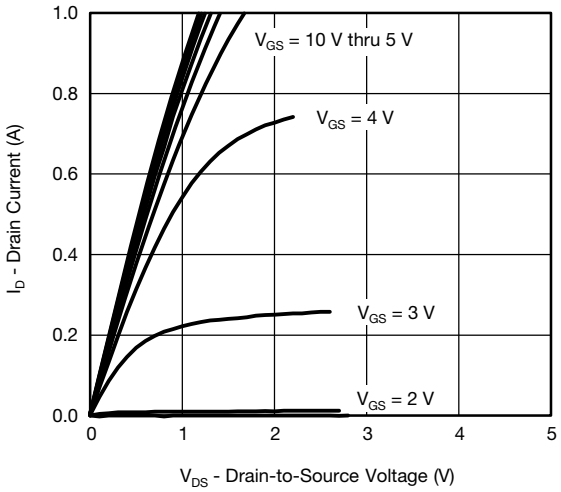
| **SPECIFICATIONS** ($T_C$ = 25 °C, unless otherwise noted) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **TEST CONDITIONS** | | **MIN.** | **TYP.** | **MAX.** | **UNIT** |
| **Static** | | | | | | | |
| Drain-Source Breakdown Voltage | $V_{DS}$ | $V_{GS}$ = 0 V, $I_D$ = 250 µA | | 60 | - | - | V |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$, $I_D$ = 250 µA | | 1 | 1.5 | 2.5 | |
| Gate-Source Leakage | $I_{GSS}$ | $V_{DS}$ = 0 V, $V_{GS}$ = ± 12 V | | - | - | ± 1 | µA |
| | | $V_{DS}$ = 0 V, $V_{GS}$ = ± 20 V | | - | - | ± 1 | mA |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{GS}$ = 0 V | $V_{DS}$ = 60 V | - | - | 1.0 | µA |
| | | $V_{GS}$ = 0 V | $V_{DS}$ = 60 V, $T_J$ = 125 °C | - | - | 50 | |
| | | $V_{GS}$ = 0 V | $V_{DS}$ = 60 V, $T_J$ = 175 °C | - | - | 150 | |
| On-State Drain Current[a] | $I_{D(on)}$ | $V_{GS}$ = 10 V | $V_{DS}$ ≥ 5 V | 0.500 | - | - | A |
| Drain-Source On-State Resistance[a] | $R_{DS(on)}$ | $V_{GS}$ = 10 V | $I_D$ = 500 mA | - | 1.1 | 1.4 | Ω |
| | | $V_{GS}$ = 10 V | $I_D$ = 500 mA, $T_J$ = 125 °C | - | - | 2.41 | |
| | | $V_{GS}$ = 10 V | $I_D$ = 500 mA, $T_J$ = 175 °C | - | - | 3.04 | |
| | | $V_{GS}$ = 4.5 V | $I_D$ = 200 mA | - | 1.5 | 2.0 | |
| Forward Transconductance[b] | $g_{fs}$ | $V_{DS}$ = 10 V, $I_D$ = 200 mA | | - | 0.200 | - | S |
| **Dynamic[b]** | | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{GS}$ = 0 V | $V_{DS}$ = 25 V, f = 1 MHz | - | 21 | 27 | pF |
| Output Capacitance | $C_{oss}$ | | | - | 6 | 8 | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | - | 4 | 5 | |
| Total Gate Charge[c] | $Q_g$ | $V_{GS}$ = 10 V | $V_{DS}$ = 30 V, $I_D$ = 250 mA | - | 1.00 | 1.5 | nC |
| Gate-Source Charge[c] | $Q_{gs}$ | | | - | 0.16 | - | |
| Gate-Drain Charge[c] | $Q_{gd}$ | | | - | 0.24 | - | |
| Turn-On Delay Time[c] | $t_{d(on)}$ | $V_{DD}$ = 30 V, $R_L$ = 30 Ω<br>$I_D$ ≅ 1 A, $V_{GEN}$ = 10 V, $R_g$ = 6 Ω | | - | 5 | 8 | ns |
| Rise Time | $t_r$ | | | - | 11 | 17 | |
| Turn-Off Delay Time[c] | $t_{d(off)}$ | $V_{DD}$ = 30 V, $R_L$ = 30 Ω<br>$I_D$ ≅ 1 A, $V_{GEN}$ = 10 V, $R_g$ = 1 Ω | | - | 9 | 14 | |
| Fall Time | $t_f$ | | | - | 10 | 15 | |
| **Diode Ratings and Characteristics[b]** | | | | | | | |
| Pulsed Current[a] | $I_{SM}$ | | | - | - | 1.2 | A |
| Forward Voltage | $V_{SD}$ | $I_F$ = 200 mA, $V_{GS}$ = 0 V | | - | 0.83 | 1.2 | V |

**Notes**

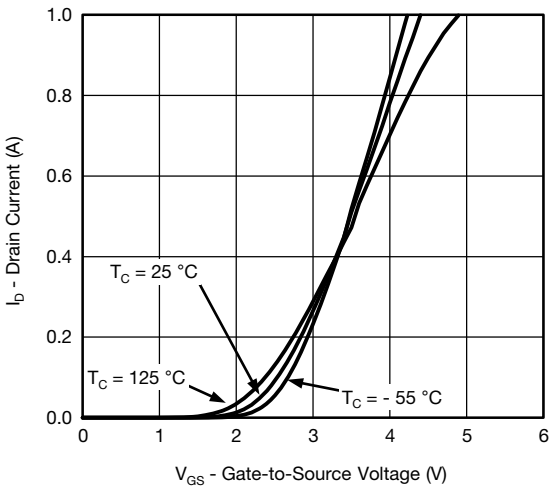
a. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2 %.
b. Guaranteed by design, not subject to production testing.
c. Independent of operating temperature.

*Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.*

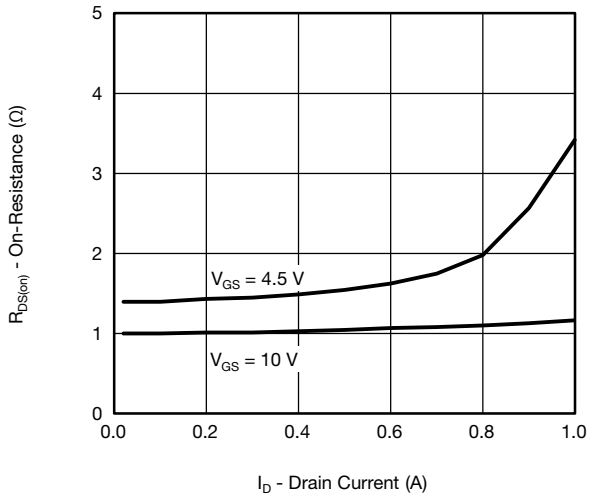
## TYPICAL CHARACTERISTICS ($T_C$ = 25 °C, unless otherwise noted)



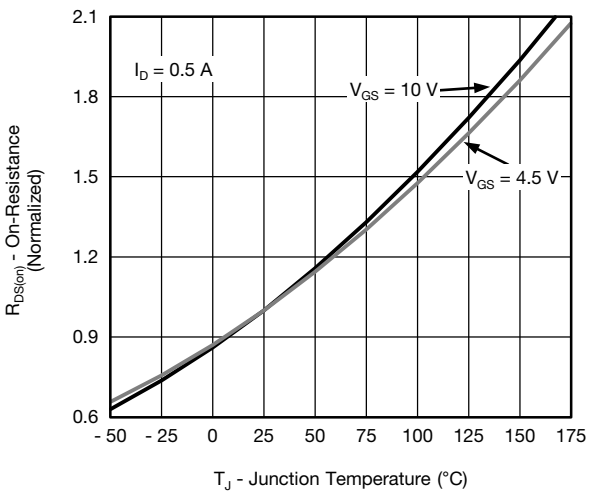

**Output Characteristics**



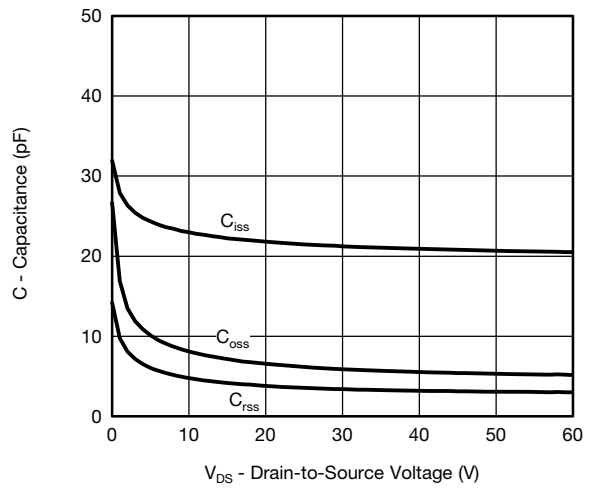

**Transfer Characteristics**



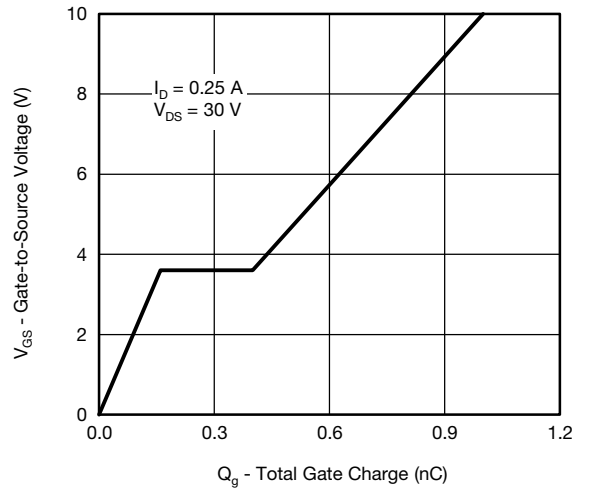

**On-Resistance vs. Drain Current**




**On-Resistance vs. Junction Temperature**

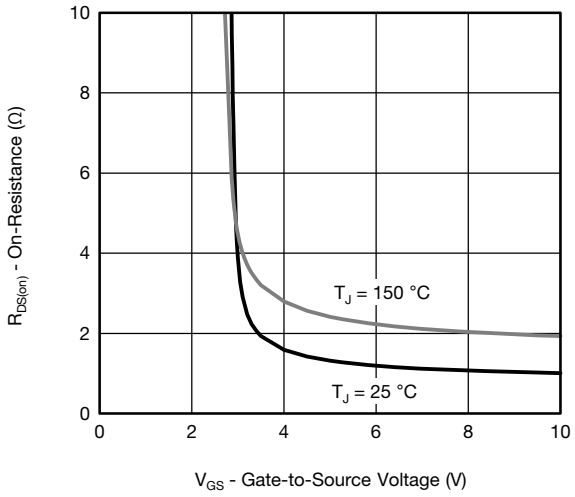



**Capacitance**

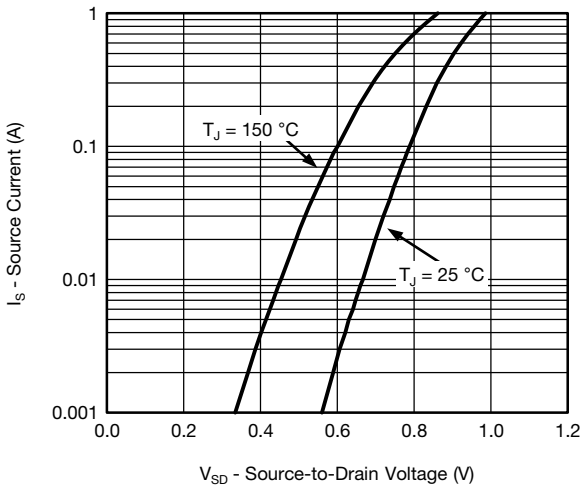



**Gate Charge**

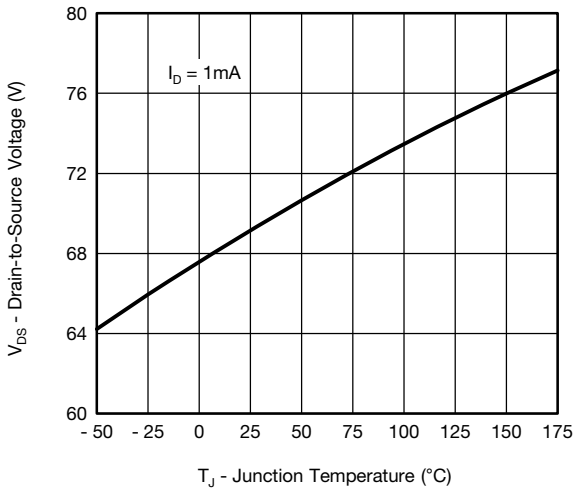
## TYPICAL CHARACTERISTICS ($T_C$ = 25 °C, unless otherwise noted)



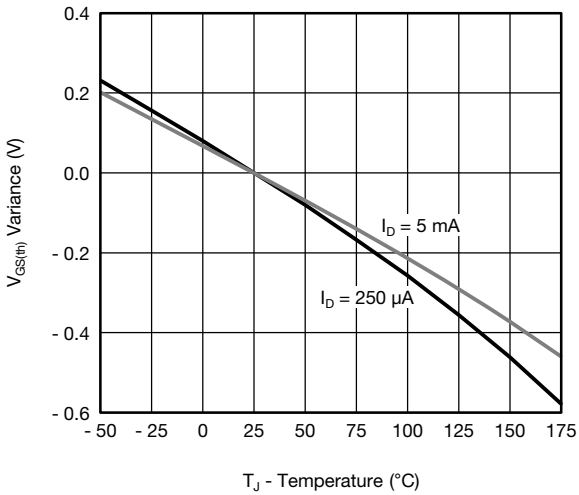

**On-Resistance vs. Gate-to-Source Voltage**



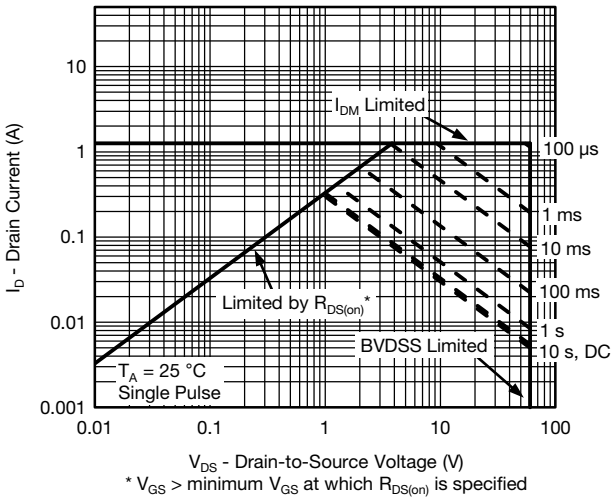

**Source-Drain Diode Forward Voltage**




**Drain Source Breakdown vs. Junction Temperature**

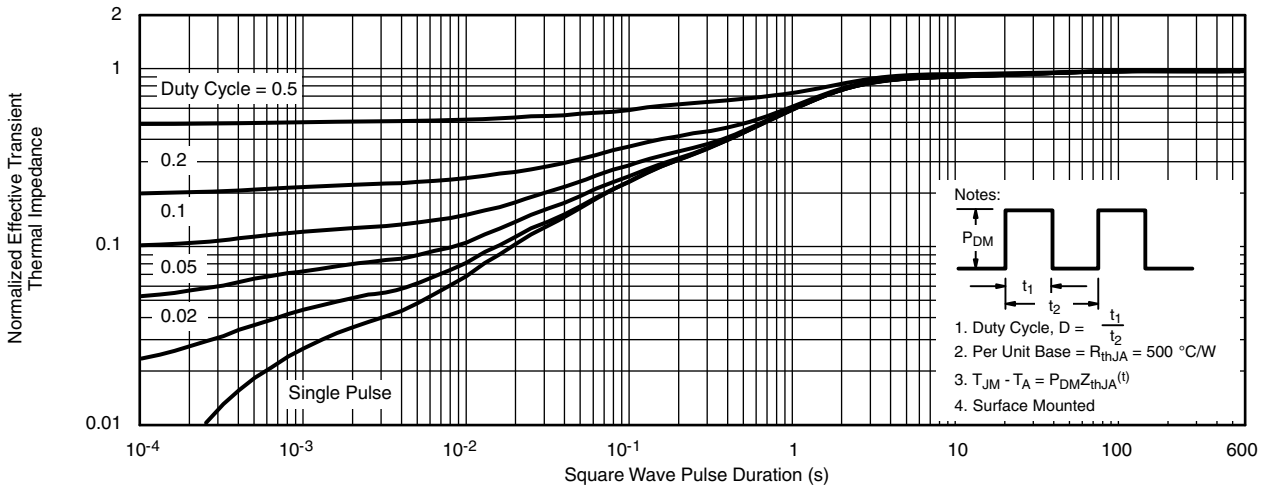



**Threshold Voltage**




**Safe Operating Area**

## THERMAL RATINGS ($T_A$ = 25 °C, unless otherwise noted)




**Normalized Thermal Transient Impedance, Junction-to-Ambient**

**Note**

The characteristics shown in the the graph Normalized Transient Thermal Impedance Junction to Ambient (25 °C) is given for general guidelines only to enable the user to get a “ball park” indication of part capabilities. The data are extracted from single pulse transient thermal impedance characteristics which are developed from empirical measurements. The latter is valid for the part mounted on printed circuit board - FR4, size 1" x 1" x 0.062", double sided with 2 oz. copper, 100 % on both sides. The part capabilities can widely vary depending on actual application parameters and operating conditions.

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