

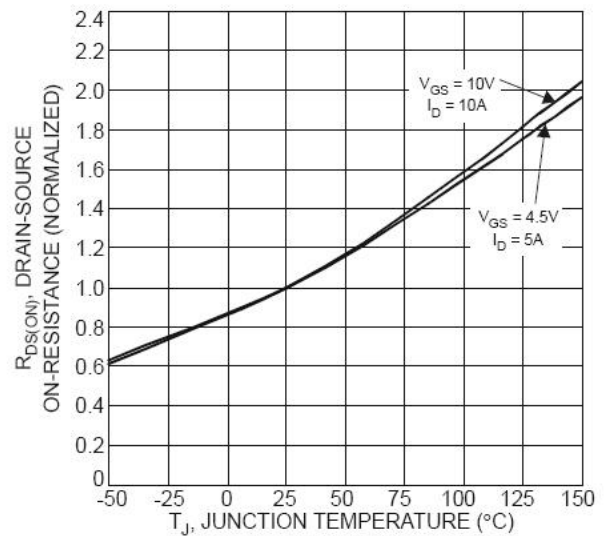
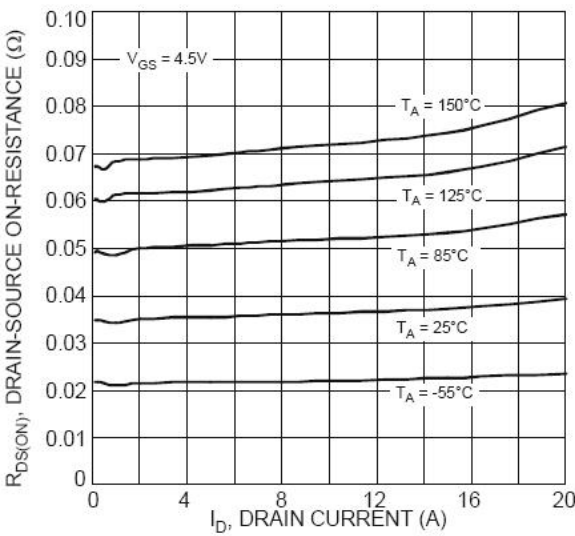
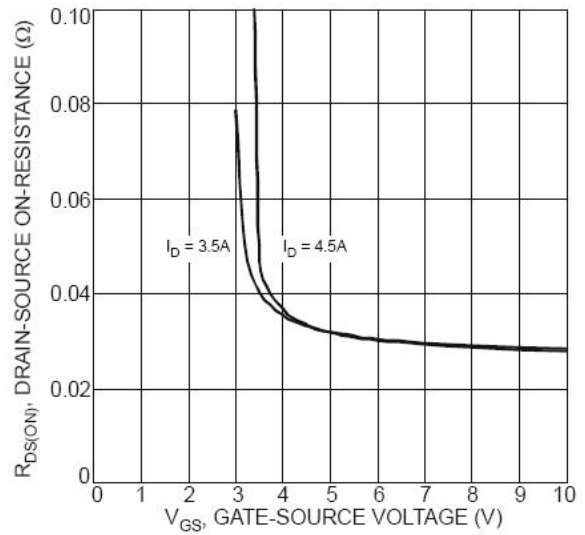
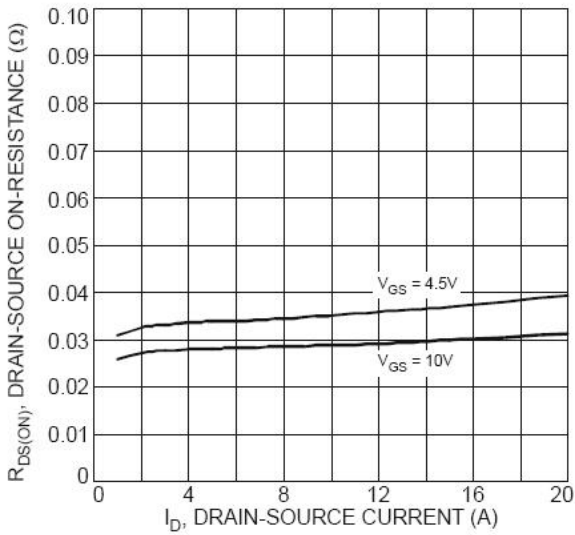
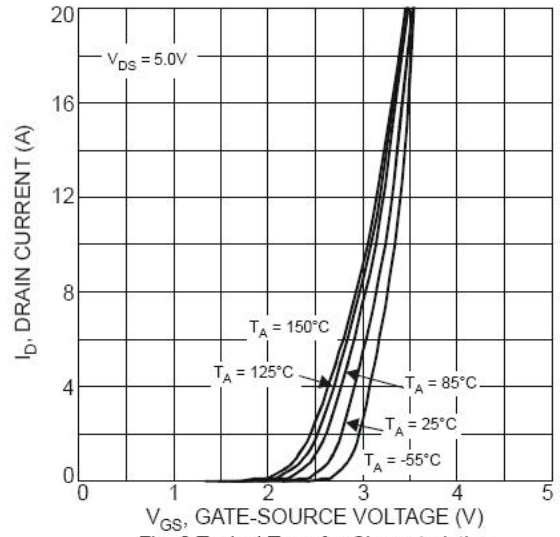
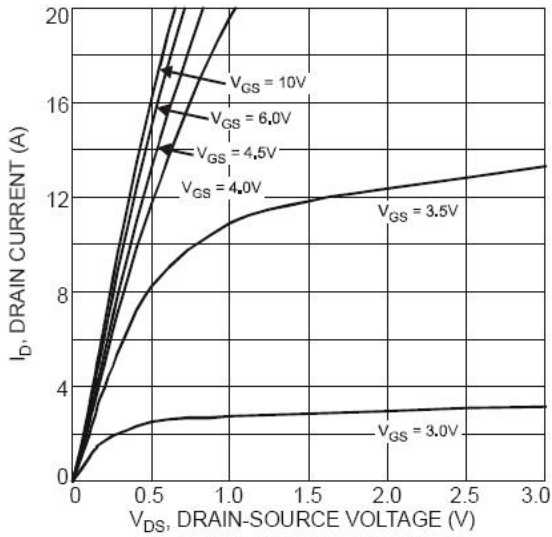
Electrical Characteristics (N-Channel) at $T_a=25^{\circ}\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------------------------|---------------|-------------------------------------------------------------------------|---------|------|-----------|------------------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D=250\mu\text{A}, V_{GS}=0\text{V}$ | 60 | - | - | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS}=60\text{V}, V_{GS}=0\text{V}$ | - | - | 1 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$ | - | - | ± 100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$ | 1 | 1.8 | 2.5 | V |
| Static Drain-to-Source On-State Resistance | $R_{DS(ON)}$ | $I_D=12\text{A}, V_{GS}=10\text{V}$ | - | - | 40 | $\text{m}\Omega$ |
| | $R_{DS(ON)}$ | $I_D=7\text{A}, V_{GS}=4.5\text{V}$ | - | - | 50 | $\text{m}\Omega$ |
| Input Capacitance | C_{iss} | $V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$ | - | 880 | - | pF |
| Output Capacitance | C_{oss} | $V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$ | - | 140 | - | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$ | - | 90 | - | pF |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DS}=15\text{V}, R_L=0.75\Omega, R_{GEN}=1\Omega, V_{GS}=10\text{V}$ | - | 13 | - | nS |
| Rise Time | t_r | | - | 18 | - | nS |
| Turn-off Delay Time | $t_{d(off)}$ | | - | 30 | - | nS |
| Fall Time | t_f | | - | 11 | - | nS |
| Total Gate Charge | Q_g | $V_{DS}=15\text{V}, V_{GS}=10\text{V}, I_D=20\text{A}$ | - | 24 | - | nC |
| Gate-to-Source Charge | Q_{gs} | | - | 20 | - | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | | - | 27 | - | nC |
| Diode Forward Voltage | V_{SD} | $I_S=3\text{A}, V_{GS}=0\text{V}$ | - | 0.75 | - | V |

Electrical Characteristics (P-Channel) at $T_a=25^{\circ}\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------------------------|---------------|-------------------------------------------------------------------------|---------|-------|-----------|------------------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D=250\mu\text{A}, V_{GS}=0\text{V}$ | -60 | - | - | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS}=60\text{V}, V_{GS}=0\text{V}$ | - | - | -1 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$ | - | - | ± 100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$ | -1 | - | -2.5 | V |
| Static Drain-to-Source On-State Resistance | $R_{DS(ON)}$ | $I_D=-5\text{A}, V_{GS}=-10\text{V}$ | - | 68 | 80 | $\text{m}\Omega$ |
| | $R_{DS(ON)}$ | $I_D=-3\text{A}, V_{GS}=-4.5\text{V}$ | - | 80 | 110 | $\text{m}\Omega$ |
| Input Capacitance | C_{iss} | $V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$ | - | 1120 | - | pF |
| Output Capacitance | C_{oss} | $V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$ | - | 190 | - | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$ | - | 100 | - | pF |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DS}=15\text{V}, R_L=0.75\Omega, R_{GEN}=1\Omega, V_{GS}=10\text{V}$ | - | 12 | - | nS |
| Rise Time | t_r | | - | 16 | - | nS |
| Turn-off Delay Time | $t_{d(off)}$ | | - | 40 | - | nS |
| Fall Time | t_f | | - | 11 | - | nS |
| Total Gate Charge | Q_g | $V_{DS}=15\text{V}, V_{GS}=10\text{V}, I_D=10\text{A}$ | - | 22 | - | nC |
| Gate-to-Source Charge | Q_{gs} | | - | 25 | - | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | | - | 30 | - | nC |
| Diode Forward Voltage | V_{SD} | $I_S=3\text{A}, V_{GS}=0\text{V}$ | - | -0.75 | - | V |

Typical Characteristics (N-Channel) at $T_a=25^{\circ}\text{C}$



Typical Characteristics (N-Channel) at $T_a=25^\circ\text{C}$ (Continued)

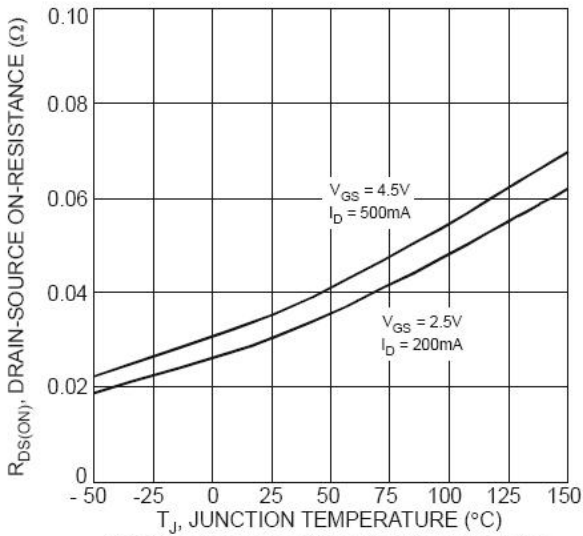


Fig. 7 On-Resistance Variation with Temperature

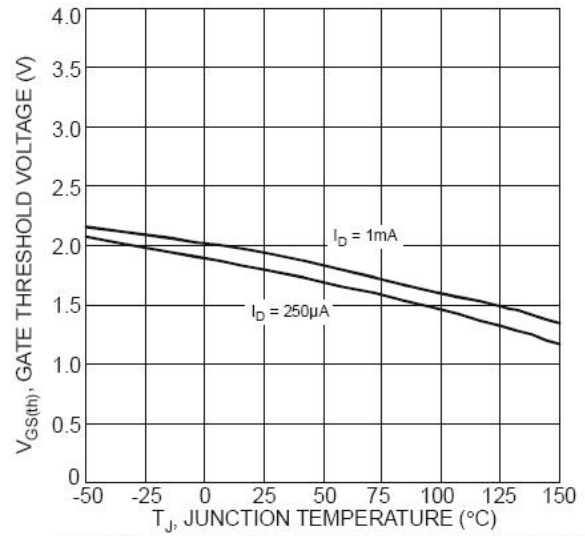


Fig. 8 Gate Threshold Variation vs. Ambient Temperature

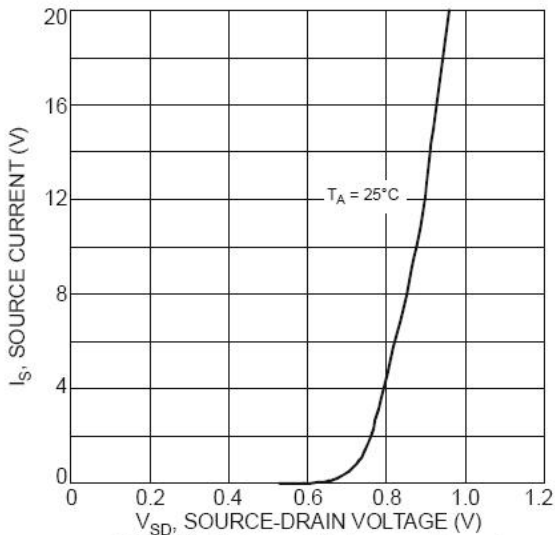


Fig. 9 Diode Forward Voltage vs. Current

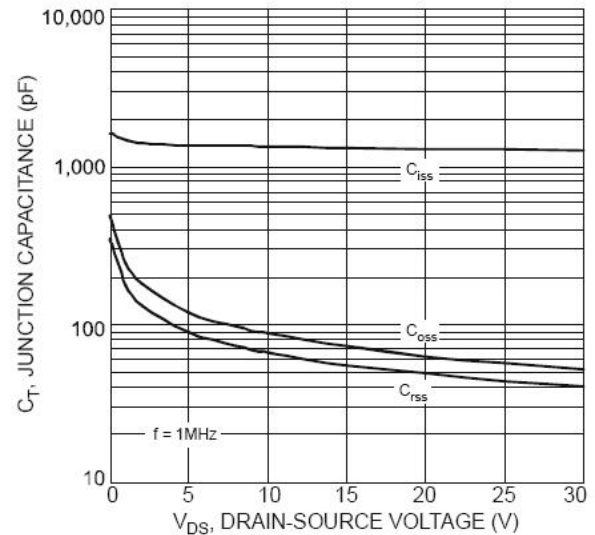


Fig. 10 Typical Junction Capacitance

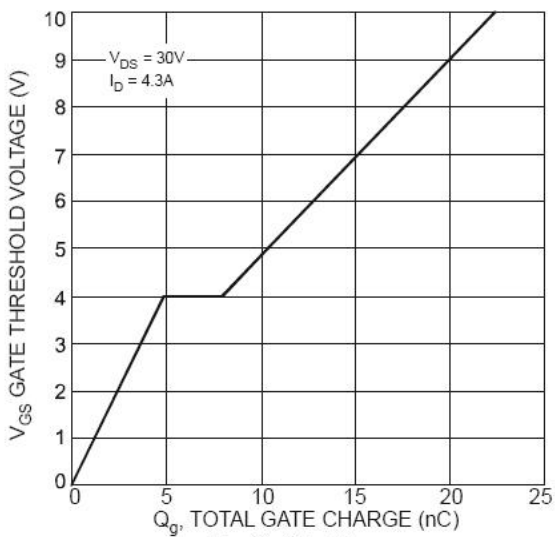


Fig. 11 Gate Charge

Typical Characteristics (P-Channel) at $T_a=25^{\circ}\text{C}$

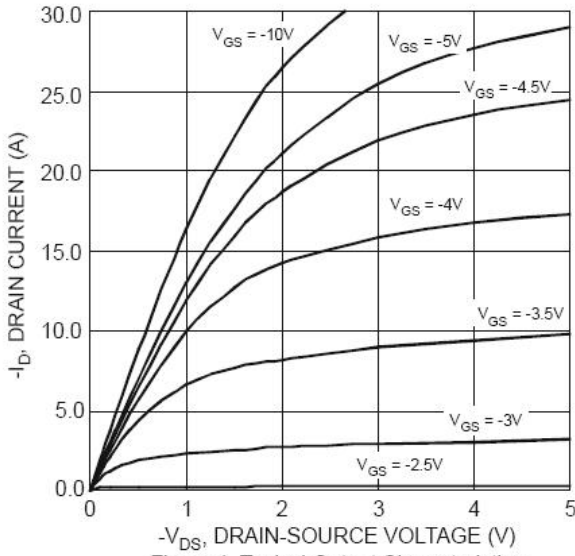


Figure 1 Typical Output Characteristics

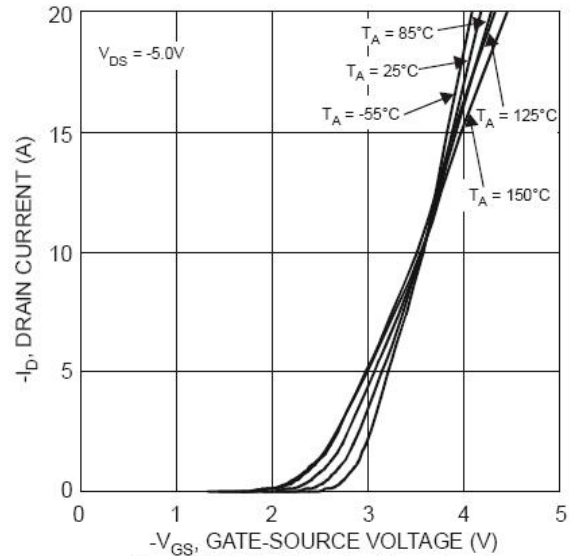


Figure 2 Typical Transfer Characteristics

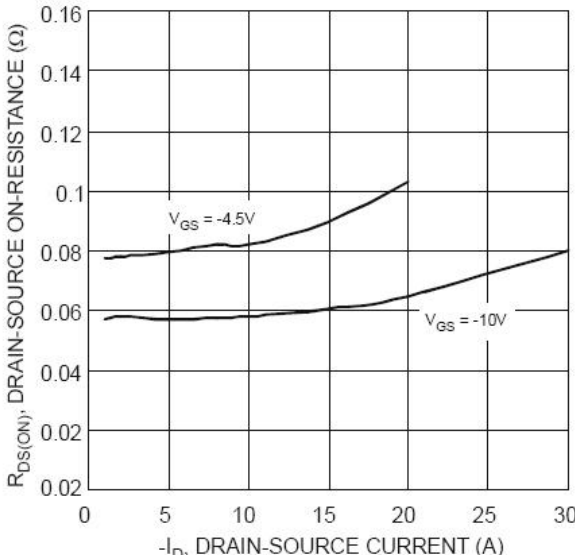


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

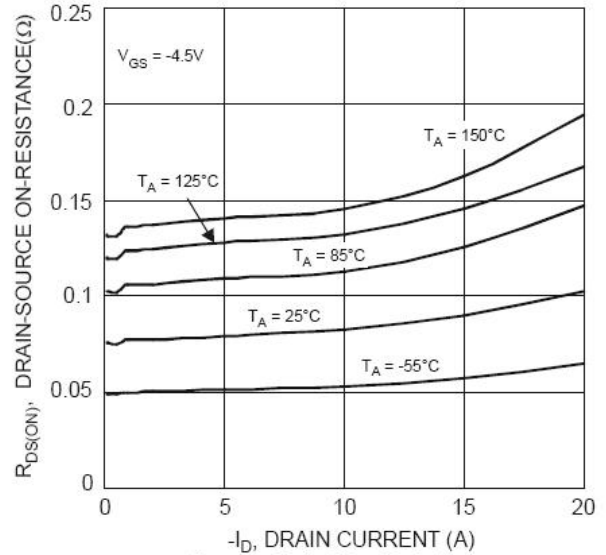


Figure 4 Typical On-Resistance vs. Drain Current and Temperature

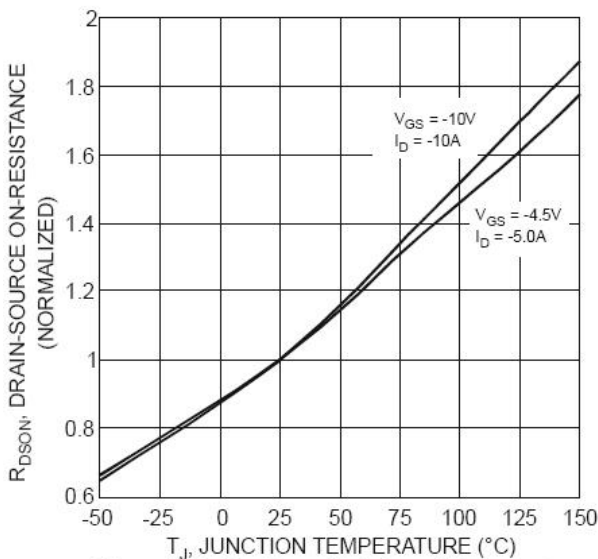


Figure 5 On-Resistance Variation with Temperature

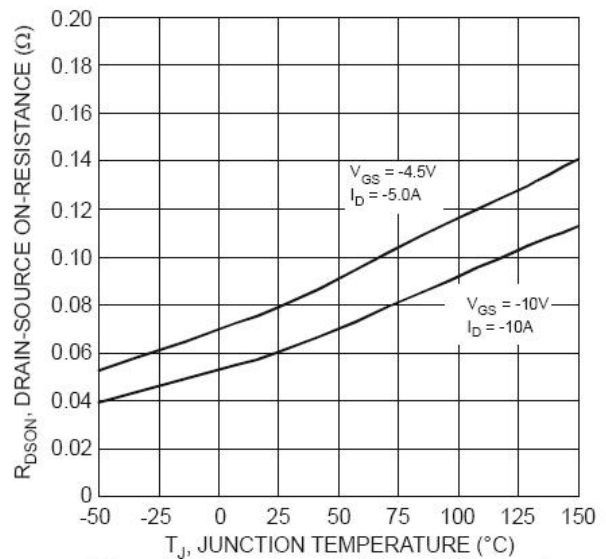


Figure 6 On-Resistance Variation with Temperature

Typical Characteristics (P-Channel) at $T_a=25^{\circ}\text{C}$ (Continued)

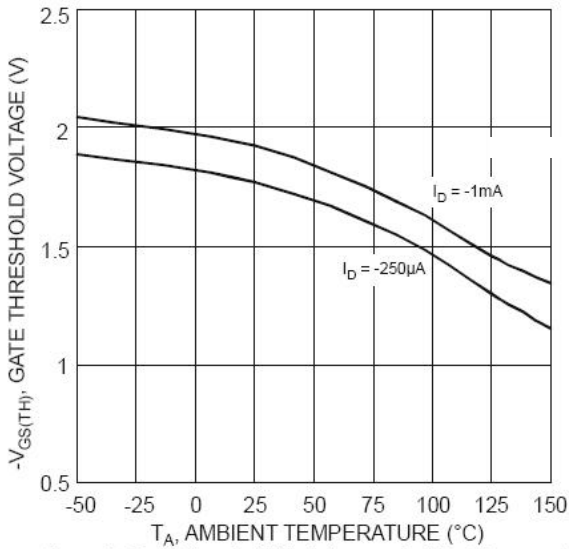


Figure 7 Gate Threshold Variation vs. Ambient Temperature

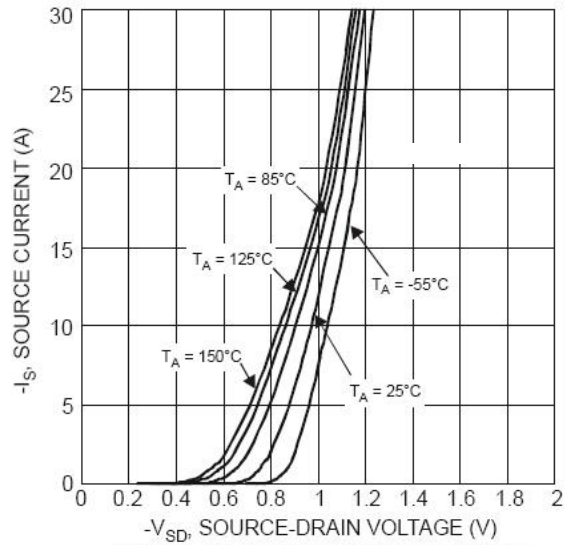


Figure 8 Diode Forward Voltage vs. Current

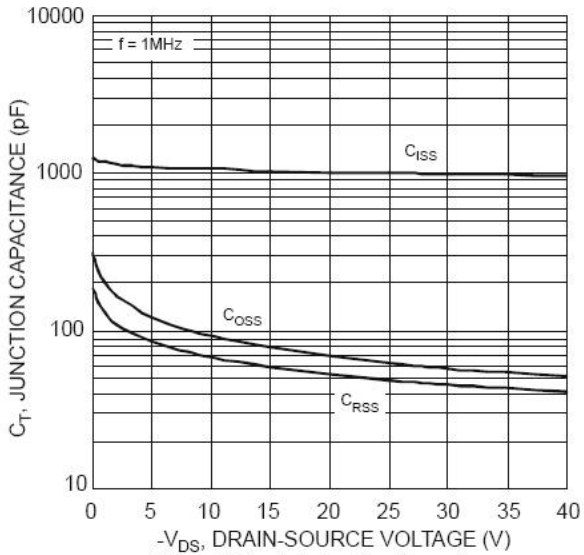


Figure 9 Typical Junction Capacitance

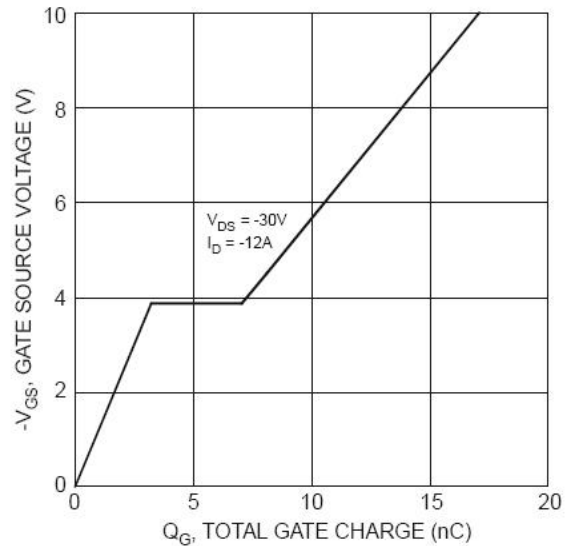


Figure 10 Gate Charge Characteristics