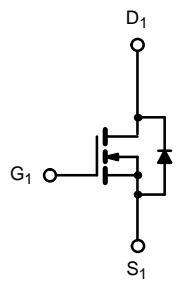
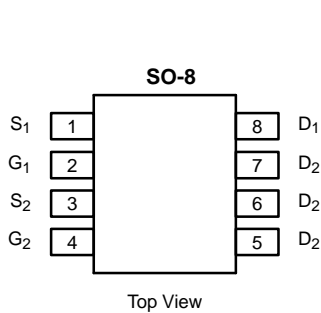
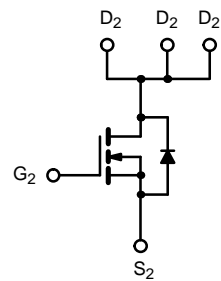


Asymmetrical Dual N-Channel 30-V (D-S) MOSFET

| PRODUCT SUMMARY | | | |
|-----------------|---------------------|---------------------------------|--------------------|
| | V _{DS} (V) | r _{DS(on)} (Ω) | I _D (A) |
| Channel-1 | 30 | 0.022 @ V _{GS} = 10 V | 6.3 |
| | | 0.030 @ V _{GS} = 4.5 V | 5.4 |
| Channel-2 | | 0.0125 @ V _{GS} = 10 V | 10.5 |
| | | 0.017 @ V _{GS} = 4.5 V | 9.0 |



N-Channel 1
MOSFET



N-Channel 2
MOSFET

| ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED) | | | | | | | |
|---|-----------------------------------|-----------------------|--------------|-----------|--------------|------|---|
| Parameter | Symbol | Channel 1 | | Channel 2 | | Unit | |
| | | 10 secs | Steady State | 10 secs | Steady State | | |
| Drain-Source Voltage | V _{DS} | 30 | | | | V | |
| Gate-Source Voltage | V _{GS} | 20 | | | | | |
| Continuous Drain Current (T _J = 150°C) ^a | I _D | T _A = 25°C | 6.3 | 5.3 | 10.5 | 7.5 | A |
| | | T _A = 70°C | 5.4 | 4.2 | 8.5 | 6.0 | |
| Pulsed Drain Current | I _{DM} | 30 | | 40 | | A | |
| Continuous Source Current (Diode Conduction) ^a | I _S | 1.3 | 0.9 | 2.2 | 1.15 | | |
| Maximum Power Dissipation ^a | P _D | T _A = 25°C | 1.4 | 1.0 | 2.4 | 1.25 | W |
| | | T _A = 70°C | 0.9 | 0.64 | 1.5 | 0.80 | |
| Operating Junction and Storage Temperature Range | T _J , T _{stg} | -55 to 150 | | | | °C | |

| THERMAL RESISTANCE RATINGS | | | | | | | |
|--|-------------------|--------------|-----|-----------|-----|------|------|
| Parameter | Symbol | Channel 1 | | Channel 2 | | Unit | |
| | | Typ | Max | Typ | Max | | |
| Maximum Junction-to-Ambient ^a | R _{thJA} | t ≤ 10 sec | 72 | 90 | 43 | 53 | °C/W |
| | | Steady-State | 100 | 125 | 82 | 100 | |
| Maximum Junction-to-Foot (Drain) | R _{thJC} | 51 | 63 | 25 | 30 | | |

Notes

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

| MOSFET 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 | Ch-1 | 0.8 | | V | | |
| | | | Ch-2 | 0.8 | | | | |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = 20 V | Ch-1 | | 100 | nA | | |
| | | | Ch-2 | | 100 | | | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 24 V, V _{GS} = 0 V | Ch-1 | | 1 | μA | | |
| | | | Ch-2 | | 1 | | | |
| | | V _{DS} = 24 V, V _{GS} = 0 V, T _J = 85°C | Ch-1 | | 15 | | | |
| | | | Ch-2 | | 15 | | | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} = 5 V, V _{GS} = 10 V | Ch-1 | 20 | | A | | |
| | | | Ch-2 | 30 | | | | |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = 10 V, I _D = 6.3 A | Ch-1 | | 0.018 | 0.022 | Ω | |
| | | V _{GS} = 10 V, I _D = 10.5 A | Ch-2 | | 0.0105 | 0.0125 | | |
| | | V _{GS} = 4.5 V, I _D = 5.4 A | Ch-1 | | 0.024 | 0.030 | | |
| | | V _{GS} = 4.5 V, I _D = 9.0 A | Ch-2 | | 0.0135 | 0.017 | | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = 15 V, I _D = 6.3 A | Ch-1 | | 17 | S | | |
| | | V _{DS} = 15 V, I _D = 10.5 A | Ch-2 | | 28 | | | |
| Diode Forward Voltage ^a | V _{SD} | I _S = 1.3 A, V _{GS} = 0 V | Ch-1 | | 0.7 | 1.1 | V | |
| | | I _S = 2.2 A, V _{GS} = 0 V | Ch-2 | | 0.72 | 1.1 | | |
| Dynamic^b | | | | | | | | |
| Total Gate Charge | Q _g | Channel-1 V _{DS} = 15 V, V _{GS} = 5 V, I _D = 6.3 A Channel-2 V _{DS} = 15 V, V _{GS} = 5 V, I _D = -10.5 A | Ch-1 | | 8.0 | 12 | nC | |
| | | | Ch-2 | | 18 | 25 | | |
| Gate-Source Charge | Q _{gs} | | Ch-1 | | 1.75 | | | |
| | | | Ch-2 | | 3.6 | | | |
| Gate-Drain Charge | Q _{gd} | | Ch-1 | | 3.2 | | | |
| | | | Ch-2 | | 7.8 | | | |
| Turn-On Delay Time | t _{d(on)} | Channel-1 V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω Channel-2 V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω | Ch-1 | | 10 | 20 | ns | |
| | | | Ch-2 | | 13 | 30 | | |
| Rise Time | t _r | | Ch-1 | | 5 | 10 | | |
| | | | Ch-2 | | 10 | 20 | | |
| Turn-Off Delay Time | t _{d(off)} | | Ch-1 | | 26 | 50 | | |
| | | | Ch-2 | | 37 | 80 | | |
| Fall Time | t _f | | Ch-1 | | 8 | 16 | | |
| | | | Ch-2 | | 27 | 50 | | |
| Source-Drain Reverse Recovery Time | t _{rr} | | I _F = 1.3 A, di/dt = 100 A/μs | Ch-1 | | 30 | | 60 |
| | | | I _F = 2.2 A, di/dt = 100 μA/μs | Ch-2 | | 35 | | 70 |

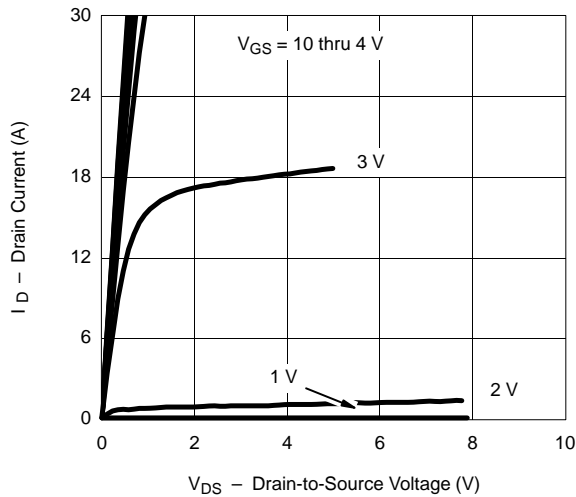
Notes

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

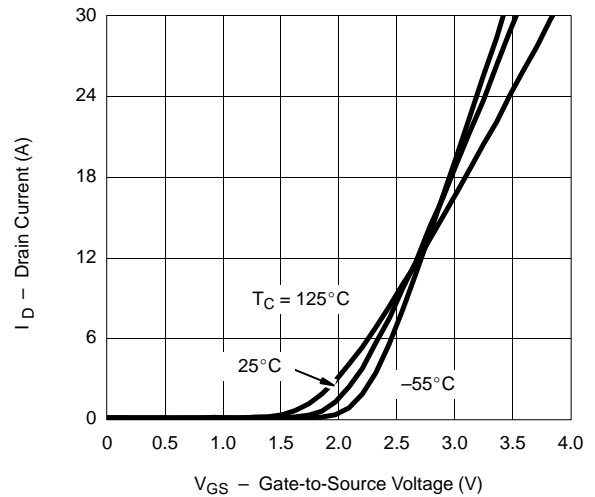
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

CHANNEL 1

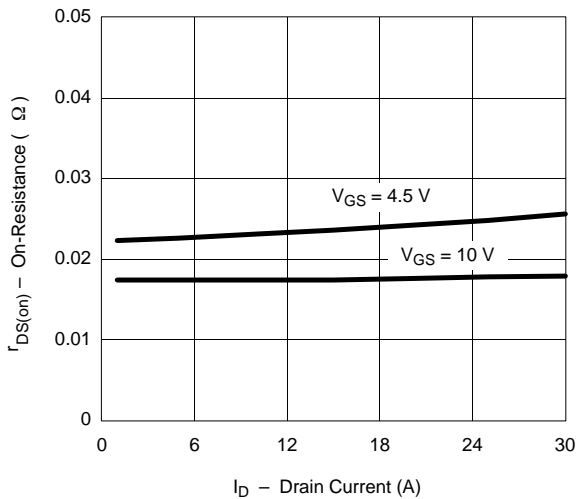
Output Characteristics



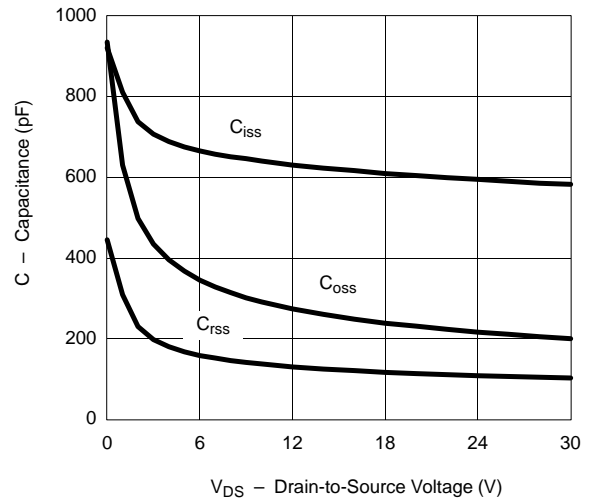
Transfer Characteristics



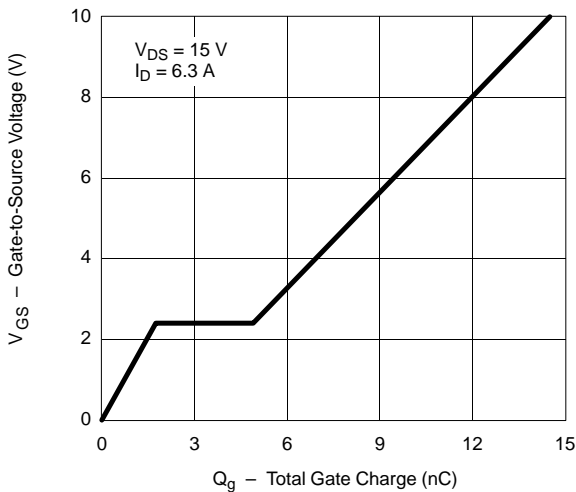
On-Resistance vs. Drain Current



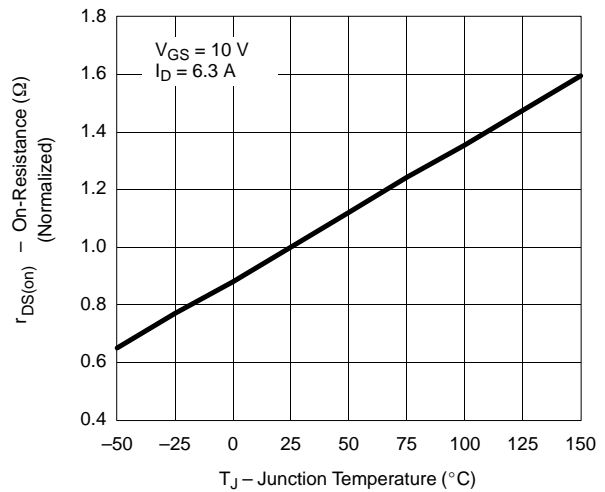
Capacitance



Gate Charge

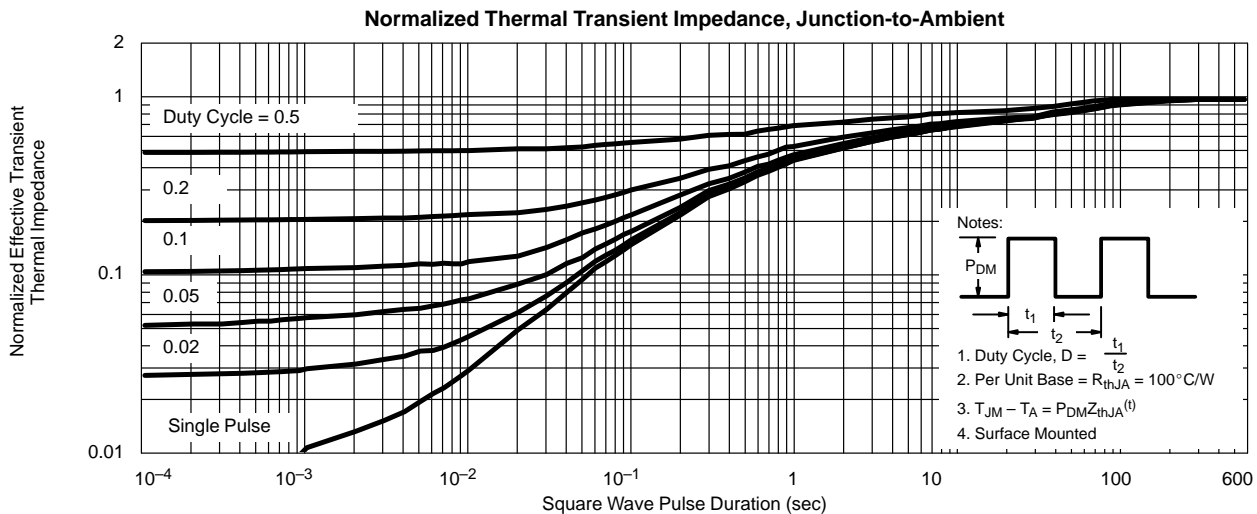
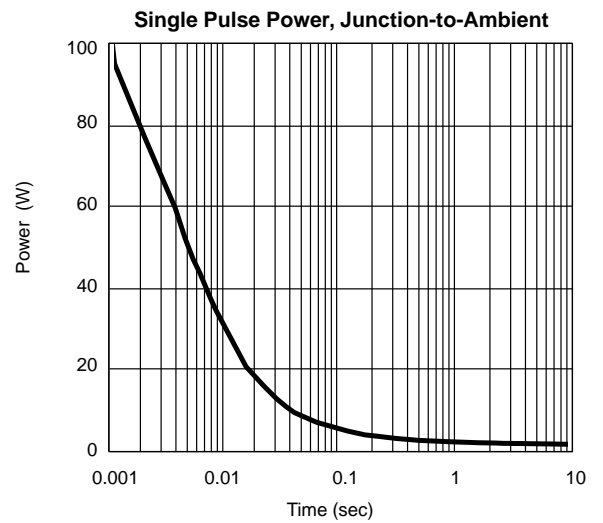
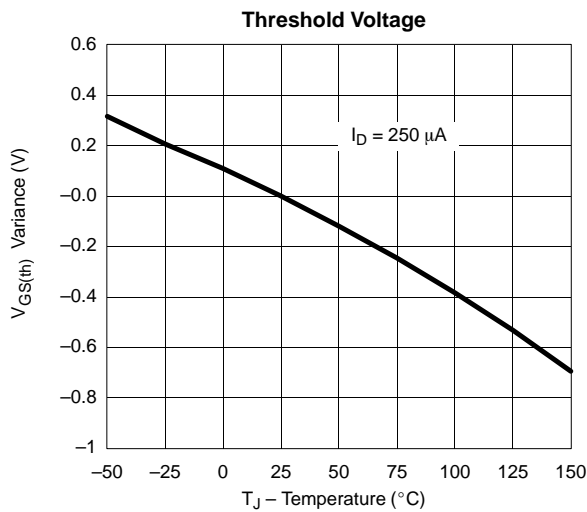
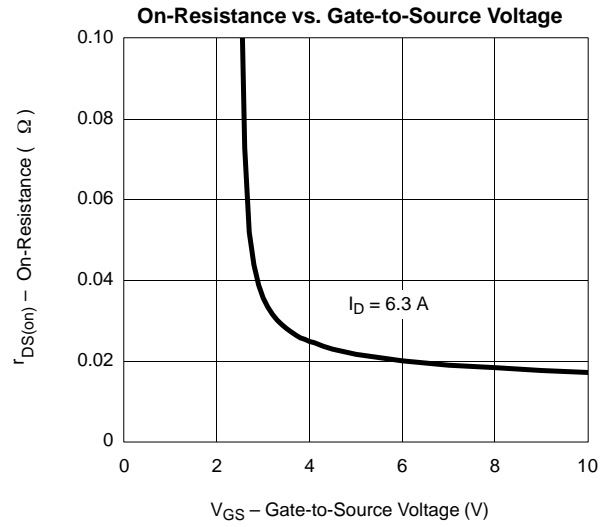
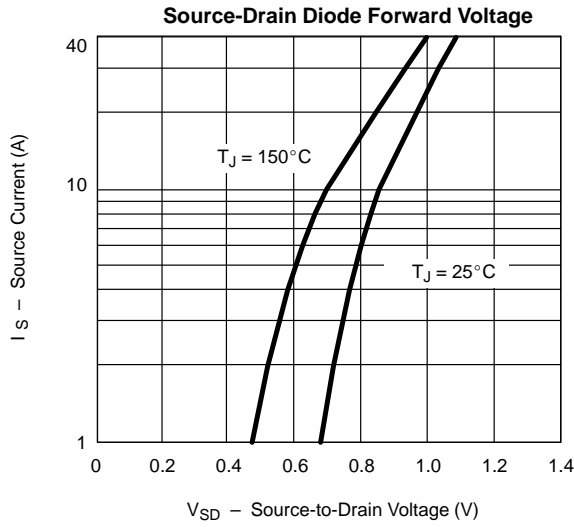


On-Resistance vs. Junction Temperature



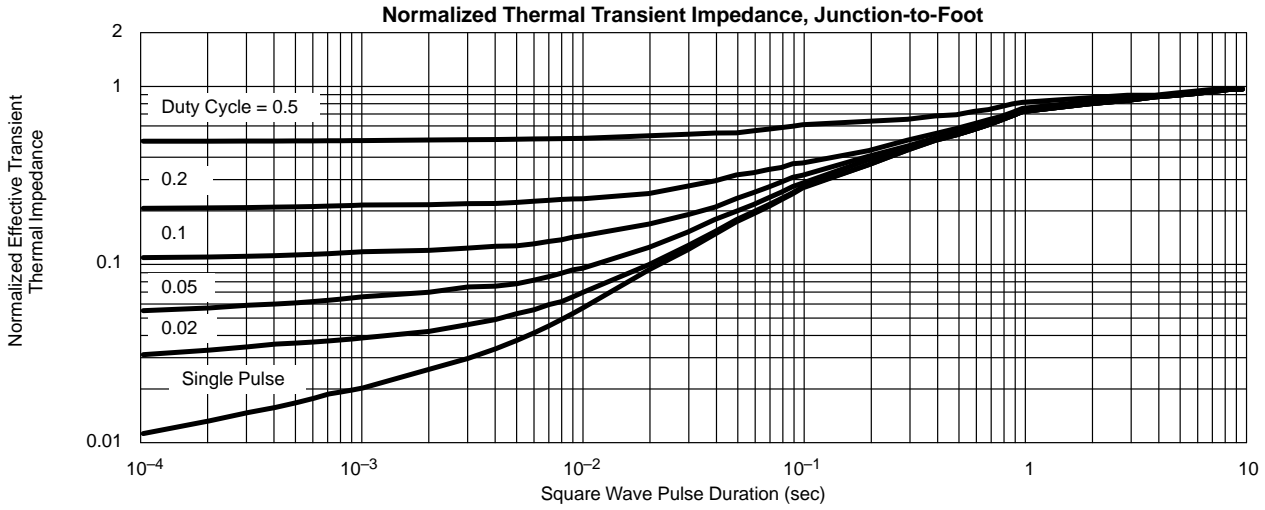
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

CHANNEL 1

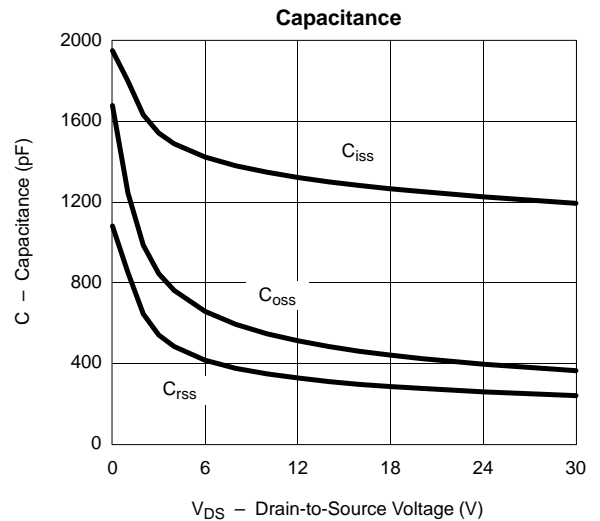
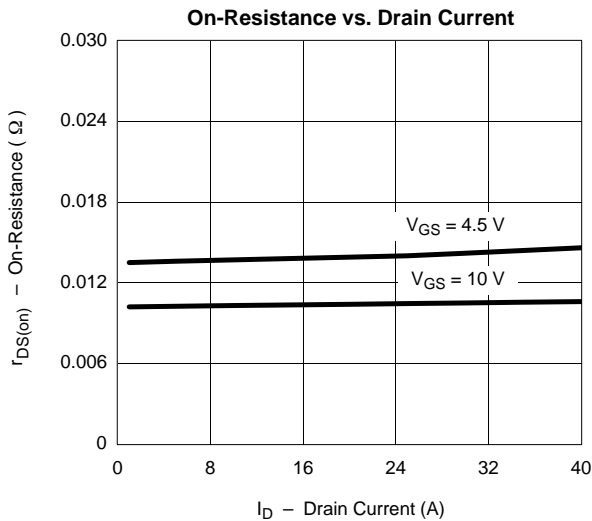
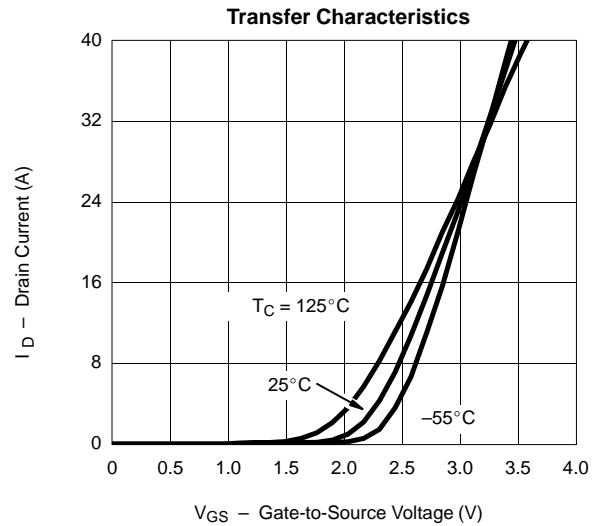
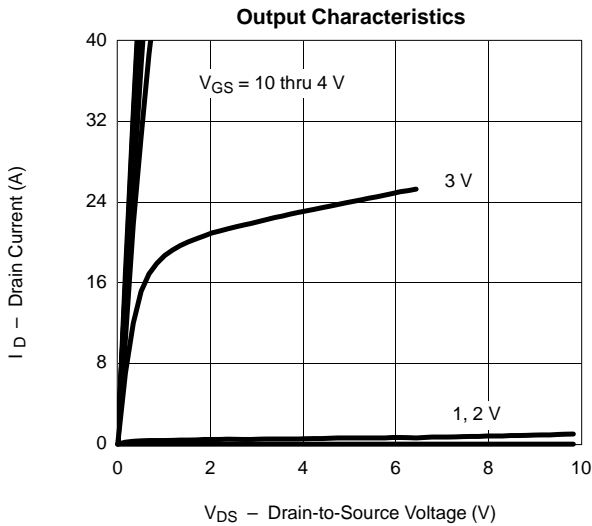




TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) CHANNEL 1

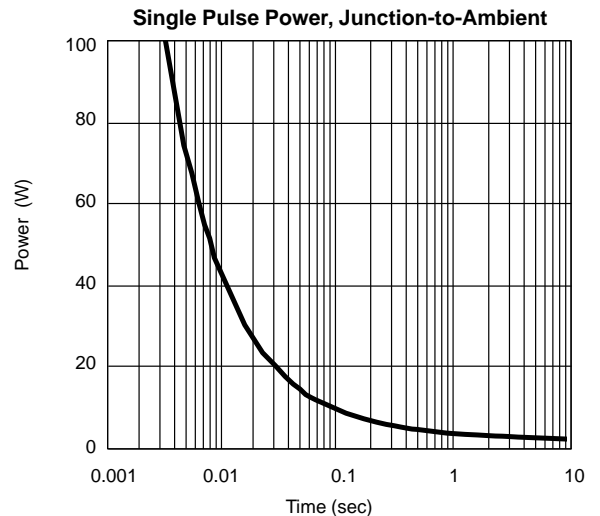
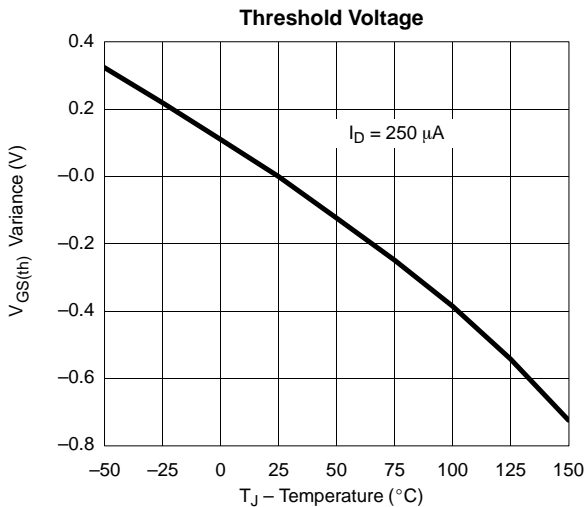
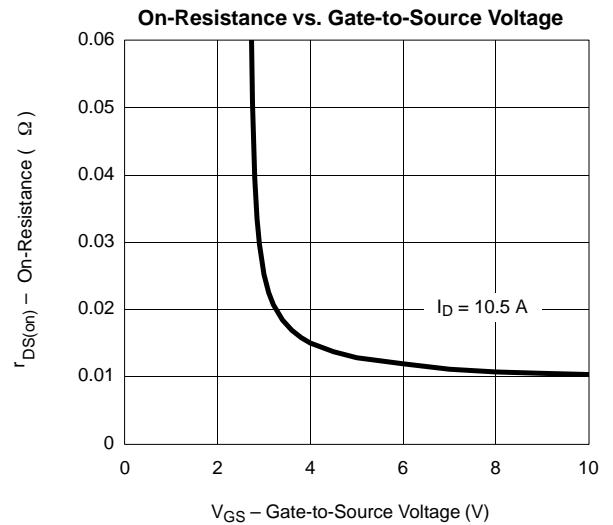
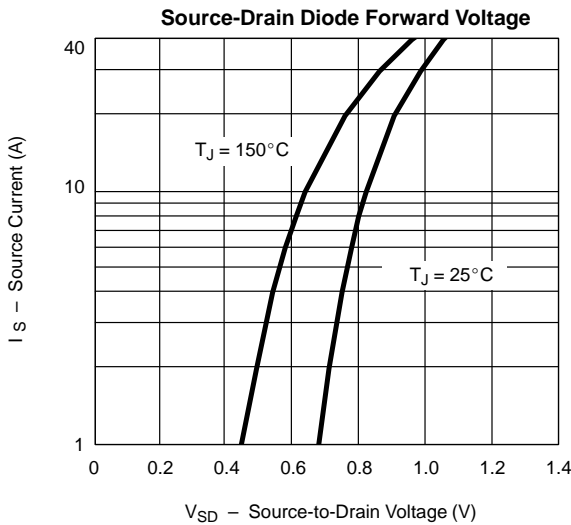
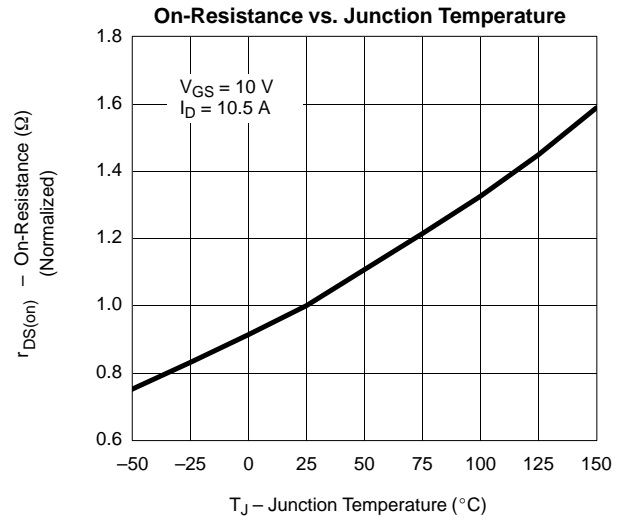
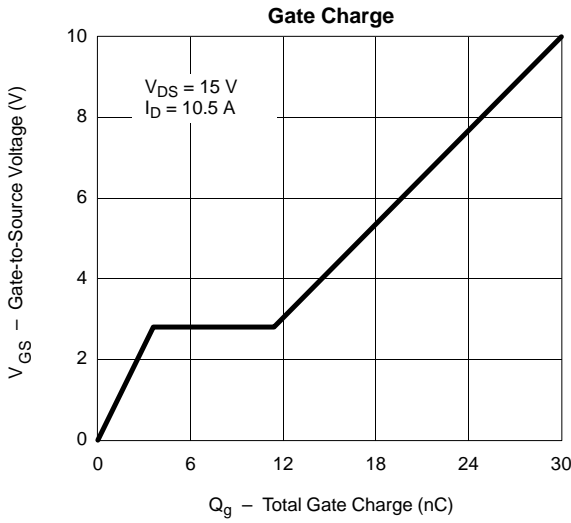


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) CHANNEL 2



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

CHANNEL 2



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) CHANNEL 2

