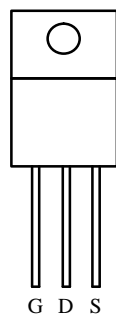


N-Channel Enhancement-Mode Transistor

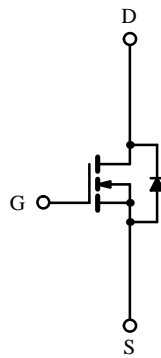
Product Summary

| $V_{(BR)DSS}$ (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
|-------------------|---------------------------|-----------|
| 100 | 0.075 | 20 |

**TO-257AB
Hermetic Package**



Case Isolated



N-Channel MOSFET

Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$ Unless Otherwise Noted)

| Parameter | Symbol | Limit | Unit | |
|--|----------------|---------------------------|------------------|---|
| Drain-Source Voltage | V_{DS} | 100 | V | |
| Gate-Source Voltage | V_{GS} | ± 20 | | |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) | I_D | $T_C = 25^\circ\text{C}$ | 20 | A |
| | | $T_C = 100^\circ\text{C}$ | 12 | |
| Pulsed Drain Current | I_{DM} | 80 | | |
| Maximum Power Dissipation | P_D | $T_C = 25^\circ\text{C}$ | 60 | W |
| | | $T_C = 100^\circ\text{C}$ | 20 | |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to 150 | $^\circ\text{C}$ | |
| Lead Temperature ($1/16''$ from case for 10 sec.) | T_L | 300 | | |

Thermal Resistance Ratings

| Parameter | Symbol | Typical | Maximum | Unit |
|-----------------------------|------------|---------|---------|--------------------|
| Maximum Junction-to-Ambient | R_{thJA} | | 80 | $^\circ\text{C/W}$ |
| Maximum Junction-to-Case | R_{thJC} | | 2.1 | |
| Case-to-Sink | R_{thCS} | 1.0 | | |

Subsequent updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #1460.

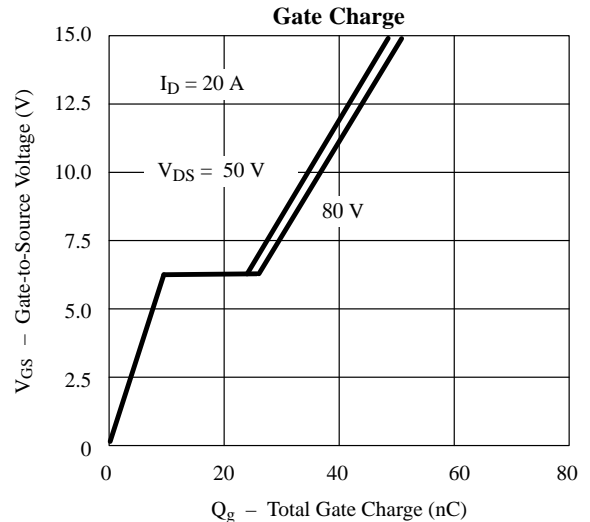
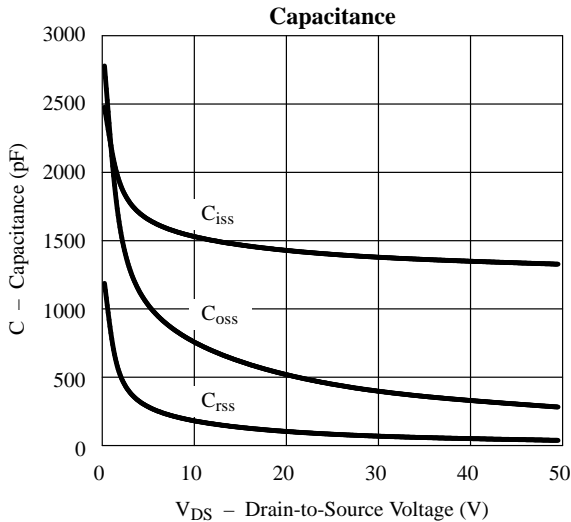
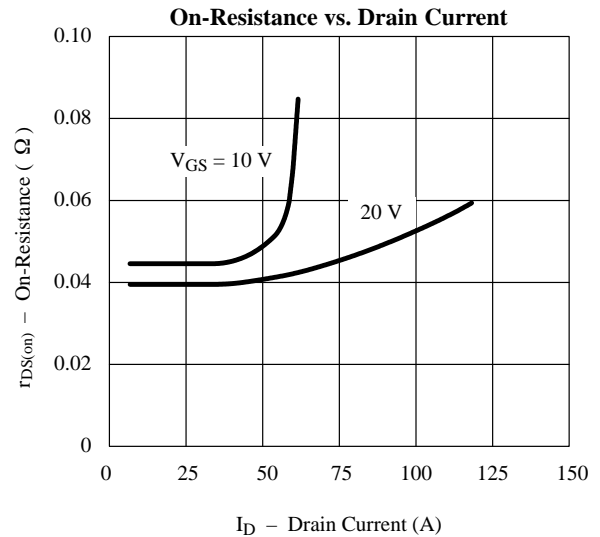
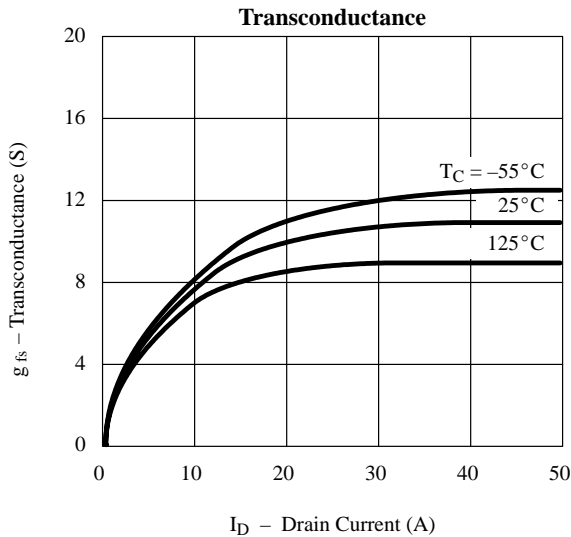
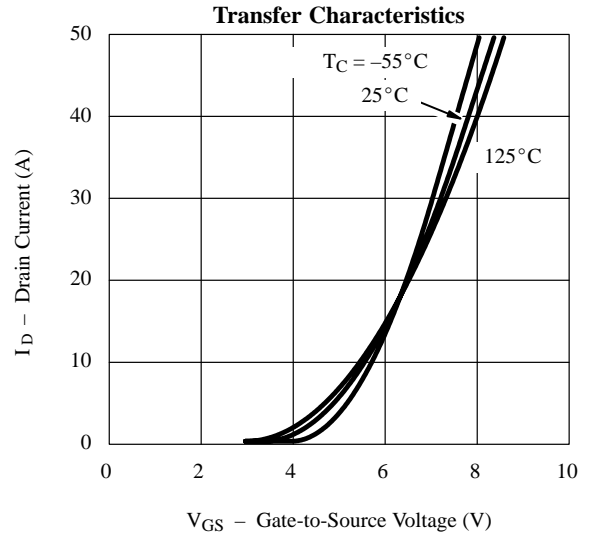
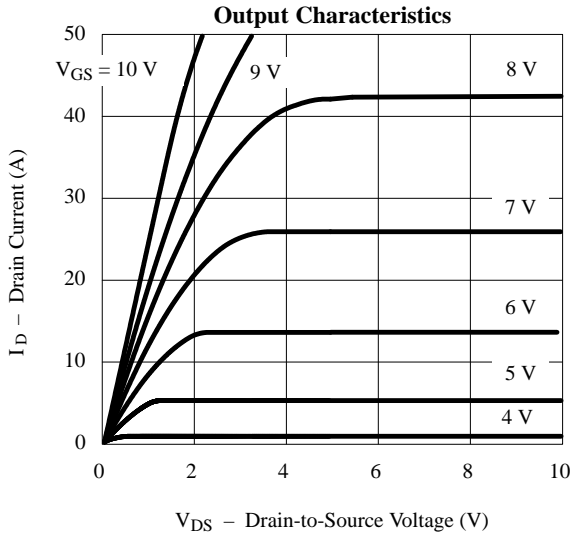
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

| Parameter | Symbol | Test Condition | Limit | | | Unit |
|---|---------------|--|-------|------------------|-----------|---------------|
| | | | Min | Typ ^a | Max | |
| Static | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$ | 100 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$ | 2.0 | | 4.0 | |
| Gate-Body Leakage | I_{GSS} | $V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}$ | | | 25 | μA |
| | | $V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}, T_J = 125^\circ\text{C}$ | | | 250 | |
| On-State Drain Current ^b | $I_{D(on)}$ | $V_{DS} = 10\text{ V}, V_{GS} = 10\text{ V}$ | 20 | | | A |
| Drain-Source On-State Resistance ^b | $r_{DS(on)}$ | $V_{GS} = 10\text{ V}, I_D = 12\text{ A}$ | | 0.06 | 0.075 | Ω |
| | | $V_{GS} = 10\text{ V}, I_D = 12\text{ A}, T_J = 125^\circ\text{C}$ | | 0.11 | 0.14 | |
| Forward Transconductance ^b | g_{fs} | $V_{DS} = 15\text{ V}, I_D = 12\text{ A}$ | 5.0 | 8.0 | | S |
| Dynamic | | | | | | |
| Input Capacitance | C_{iss} | $V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$ | | 1400 | | pF |
| Output Capacitance | C_{oss} | | | 480 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 110 | | |
| Total Gate Charge ^c | Q_g | $V_{DS} = 50\text{ V}, V_{GS} = 10\text{ V}, I_D = 20\text{ A}$ | | 35 | 50 | nC |
| Gate-Source Charge ^c | Q_{gs} | | | 10 | 20 | |
| Gate-Drain Charge ^c | Q_{gd} | | | 18 | 25 | |
| Turn-On Delay Time ^c | $t_{d(on)}$ | $V_{DD} = 50\text{ V}, R_L = 2.5\ \Omega$ $I_D \cong 20\text{ A}, V_{GEN} = 10\text{ V}, R_G = 4.7\ \Omega$ | | 13 | 30 | ns |
| Rise Time ^c | t_r | | | 85 | 120 | |
| Turn-Off Delay Time ^c | $t_{d(off)}$ | | | 35 | 80 | |
| Fall Time ^c | t_f | | | 75 | 95 | |
| Source-Drain Diode Ratings and Characteristics | | | | | | |
| Continuous Current | I_S | | | | 20 | A |
| Pulsed Current | I_{SM} | | | | 80 | |
| Diode Forward Voltage ^b | V_{SD} | $I_F = 20\text{ A}, V_{GS} = 0\text{ V}$ | | | 2.5 | V |
| Reverse Recovery Time | t_{rr} | $I_F = 20\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$ | | 150 | 400 | ns |
| Reverse Recovery Charge | Q_{rr} | | | 0.5 | | μC |

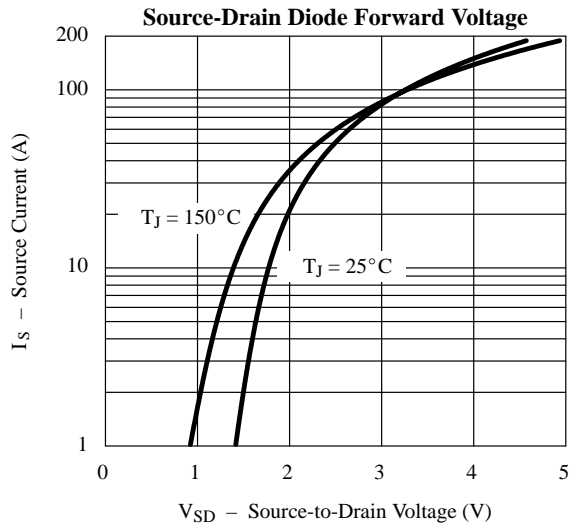
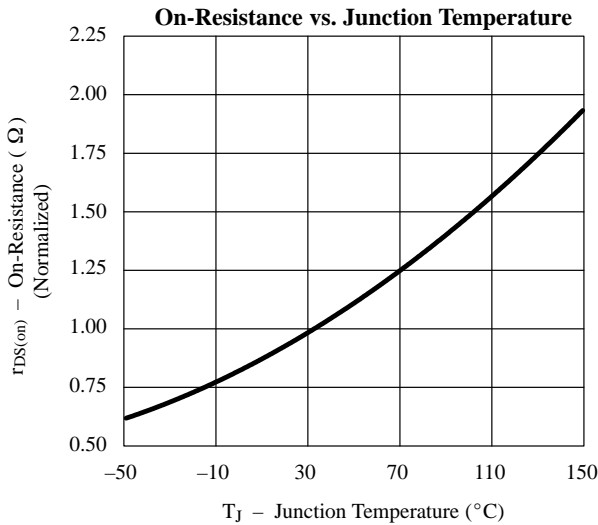
Notes:

- For design aid only; not subject to production testing.
- Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
- Independent of operating temperature.

Typical Characteristics (25° C Unless Otherwise Noted)



Typical Characteristics (25°C Unless Otherwise Noted)



Thermal Ratings

