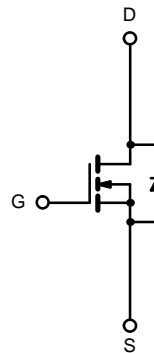
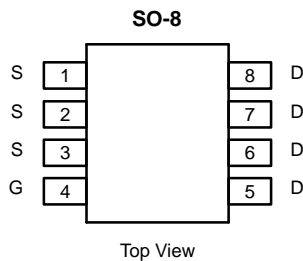




## N-Channel 80-V (D-S) MOSFET

| PRODUCT SUMMARY |                           |           |
|-----------------|---------------------------|-----------|
| $V_{DS}$ (V)    | $r_{DS(on)}$ ( $\Omega$ ) | $I_D$ (A) |
| 80              | 0.0165 @ $V_{GS} = 10$ V  | 9.5       |
|                 | 0.022 @ $V_{GS} = 6.0$ V  | 8.3       |

**TrenchFET<sup>®</sup>**  
Power MOSFETs



N-Channel MOSFET

| 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   | $V_{GS}$       | $\pm 20$                 |              |                  |
| Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>         | $I_D$          | $T_A = 25^\circ\text{C}$ | 9.5          | 6.7              |
|   |                | $T_A = 70^\circ\text{C}$ | 7.6          | 5.4              |
| Pulsed Drain Current  | $I_{DM}$       | 50                       |              | A                |
| Avalanch Current  | $I_{AS}$       | 40                       |              |                  |
| Continuous Source Current (Diode Conduction) <sup>a</sup>                   | $I_S$          | 2.8                      | 1.4          |                  |
| Maximum Power Dissipation <sup>a</sup>                                      | $P_D$          | $T_A = 25^\circ\text{C}$ | 3.1          | 1.56             |
|   |                | $T_A = 70^\circ\text{C}$ | 2.0          | 1.0              |
| 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 <sup>a</sup> | $R_{thJA}$ | $t \leq 10$ sec | 33      | 40                 |
|  |            | Steady State    | 65      | 80                 |
| Maximum Junction-to-Foot (Drain)         | $R_{thJF}$ | 17              | 21      | $^\circ\text{C/W}$ |

Notes

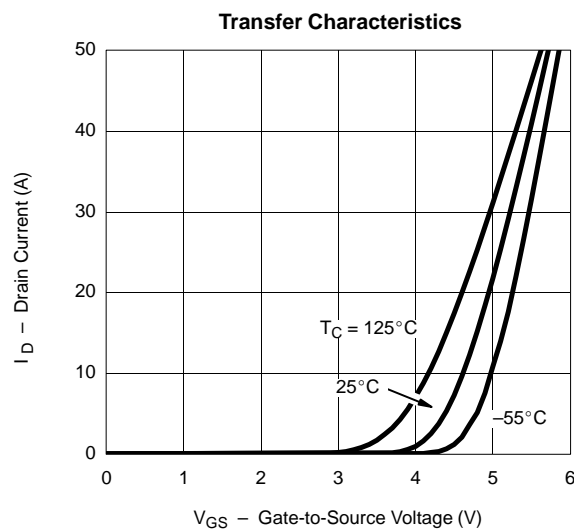
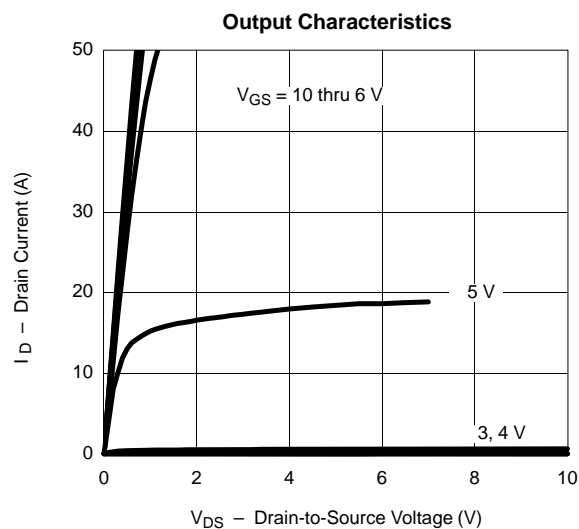
a. Surface Mounted on 1" x 1" FR4 Board.

**SPECIFICATIONS (T<sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)**

| Parameter                                     | Symbol              | Test Condition   | Min | Typ    | Max    | Unit |
|---|---------------------|--|-----|--------|--------|------|
| <b>Static</b>                                 |                     |  |     |        |        |      |
| Gate Threshold Voltage                        | V <sub>GS(th)</sub> | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA  | 2.0 |        |        | V    |
| Gate-Body Leakage                             | I <sub>GSS</sub>    | V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V   |     |        | ±100   | nA   |
| Zero Gate Voltage Drain Current               | I <sub>DSS</sub>    | V <sub>DS</sub> = 64 V, V <sub>GS</sub> = 0 V  |     |        | 1      | μA   |
|   |                     | V <sub>DS</sub> = 64 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C  |     |        | 5      |      |
| On-State Drain Current <sup>a</sup>           | I <sub>D(on)</sub>  | V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 10 V  | 50  |        |        | A    |
| Drain-Source On-State Resistance <sup>a</sup> | r <sub>DS(on)</sub> | V <sub>GS</sub> = 10 V, I <sub>D</sub> = 10 A  |     | 0.0135 | 0.0165 | Ω    |
|   |                     | V <sub>GS</sub> = 6.0 V, I <sub>D</sub> = 8.0 A  |     | 0.0175 | 0.022  |      |
| Forward Transconductance <sup>a</sup>         | g <sub>fs</sub>     | V <sub>DS</sub> = 15 V, I <sub>D</sub> = 10 A  |     | 25     |        | S    |
| Diode Forward Voltage <sup>a</sup>            | V <sub>SD</sub>     | I <sub>S</sub> = 2.8 A, V <sub>GS</sub> = 0 V  |     | 0.75   | 1.1    | V    |
| <b>Dynamic<sup>b</sup></b>                    |                     |  |     |        |        |      |
| Total Gate Charge                             | Q <sub>g</sub>      | V <sub>DS</sub> = 40 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 10 A  |     | 34     | 41     | nC   |
| Gate-Source Charge                            | Q <sub>gs</sub>     |  |     | 7.5    |        |      |
| Gate-Drain Charge                             | Q <sub>gd</sub>     |  |     | 11.0   |        |      |
| Turn-On Delay Time                            | t <sub>d(on)</sub>  | V <sub>DD</sub> = 40 V, R <sub>L</sub> = 40 Ω<br>I <sub>D</sub> ≅ 1.0 A, V <sub>GEN</sub> = 10 V, R <sub>G</sub> = 6 Ω |     | 17     | 25     | ns   |
| Rise Time                                     | t <sub>r</sub>      |  |     | 11     | 17     |      |
| Turn-Off Delay Time                           | t <sub>d(off)</sub> |  |     | 40     | 60     |      |
| Fall Time                                     | t <sub>f</sub>      |  |     | 31     | 45     |      |
| Gate Resistance                               | R <sub>g</sub>      |  |     |        | 0.85   |      |
| Source-Drain Reverse Recovery Time            | t <sub>rr</sub>     | I <sub>F</sub> = 2.8 A, di/dt = 100 A/μs   |     | 45     | 75     | ns   |

## Notes

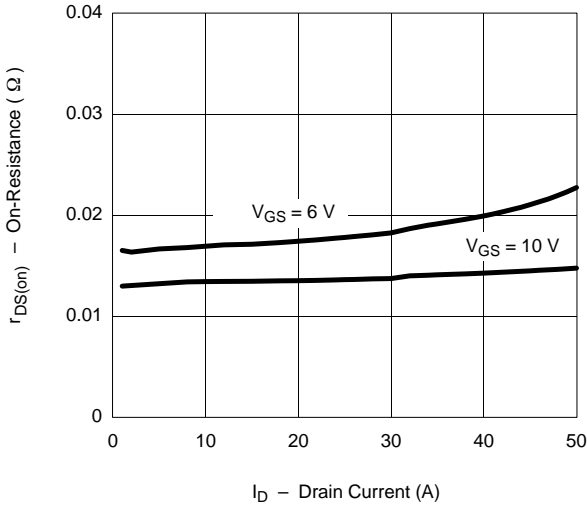
- Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

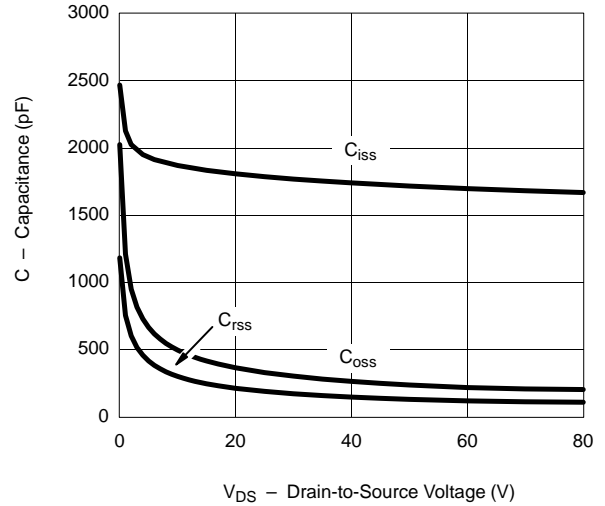


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

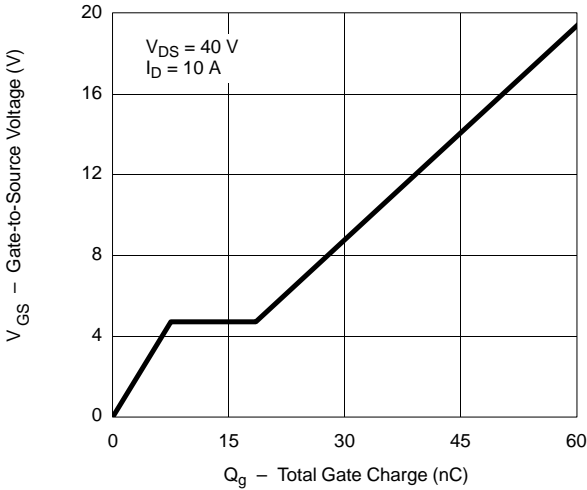
On-Resistance vs. Drain Current



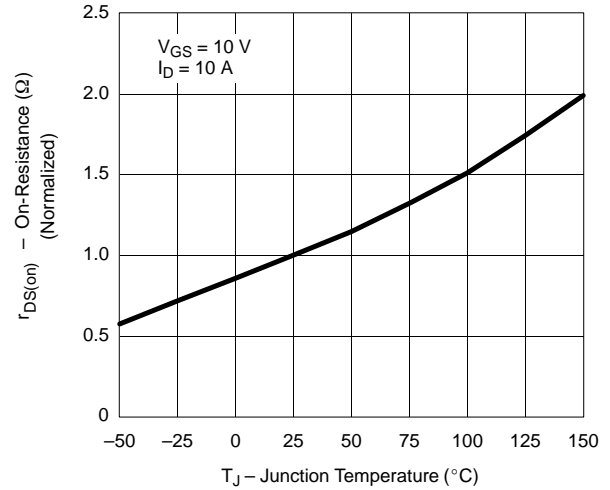
Capacitance



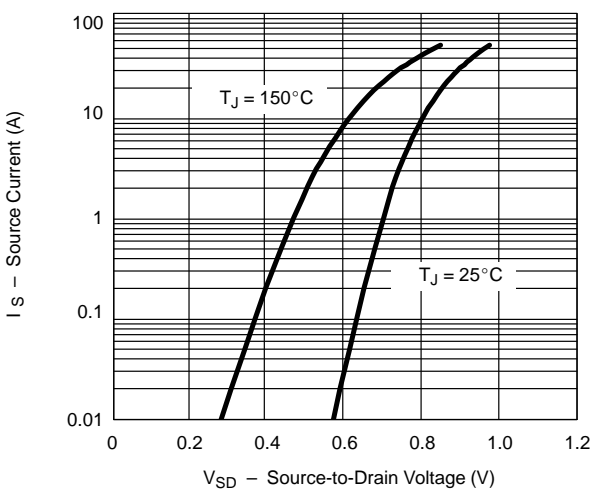
Gate Charge



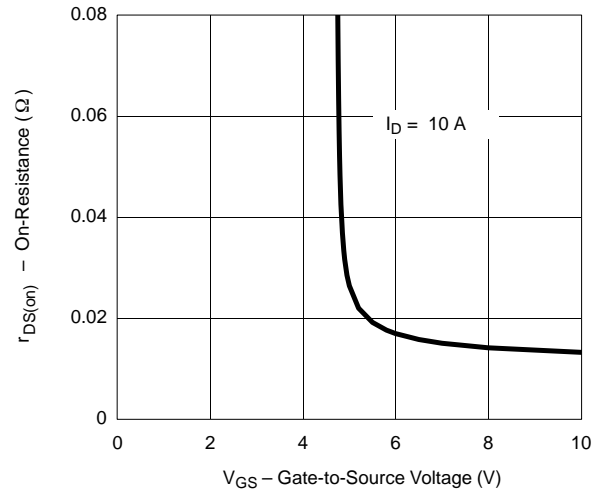
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage

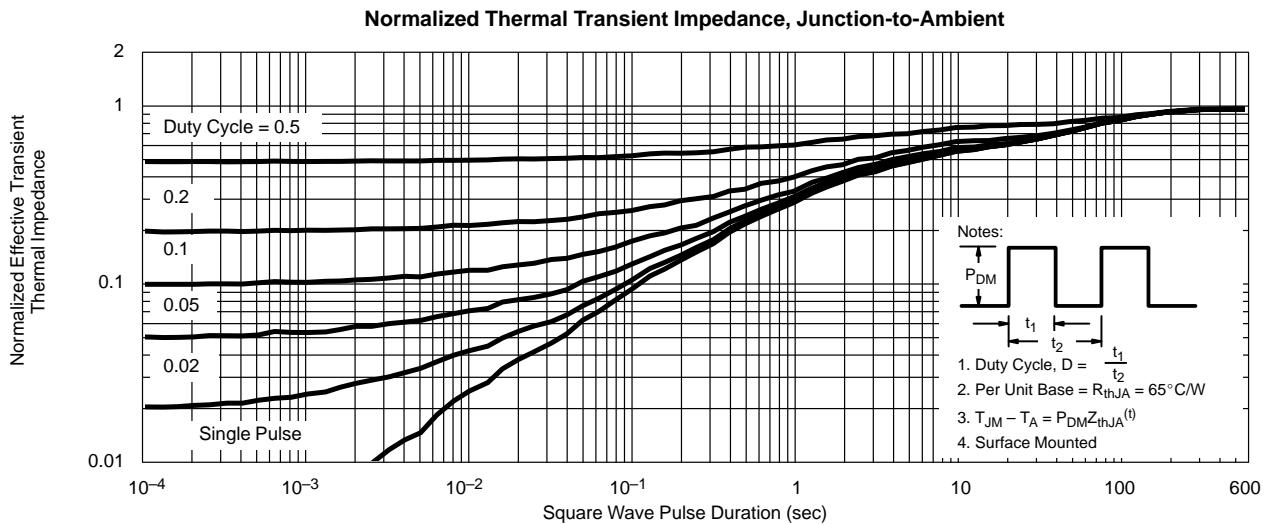
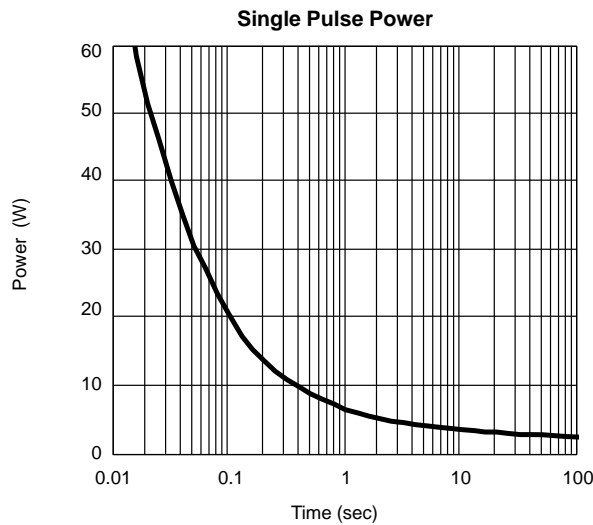
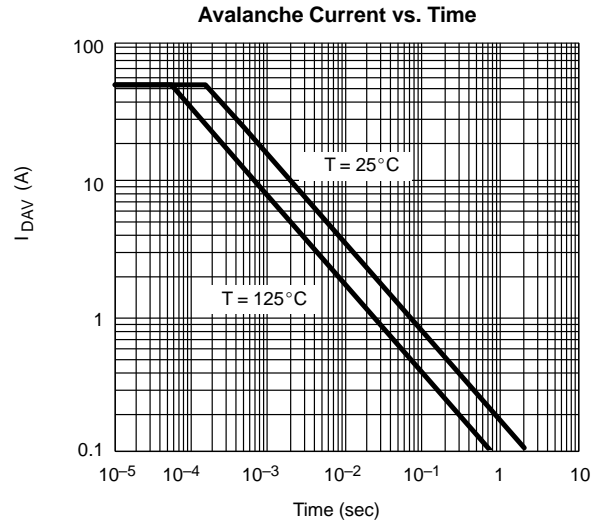
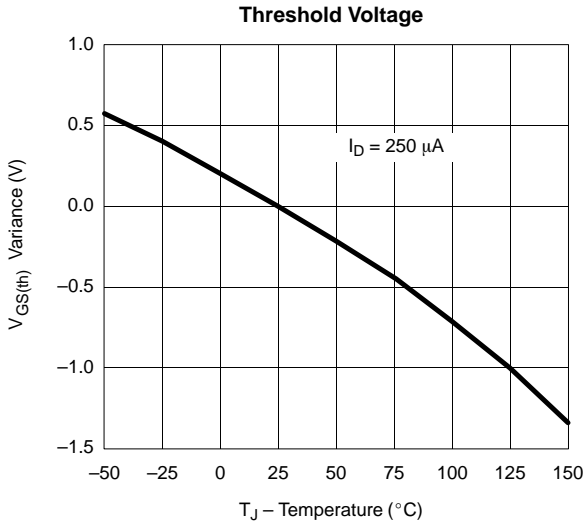


On-Resistance vs. Gate-to-Source Voltage





**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**





**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

