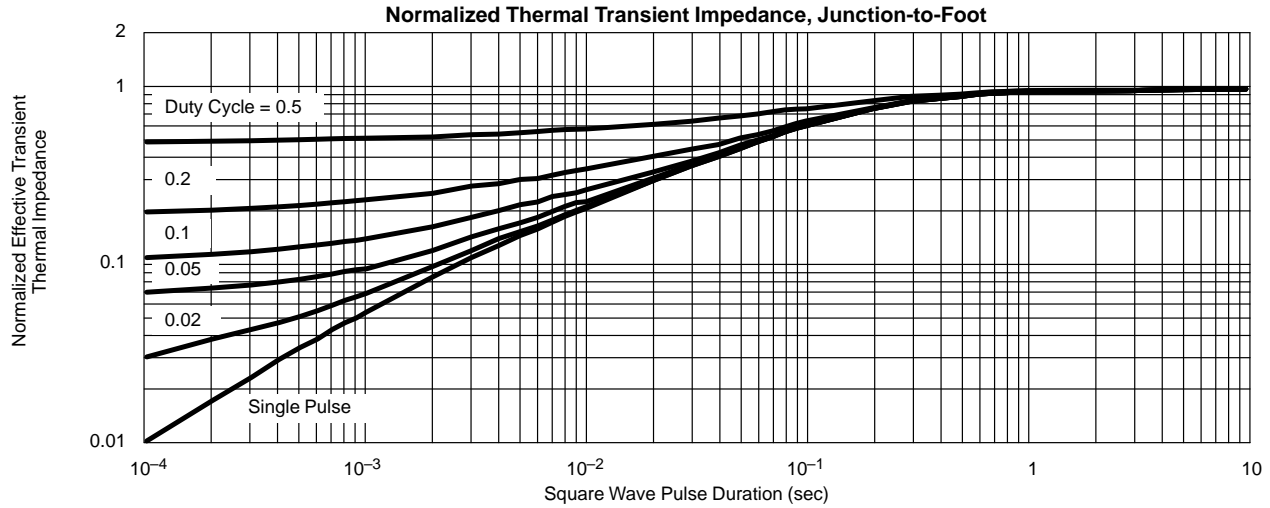


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) N-CHANNEL

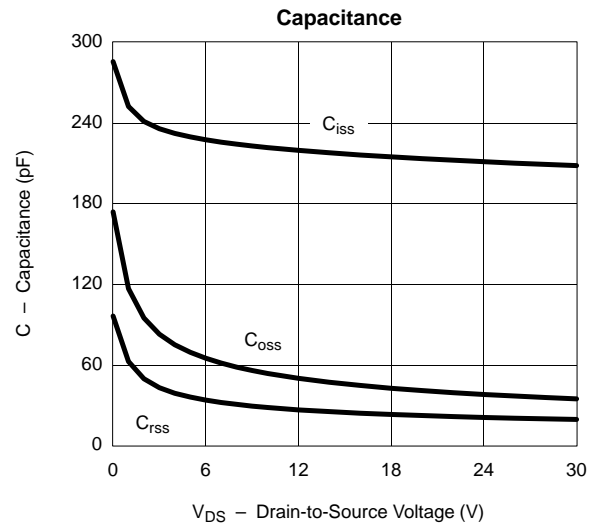
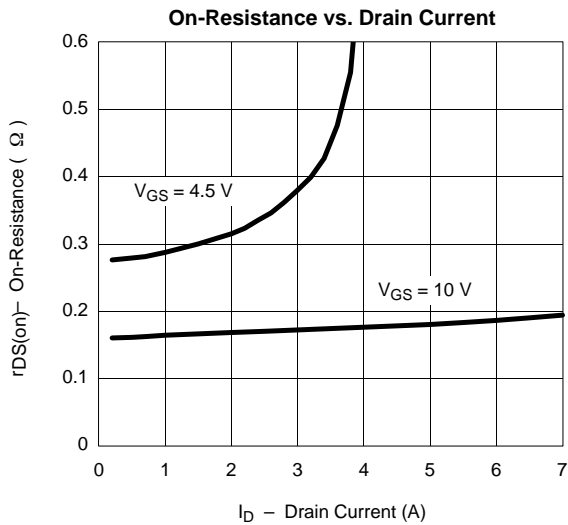
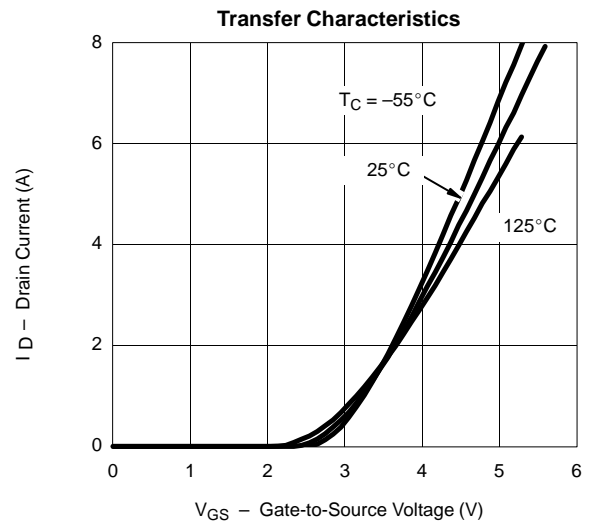
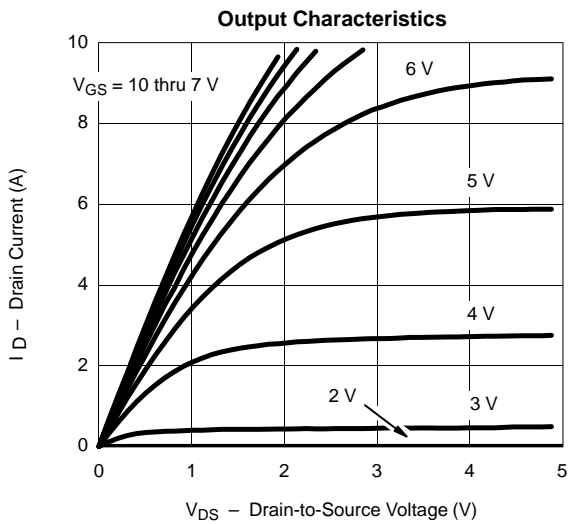




TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) N-CHANNEL



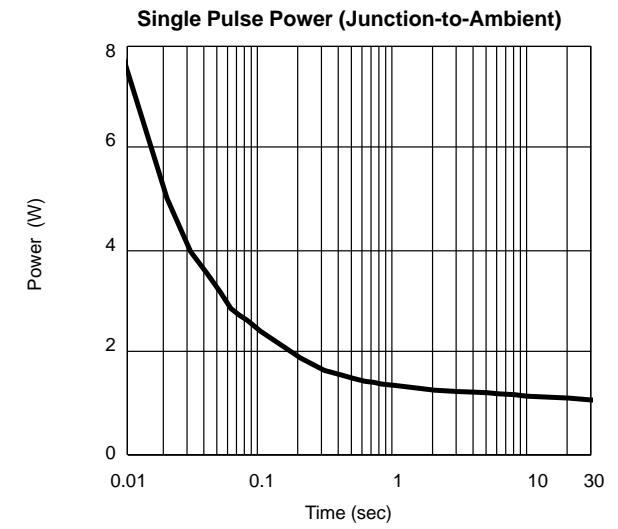
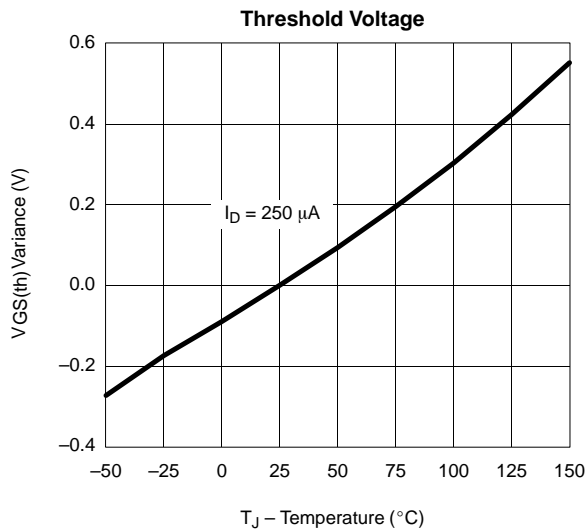
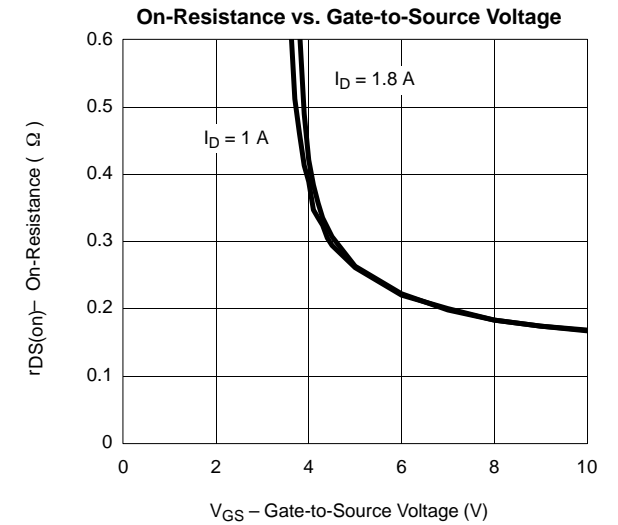
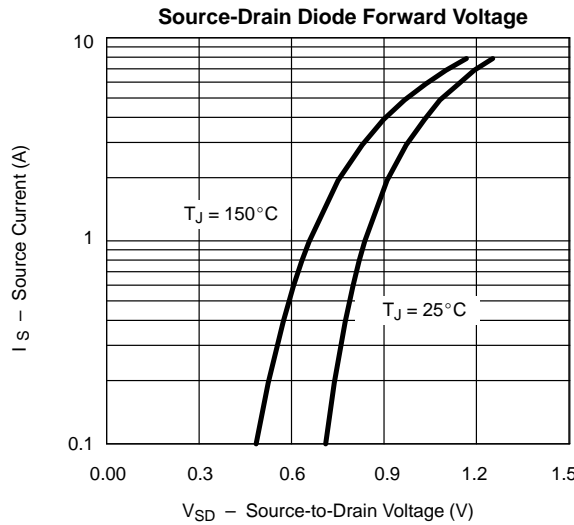
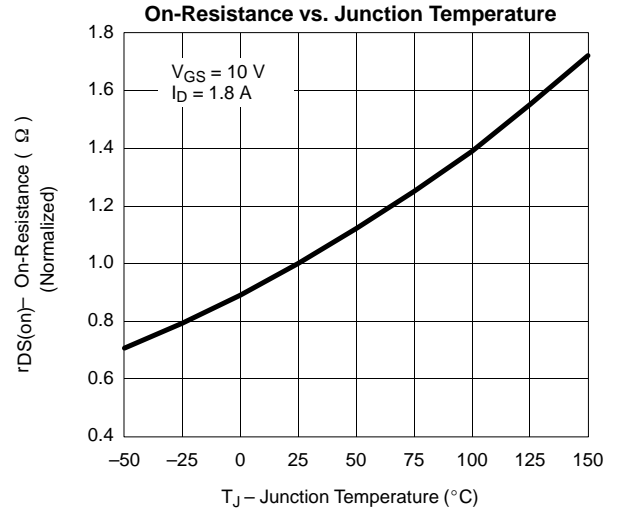
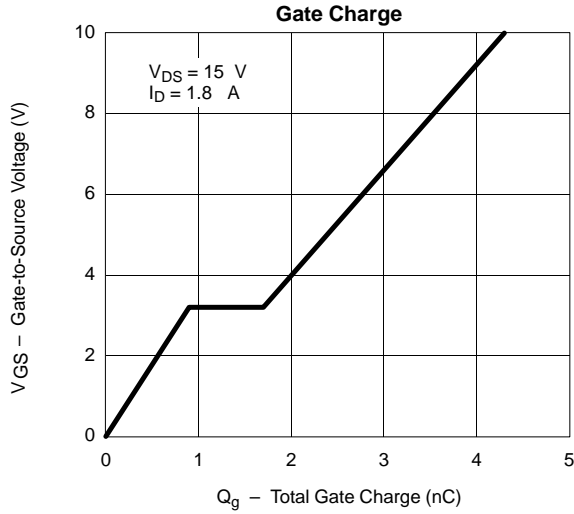
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) P-CHANNEL





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) P-CHANNEL

