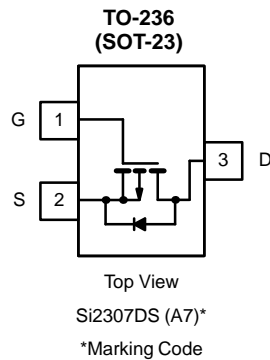


P-Channel 30-V (D-S) MOSFET

| PRODUCT SUMMARY | | |
|-----------------|---------------------------|-----------|
| V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
| -30 | 0.080 @ $V_{GS} = -10$ V | -3 |
| | 0.140 @ $V_{GS} = -4.5$ V | -2 |

TrenchFET[®]
Power MOSFETs



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED) | | | | |
|---|--------------------------|----------------|------------|------------------|
| Parameter | | Symbol | Limit | Unit |
| Drain-Source Voltage | | V_{DS} | -30 | V |
| Gate-Source Voltage | | V_{GS} | ± 20 | V |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^{a, b} | $T_A = 25^\circ\text{C}$ | I_D | -3 | A |
| | $T_A = 70^\circ\text{C}$ | | -2.5 | |
| Pulsed Drain Current | | I_{DM} | -12 | |
| Continuous Source Current (Diode Conduction) ^{a, b} | | I_S | -1.25 | |
| Power Dissipation ^{a, b} | $T_A = 25^\circ\text{C}$ | P_D | 1.25 | W |
| | $T_A = 70^\circ\text{C}$ | | 0.8 | |
| 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 | $t \leq 5$ sec | R_{thJA} | | 100 | $^\circ\text{C/W}$ |
| | Steady State | | 130 | | |

Notes

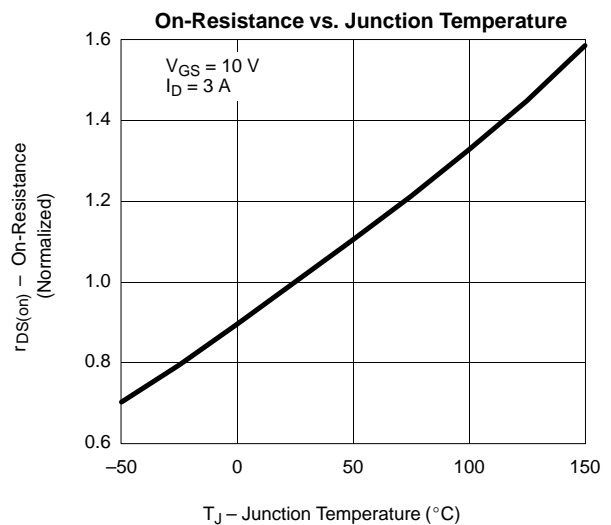
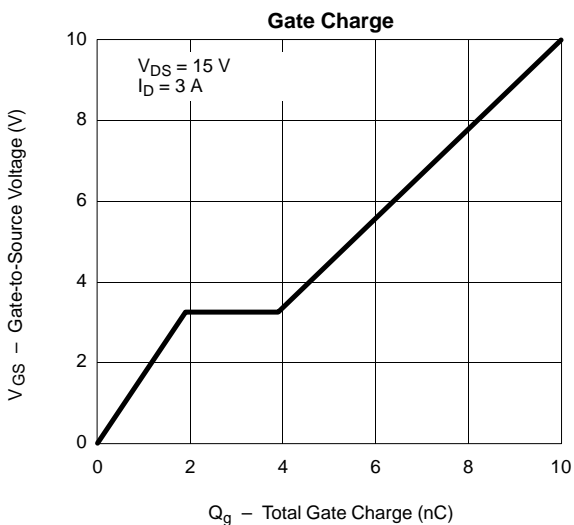
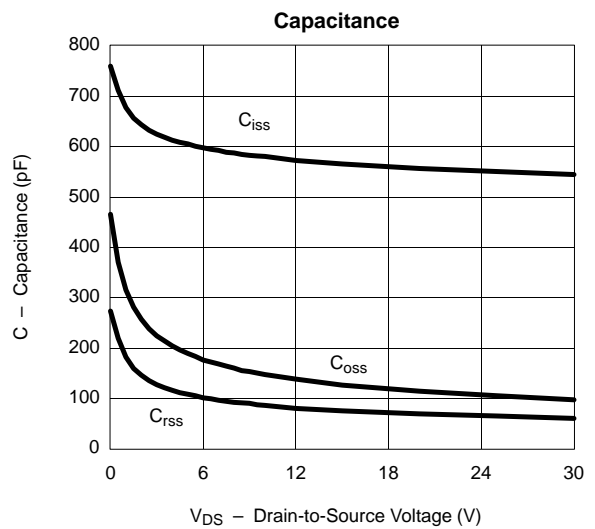
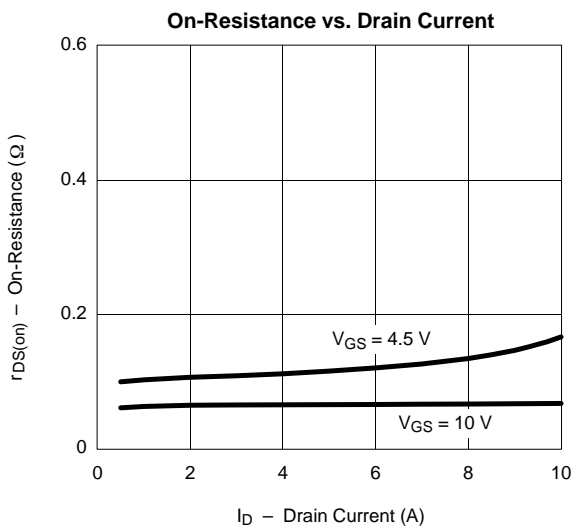
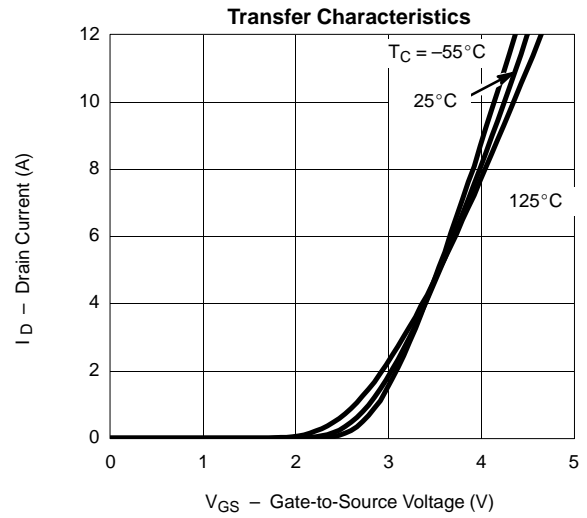
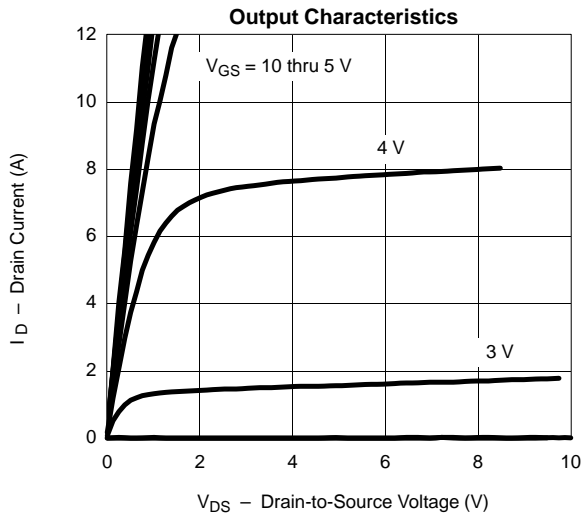
- a. Surface mounted on FR4 board.
- b. $t \leq 5$ sec.

| SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED) | | | | | | |
|--|----------------------|---|--------|-------|-----------|------|
| Parameter | Symbol | Test Conditions | Limits | | | Unit |
| | | | Min | Typ | Max | |
| Static | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} = 0 V, I _D = -10 μA | -30 | | | V |
| Gate-Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = -250 μA | -1.0 | | | |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ±20 V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = -24 V, V _{GS} = 0 V T _J = 55 °C | | | -1 -10 | μA |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} ≤ -5 V, V _{GS} = -10 V | -6 | | | A |
| Drain-Source On-Resistance ^a | r _{DS(on)} | V _{GS} = -10 V, I _D = -3 A | | 0.064 | 0.080 | Ω |
| | | V _{GS} = -4.5 V, I _D = -2.5 A | | 0.103 | 0.140 | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = -10V, I _D = -3 A | | 4.5 | | S |
| Diode Forward Voltage | V _{SD} | I _S = -1.25 A, V _{GS} = 0 V | | | -1.2 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = -15 V, V _{GS} = -10 V I _D ≅ -3 A | | 10 | 15 | nC |
| Gate-Source Charge | Q _{gs} | | | 1.9 | | |
| Gate-Drain Charge | Q _{gd} | | | 2 | | |
| Input Capacitance | C _{iss} | V _{DS} = -15 V, V _{GS} = 0, f = 1 MHz | | 565 | | pF |
| Output Capacitance | C _{oss} | | | 126 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 75 | | |
| Switching^b | | | | | | |
| Turn-On Time | t _{d(on)} | V _{DD} = -15 V, R _L = 15 Ω I _D ≅ -1.0 A, V _{GEN} = -10 V R _G = 6 Ω | | 10 | 20 | ns |
| | t _r | | | 9 | 20 | |
| Turn-Off Time | t _{d(off)} | | | 27 | 50 | |
| | t _f | | | 7 | 16 | |

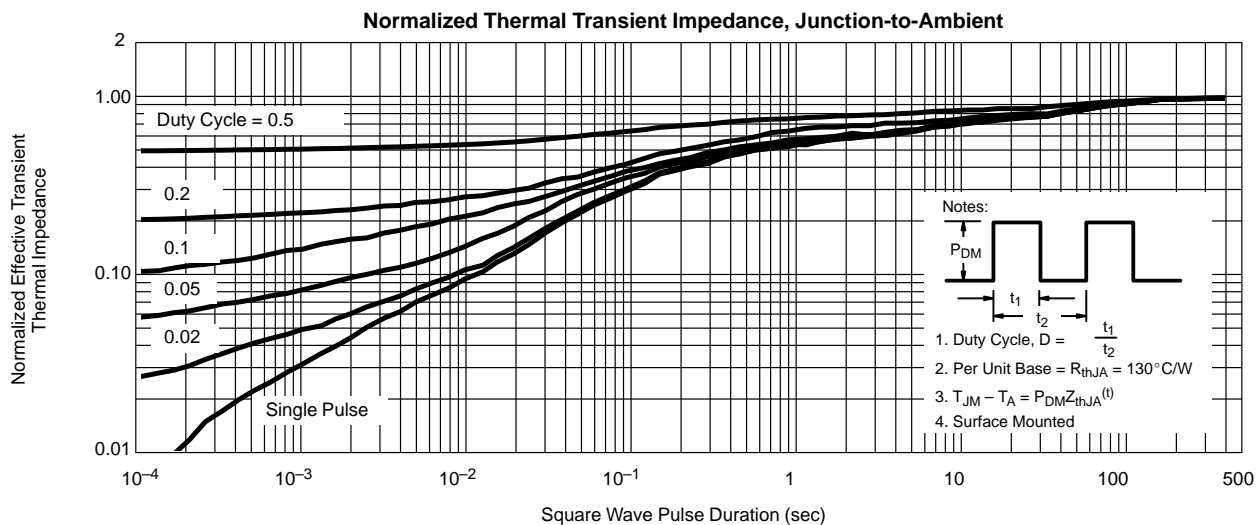
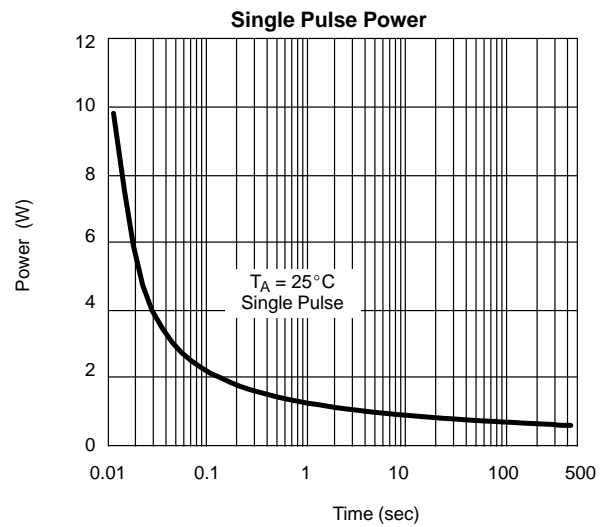
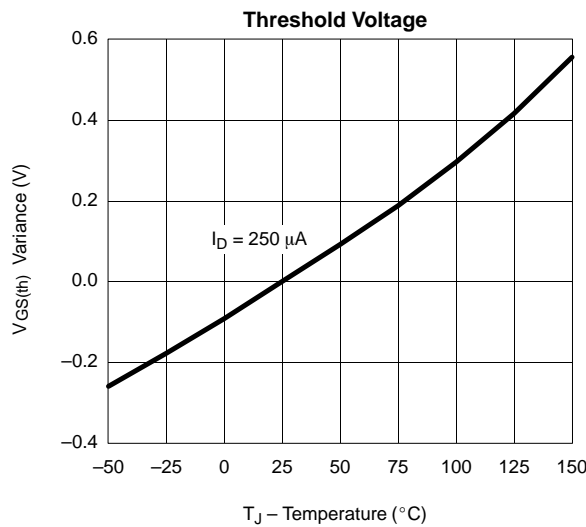
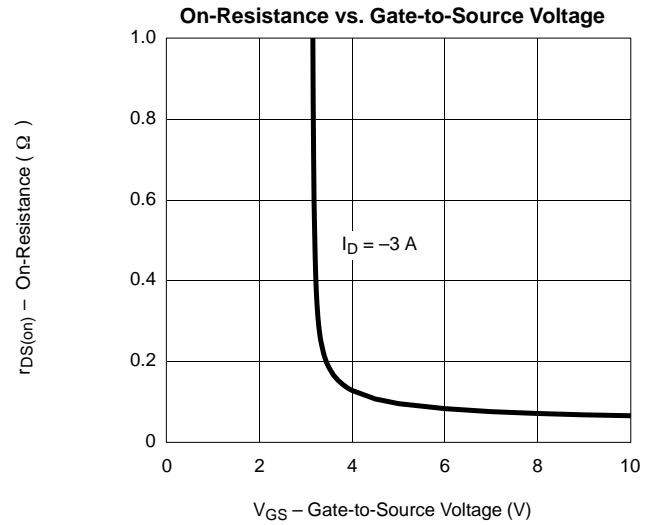
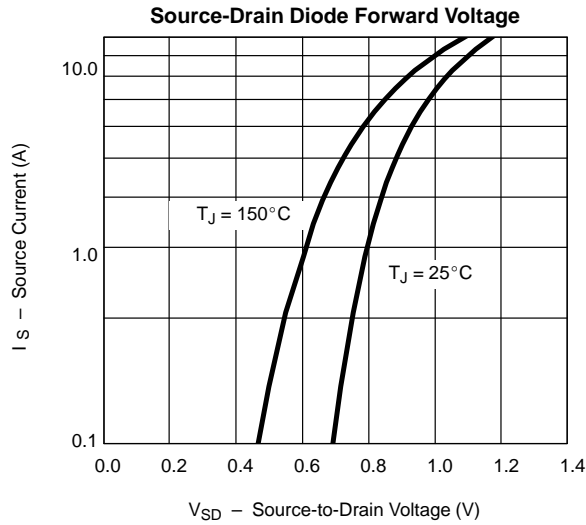
Notes

- Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
- For DESIGN AID ONLY, not subject to production testing.
- Switching time is essentially independent of operating temperature.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





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