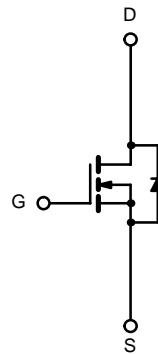
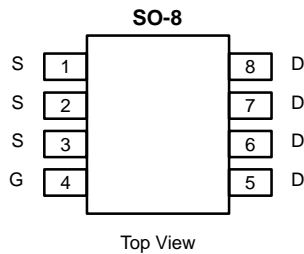




## N-Channel 80-V (D-S) MOSFET

### PRODUCT SUMMARY

| V <sub>DS</sub> (V) | R <sub>DS(ON)</sub> (Ω)         | I <sub>D</sub> (A) |
|---------------------|---------------------------------|--------------------|
| 80                  | 0.035 @ V <sub>GS</sub> = 10 V  | ± 6.0              |
|                     | 0.040 @ V <sub>GS</sub> = 6.0 V | ± 5.5              |



N-Channel MOSFET

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)

| PARAMETER  | SYMBOL                            | LIMIT                 | UNIT |
|--|-----------------------------------|-----------------------|------|
| Drain-Source Voltage   | V <sub>DS</sub>                   | 80                    | V    |
| Gate-Source Voltage  | V <sub>GS</sub>                   | ± 20                  |      |
| Continuous Drain Current (T <sub>J</sub> = 150°C) <sup>A</sup> | I <sub>D</sub>                    | T <sub>A</sub> = 25°C | A    |
|  |                                   | T <sub>A</sub> = 70°C |      |
| Pulsed Drain Current   | I <sub>DM</sub>                   | ± 40                  |      |
| Continuous Source Current (Diode Conduction) <sup>A</sup>      | I <sub>S</sub>                    | 2.1                   |      |
| Maximum Power Dissipation <sup>A</sup>                         | P <sub>D</sub>                    | T <sub>A</sub> = 25°C | W    |
|  |                                   | T <sub>A</sub> = 70°C |      |
| Operating Junction and Storage Temperature Range               | T <sub>J</sub> , T <sub>stg</sub> | -55 to 150            | °C   |

### THERMAL RESISTANCE RATINGS

| PARAMETER                                | SYMBOL            | LIMIT | UNIT |
|--|-------------------|-------|------|
| Maximum Junction-to-Ambient <sup>A</sup> | R <sub>thJA</sub> | 50    | °C/W |

Notes

A. Surface Mounted on FR4 Board, t ≤ 10 sec.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70645.



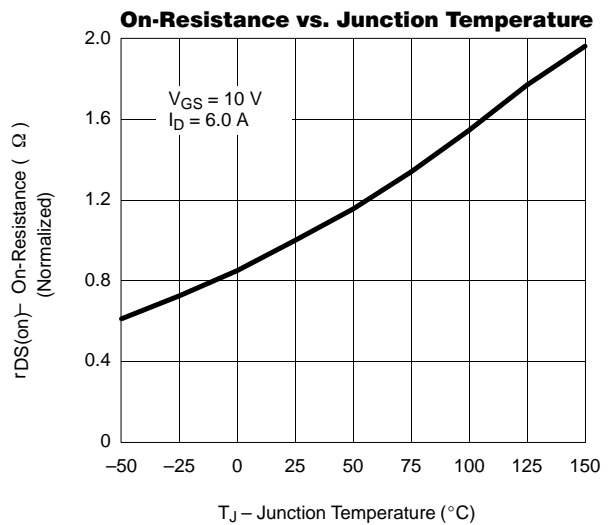
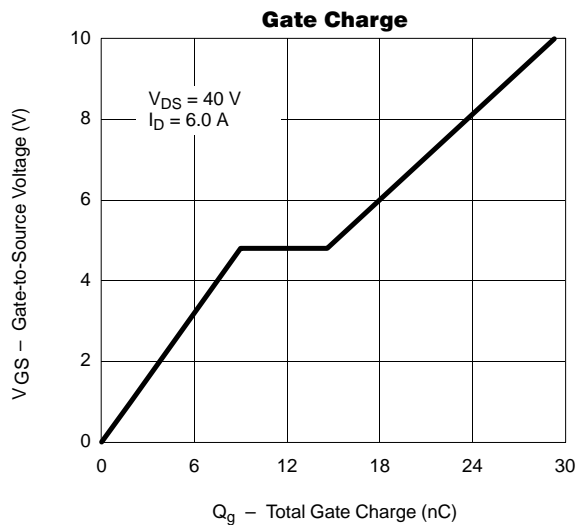
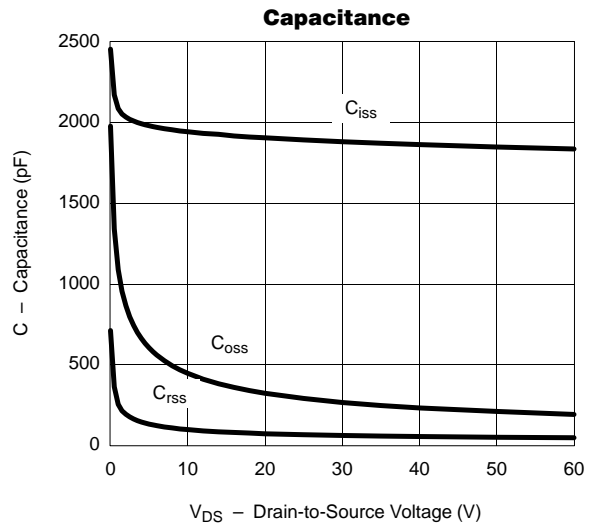
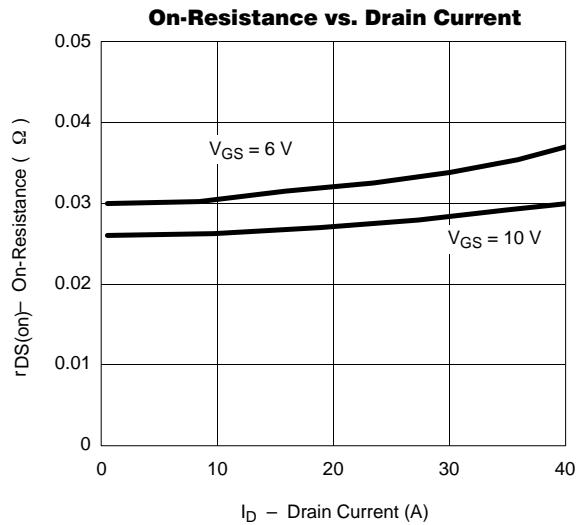
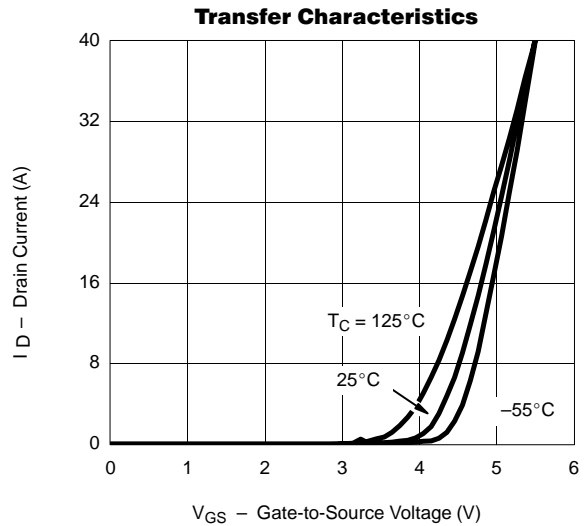
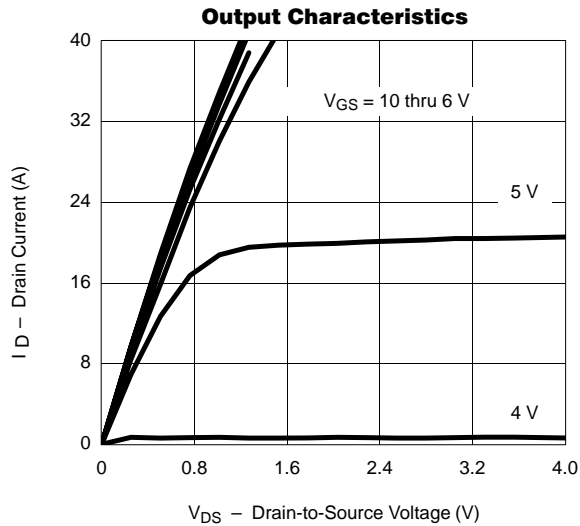
| SPECIFICATIONS (T <sub>J</sub> = 25°C UNLESS OTHERWISE NOTED) |                     |  |     |                  |       |      |
|---|---------------------|--|-----|------------------|-------|------|
| PARAMETER   | SYMBOL              | TEST CONDITION   | MIN | TYP <sup>A</sup> | MAX   | UNIT |
| <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   |                  |       | 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> = 80 V, V <sub>GS</sub> = 0 V  |     |                  | 1     | μA   |
|   |                     | V <sub>DS</sub> = 80 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55°C   |     |                  | 20    |      |
| On-State Drain Current <sup>B</sup>                           | I <sub>D(on)</sub>  | V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 10 V  | 20  |                  |       | A    |
| Drain-Source On-State Resistance <sup>B</sup>                 | r <sub>DS(on)</sub> | V <sub>GS</sub> = 10 V, I <sub>D</sub> = 6.0 A   |     | 0.026            | 0.035 | Ω    |
|   |                     | V <sub>GS</sub> = 6.0 V, I <sub>D</sub> = 5.5 A  |     | 0.030            | 0.040 |      |
| Forward Transconductance <sup>B</sup>                         | g <sub>fs</sub>     | V <sub>DS</sub> = 15 V, I <sub>D</sub> = 6.0 A   |     | 25               |       | S    |
| Diode Forward Voltage <sup>B</sup>                            | V <sub>SD</sub>     | I <sub>S</sub> = 2.1 A, V <sub>GS</sub> = 0 V  |     |                  | 1.2   | V    |
| <b>DYNAMICA</b>   |                     |  |     |                  |       |      |
| Total Gate Charge   | Q <sub>g</sub>      | V <sub>DS</sub> = 40 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 6.0 A   |     | 30               | 50    | nC   |
| Gate-Source Charge  | Q <sub>gs</sub>     |  |     | 9                |       |      |
| Gate-Drain Charge   | Q <sub>gd</sub>     |  |     | 5.6              |       |      |
| Turn-On Delay Time  | t <sub>d(on)</sub>  | V <sub>DD</sub> = 40 V, R <sub>L</sub> = 30 Ω<br>I <sub>D</sub> ≅ 1 A, V <sub>GEN</sub> = 10 V, R <sub>G</sub> = 6 Ω |     | 12.5             | 25    | ns   |
| Rise Time   | t <sub>r</sub>      |  |     | 12.5             | 25    |      |
| Turn-Off Delay Time   | t <sub>d(off)</sub> |  |     | 52               | 80    |      |
| Fall Time   | t <sub>f</sub>      |  |     | 22               | 40    |      |
| Source-Drain Reverse Recovery Time                            | t <sub>rr</sub>     | I <sub>F</sub> = 2.1 A, di/dt = 100 A/μs   |     | 50               | 80    |      |

Notes

- A. For design aid only; not subject to production testing.
- B. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.



## TYPICAL CHARACTERISTICS (25°C UNLESS OTHERWISE NOTED)





### TYPICAL CHARACTERISTICS (25°C UNLESS OTHERWISE NOTED)

