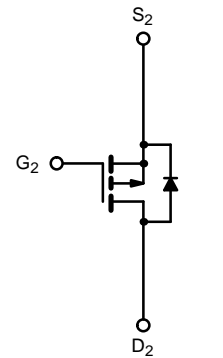
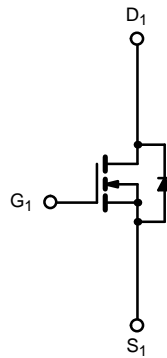
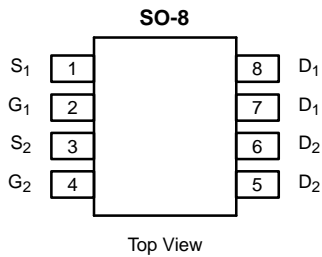




N- and P-Channel 30-V (D-S) MOSFET

| PRODUCT SUMMARY | | | |
|-----------------|--------------|---------------------------|-----------|
| | V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
| N-Channel | 30 | 0.025 @ $V_{GS} = 10$ V | ± 6.9 |
| | | 0.035 @ $V_{GS} = 4.5$ V | ± 5.8 |
| P-Channel | -30 | 0.032 @ $V_{GS} = -10$ V | ± 6.1 |
| | | 0.045 @ $V_{GS} = -4.5$ V | ± 5.1 |

TrenchFET[®]
Power MOSFETs



| 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 | V |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a | I_D | $T_A = 25^\circ\text{C}$ | ± 6.9 | A |
| | | $T_A = 70^\circ\text{C}$ | ± 5.5 | |
| Pulsed Drain Current | I_{DM} | ± 40 | ± 40 | A |
| Continuous Source Current (Diode Conduction) ^a | I_S | 1.7 | -1.7 | A |
| Maximum Power Dissipation ^a | P_D | $T_A = 25^\circ\text{C}$ | 2.0 | W |
| | | $T_A = 70^\circ\text{C}$ | 1.3 | |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to 150 | | $^\circ\text{C}$ |

| THERMAL RESISTANCE RATINGS | | | |
|--|------------|-----------------|--------------------|
| Parameter | Symbol | N- or P-Channel | Unit |
| Maximum Junction-to-Ambient ^a | R_{thJA} | 62.5 | $^\circ\text{C/W}$ |

Notes

a. Surface Mounted on FR4 Board, $t \leq 10$ sec.



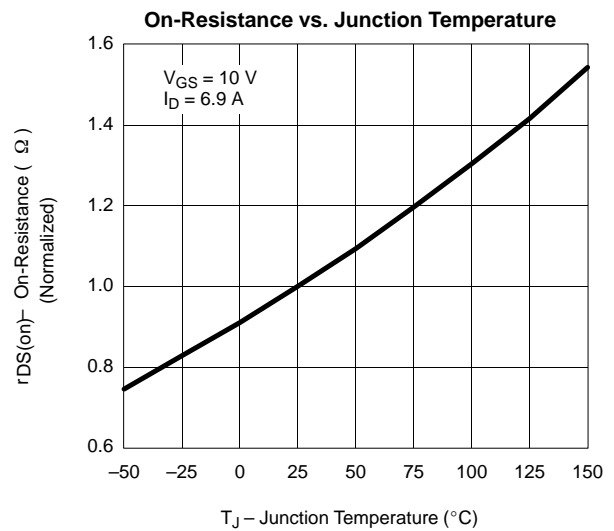
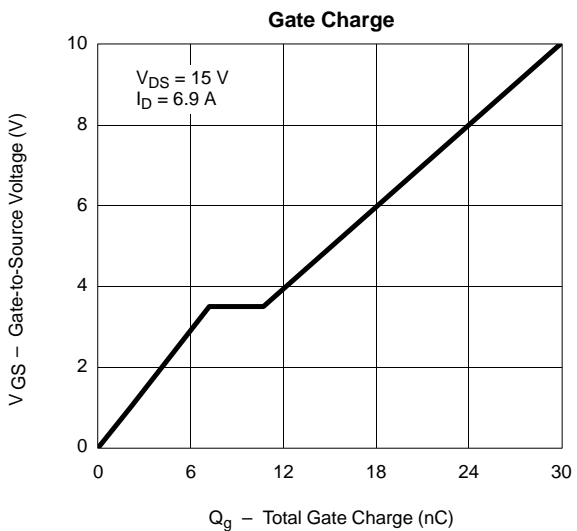
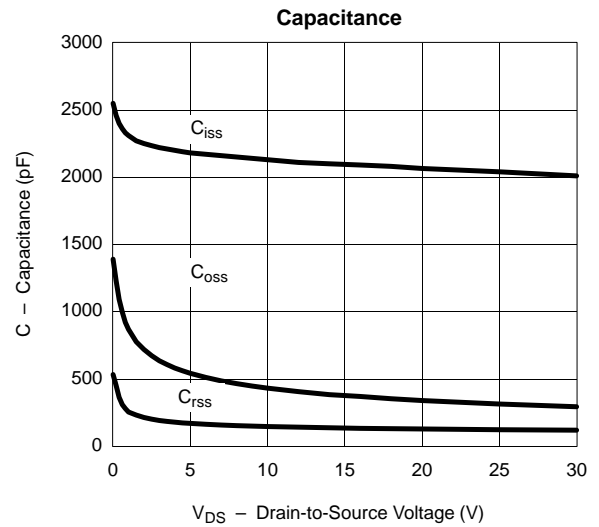
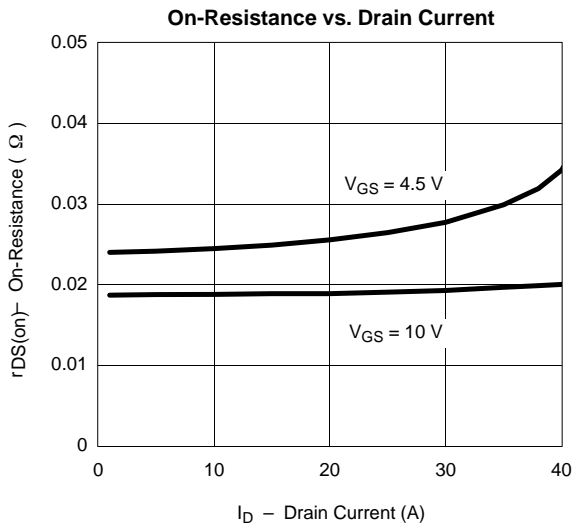
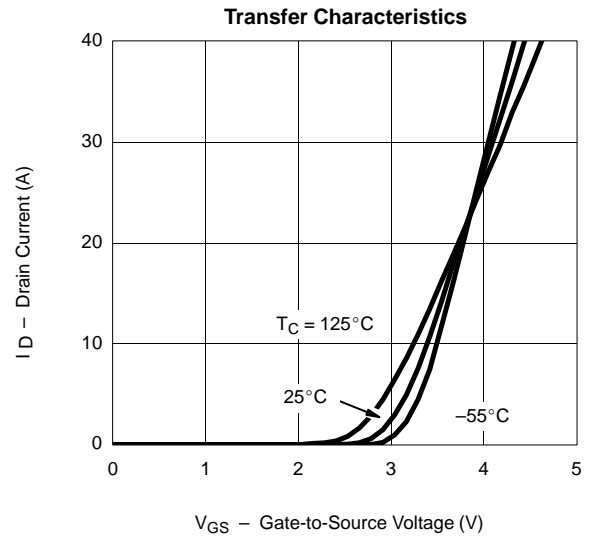
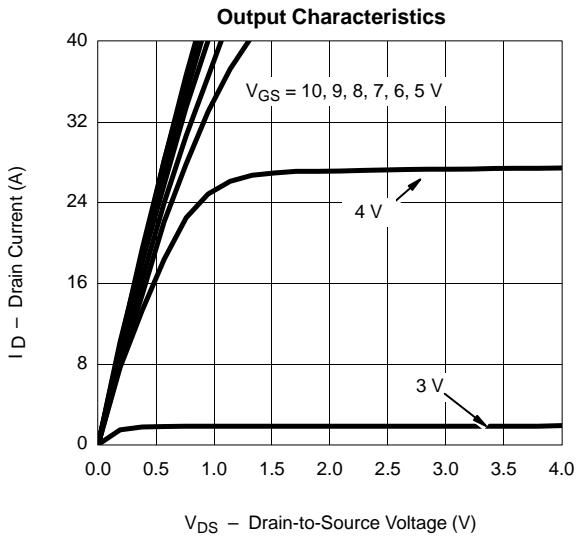
| SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED) | | | | | | | |
|--|---------------------|---|--|------|-------|--------------|------|
| Parameter | Symbol | Test Condition | | Min | Typ | Max | Unit |
| Static | | | | | | | |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 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} = 30 V, V _{GS} = 0 V | N-Ch | | | 1 | μA |
| | | V _{DS} = -30 V, V _{GS} = 0 V | P-Ch | | | -1 | |
| | | V _{DS} = 30 V, V _{GS} = 0 V, T _J = 55 °C | N-Ch | | | 25 | |
| | | V _{DS} = -30 V, V _{GS} = 0 V, T _J = 55 °C | P-Ch | | | -25 | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} ≥ 5 V, V _{GS} = 10 V | N-Ch | 20 | | | A |
| | | V _{DS} ≤ -5 V, V _{GS} = -10 V | P-Ch | -20 | | | |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = 10 V, I _D = 6.9 A | N-Ch | | 0.020 | 0.025 | Ω |
| | | V _{GS} = -10 V, I _D = -6.1 A | P-Ch | | 0.026 | 0.032 | |
| | | V _{GS} = 4.5 V, I _D = 5.8 A | N-Ch | | 0.026 | 0.035 | |
| | | V _{GS} = -4.5 V, I _D = -5.1 A | P-Ch | | 0.036 | 0.045 | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = 15 V, I _D = 6.9 A | N-Ch | | 25 | | S |
| | | V _{DS} = -15 V, I _D = -6.1 A | P-Ch | | 16 | | |
| Diode Forward Voltage ^a | V _{SD} | I _S = 1.7 A, V _{GS} = 0 V | N-Ch | | | 1.2 | V |
| | | I _S = -1.7 A, V _{GS} = 0 V | P-Ch | | | -1.2 | |
| Dynamic^b | | | | | | | |
| Total Gate Charge | Q _g | N-Channel V _{DS} = 15 V, V _{GS} = 10 V, I _D = 6.9 A P-Channel V _{DS} = -15 V, V _{GS} = -10 V, I _D = -6.1 A | N-Ch | | 30 | 50 | nC |
| Gate-Source Charge | Q _{gs} | | P-Ch | | 32 | 50 | |
| Gate-Drain Charge | Q _{gd} | | N-Ch | | 3.5 | | |
| Turn-On Delay Time | t _{d(on)} | N-Channel V _{DD} = 15 V, R _L = 10 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω P-Channel V _{DD} = -15 V, R _L = 10 Ω I _D ≅ -1 A, V _{GEN} = -10 V, R _G = 6 Ω | N-Ch | | 12 | 20 | ns |
| Rise Time | t _r | | P-Ch | | 10 | 20 | |
| | | | N-Ch | | 10 | 20 | |
| Turn-Off Delay Time | t _{d(off)} | | N-Ch | | 60 | 90 | |
| | | | P-Ch | | 55 | 80 | |
| Fall Time | t _f | | N-Ch | | 15 | 30 | |
| | | | P-Ch | | 25 | 40 | |
| Source-Drain Reverse Recovery Time | t _{rr} | | I _F = 1.7 A, di/dt = 100 A/μs | N-Ch | | 50 | |
| | | I _F = -1.7 A, di/dt = 100 A/μs | P-Ch | | 50 | 90 | |

Notes

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

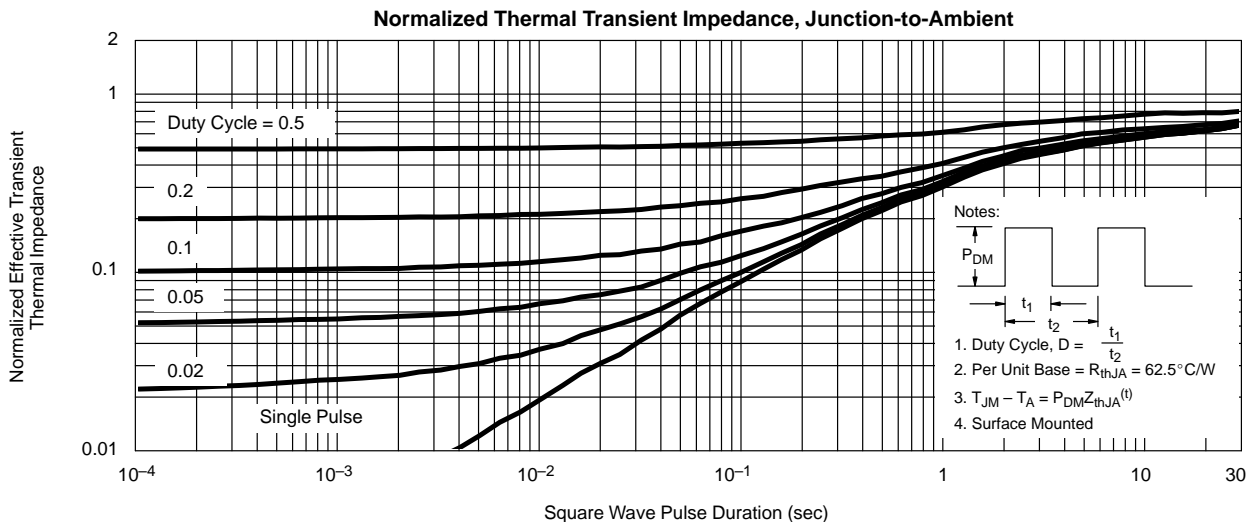
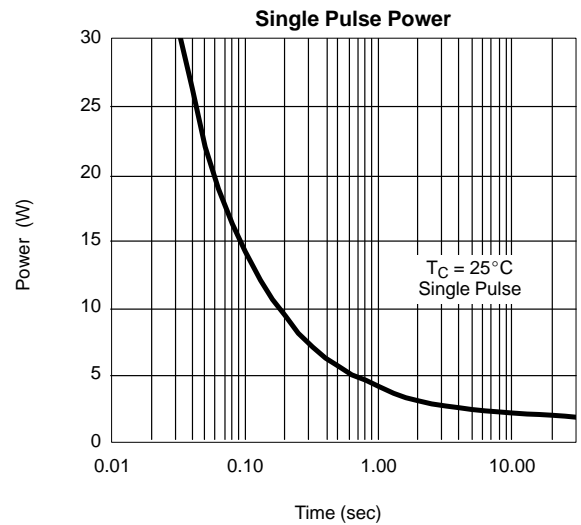
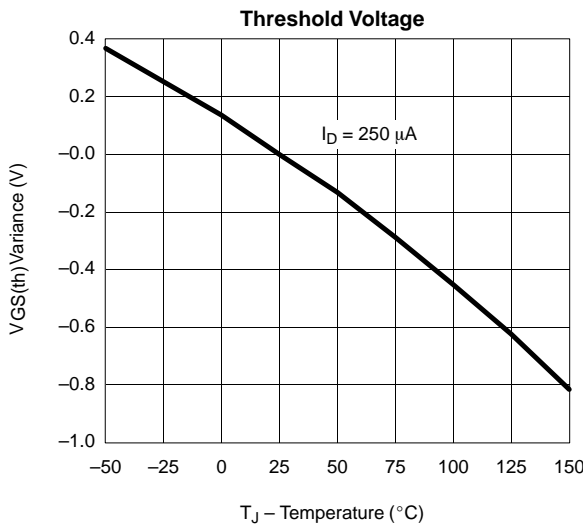
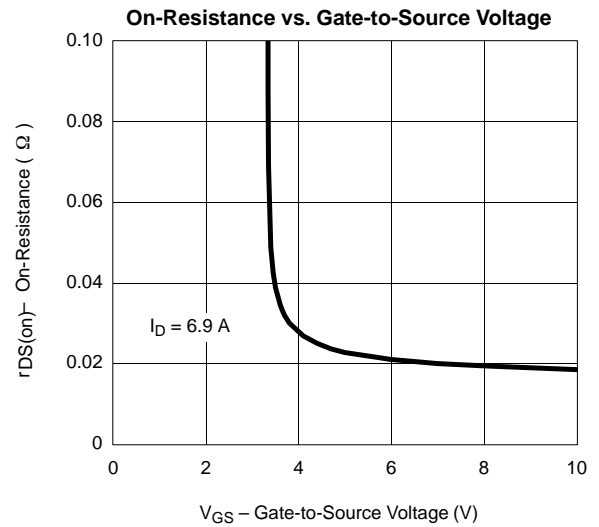
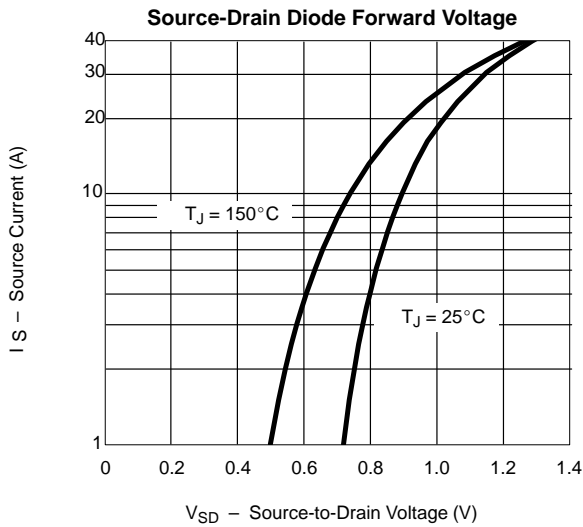


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) N-CHANNEL



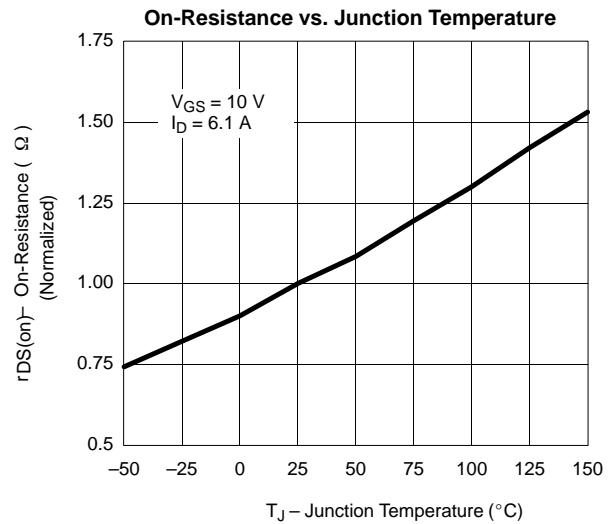
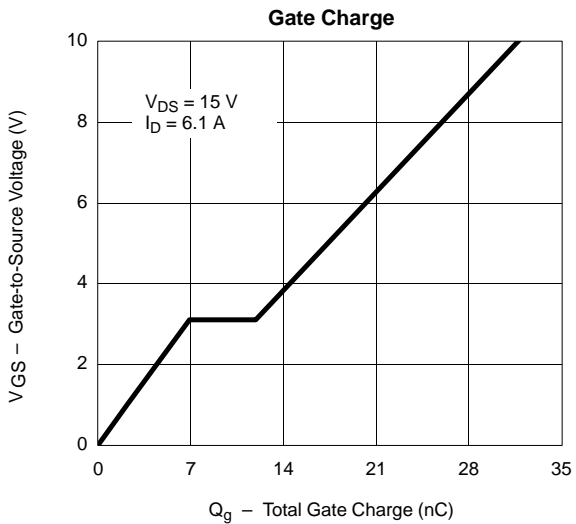
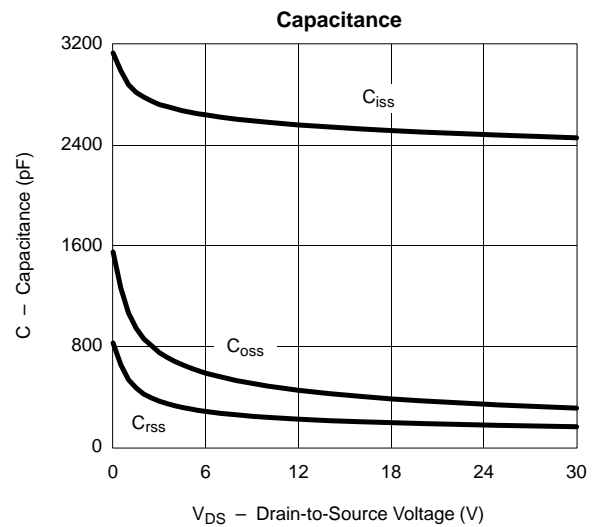
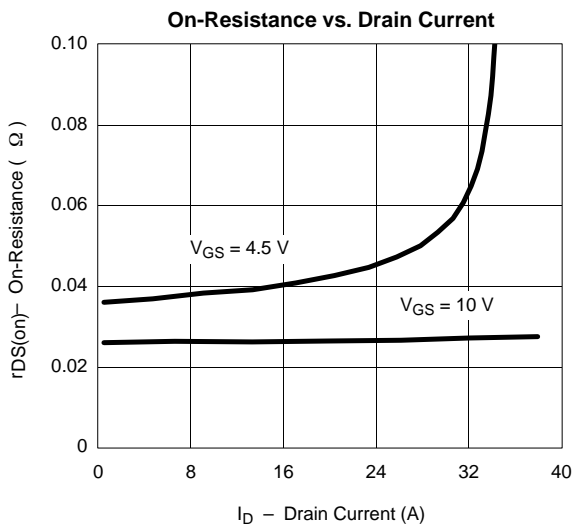
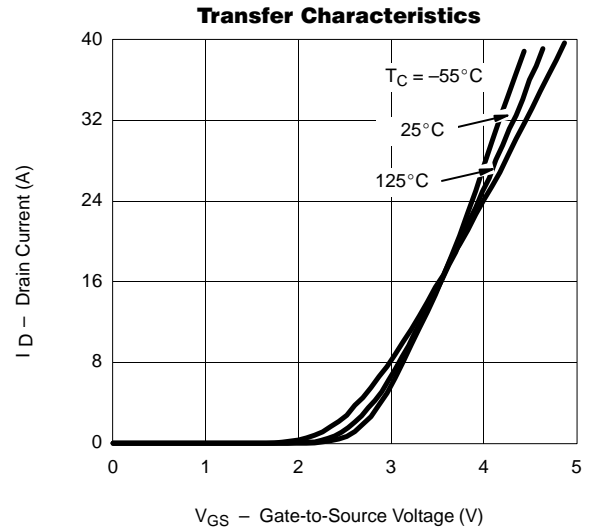
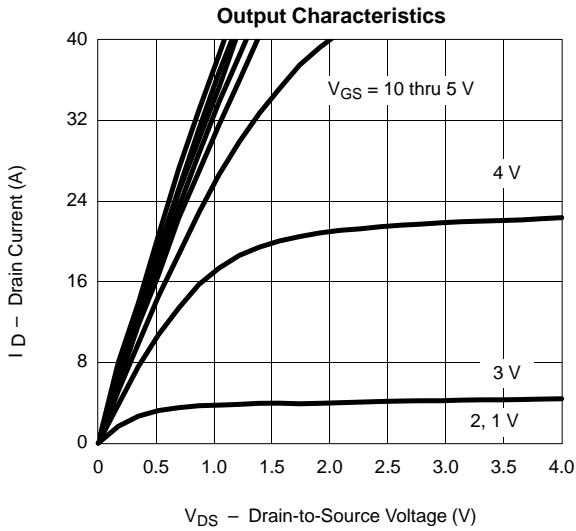
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL





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



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

