



N-Channel 80-V (D-S) MOSFET

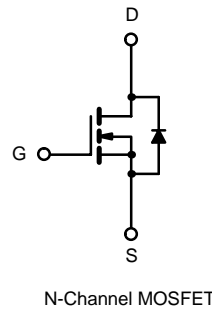
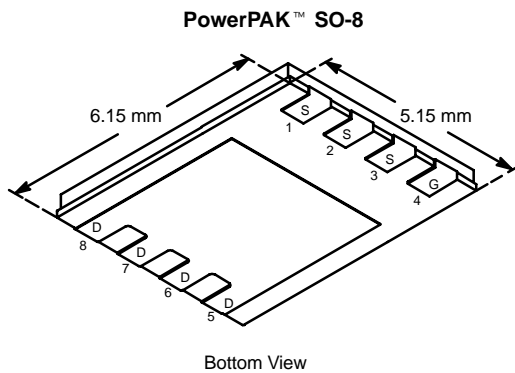
| PRODUCT SUMMARY | | |
|-----------------|---------------------------|-----------|
| V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
| 80 | 0.0165 @ $V_{GS} = 10$ V | 12.5 |
| | 0.022 @ $V_{GS} = 6$ V | 10.9 |

FEATURES

- TrenchFET® Power MOSFETS
- New Low Thermal Resistance PowerPAK™ Package with Low 1.07-mm Profile
- PWM Optimized for Fast Switching

APPLICATIONS

- Primary Side Switch for DC/DC Applications



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED) | | | | |
|---|----------------|--------------------------|--------------|------------------|
| Parameter | Symbol | 10 secs | Steady State | Unit |
| Drain-Source Voltage | V_{DS} | 80 | | V |
| Gate-Source Voltage | V_{GS} | ± 20 | | |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a | I_D | $T_A = 25^\circ\text{C}$ | 12.5 | 7.6 |
| | | $T_A = 70^\circ\text{C}$ | 10.0 | 6.1 |
| Pulsed Drain Current | I_{DM} | 50 | | A |
| Avalanch Current | I_{AS} | 40 | | |
| Continuous Source Current (Diode Conduction) ^a | | I_S | | |
| Maximum Power Dissipation ^a | P_D | $T_A = 25^\circ\text{C}$ | 5.2 | 1.9 |
| | | $T_A = 70^\circ\text{C}$ | 3.3 | 1.2 |
| 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} | $t \leq 10$ sec | 19 | 24 |
| | | Steady State | 52 | 65 |
| Maximum Junction-to-Case (Drain) | R_{thJC} | 1.5 | 1.8 | $^\circ\text{C/W}$ |

Notes

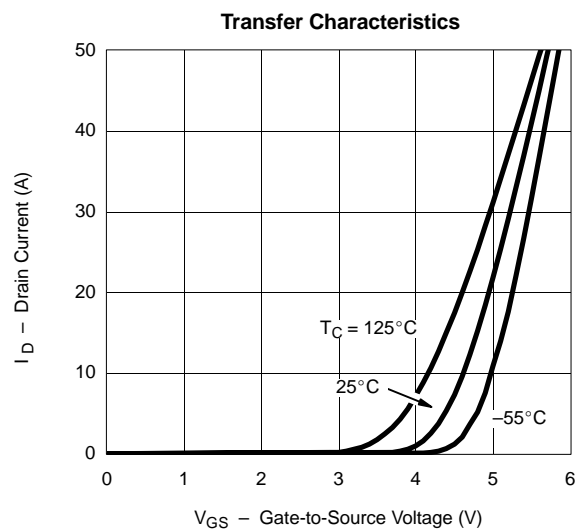
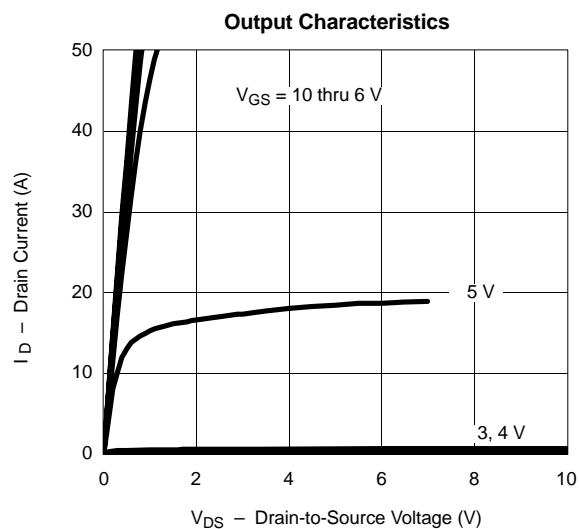
a. Surface Mounted on 1" x 1" FR4 Board.

| 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 | 2.0 | | | V |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ±20 V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 64 V, V _{GS} = 0 V | | | 1 | μA |
| | | V _{DS} = 64 V, V _{GS} = 0 V, T _J = 55 °C | | | 5 | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} ≥ 5 V, V _{GS} = 10 V | 50 | | | A |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = 10 V, I _D = 10 A | | 0.0135 | 0.0165 | Ω |
| | | V _{GS} = 6.0 V, I _D = 8.0 A | | 0.0175 | 0.022 | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = 15 V, I _D = 10 A | | 25 | | S |
| Diode Forward Voltage ^a | V _{SD} | I _S = 2.8 A, V _{GS} = 0 V | | 0.75 | 1.1 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = 40 V, V _{GS} = 10 V, I _D = 10 A | | 34 | 41 | nC |
| Gate-Source Charge | Q _{gs} | | | 7.5 | | |
| Gate-Drain Charge | Q _{gd} | | | 11.0 | | |
| Turn-On Delay Time | t _{d(on)} | V _{DD} = 40 V, R _L = 40 Ω I _D = 1.0 A, V _{GEN} = 10 V, R _G = 6 Ω | | 17 | 25 | ns |
| Rise Time | t _r | | | 11 | 17 | |
| Turn-Off Delay Time | t _{d(off)} | | | 40 | 60 | |
| Fall Time | t _f | | | 31 | 45 | |
| Gate Resistance | R _g | | | | 0.85 | |
| Source-Drain Reverse Recovery Time | t _{rr} | I _F = 2.8 A, di/dt = 100 A/μs | | 45 | 75 | ns |

Notes

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

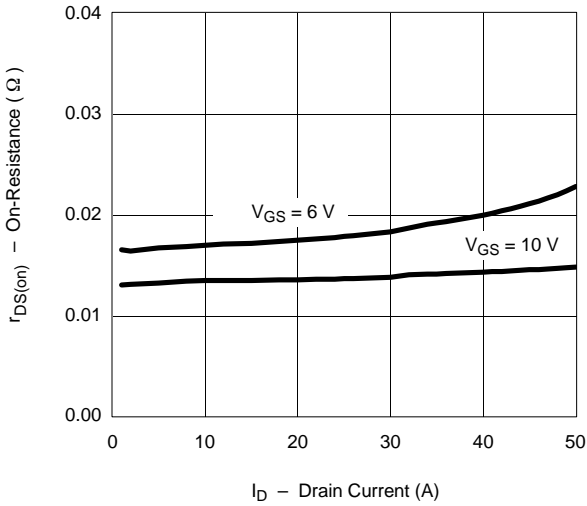
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



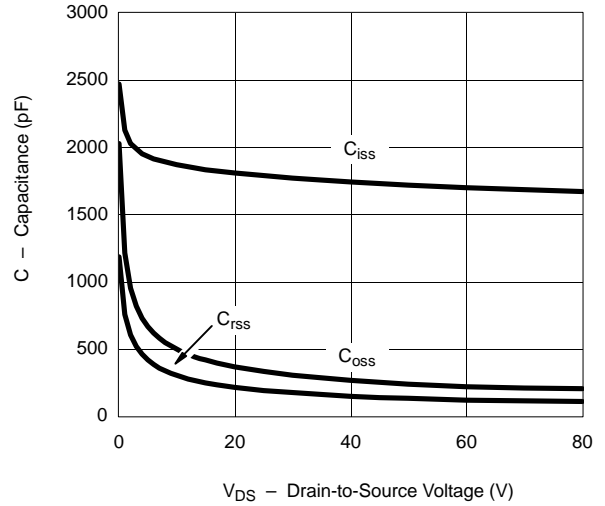


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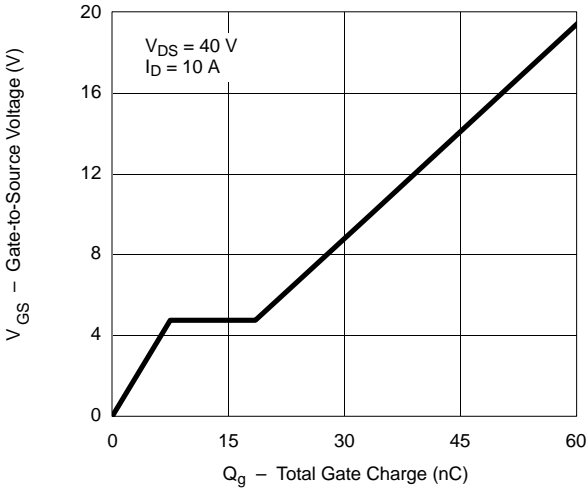
On-Resistance vs. Drain Current



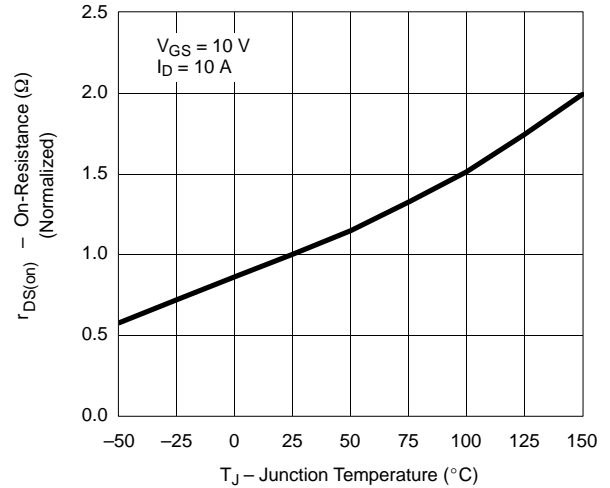
Capacitance



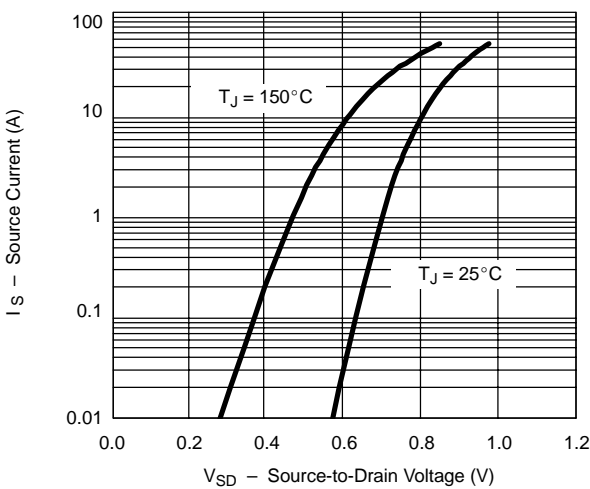
Gate Charge



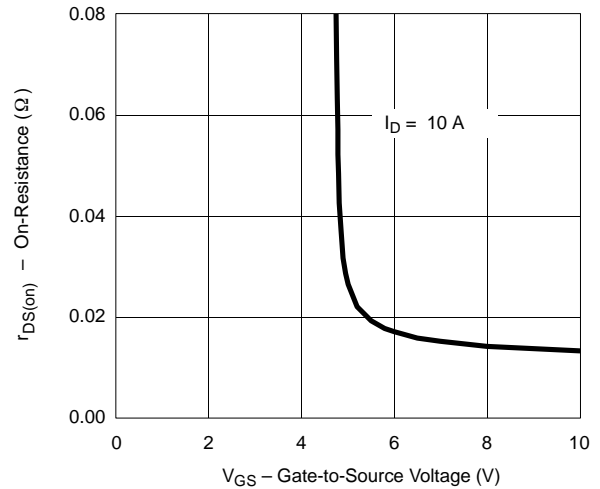
On-Resistance vs. Junction Temperature



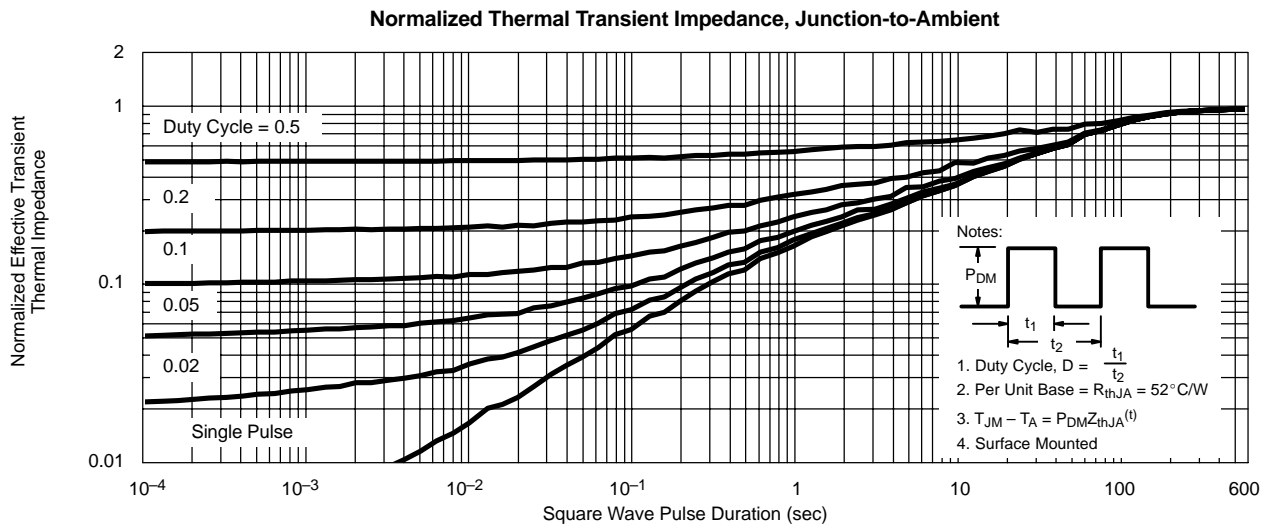
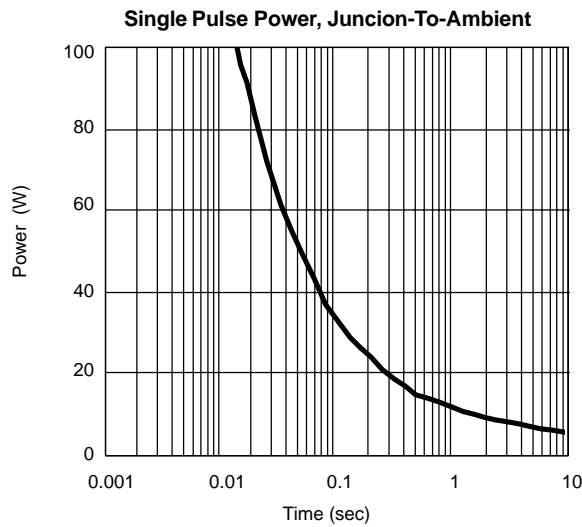
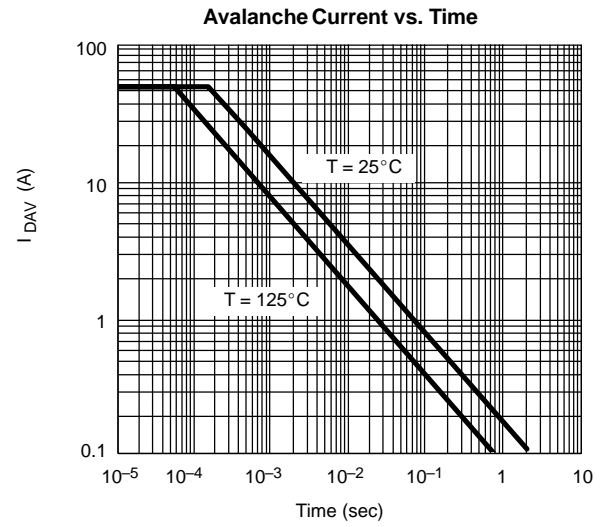
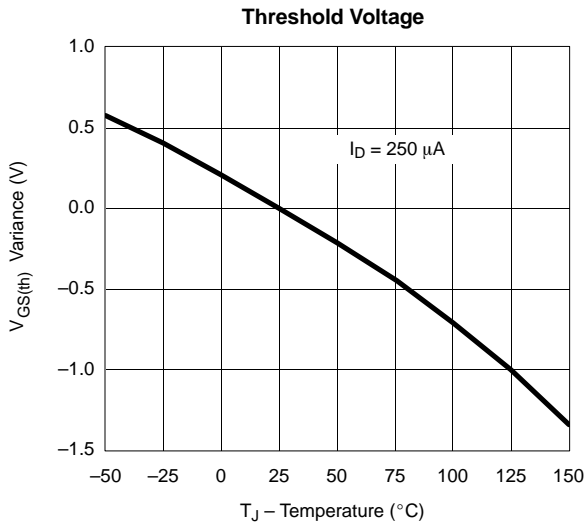
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

