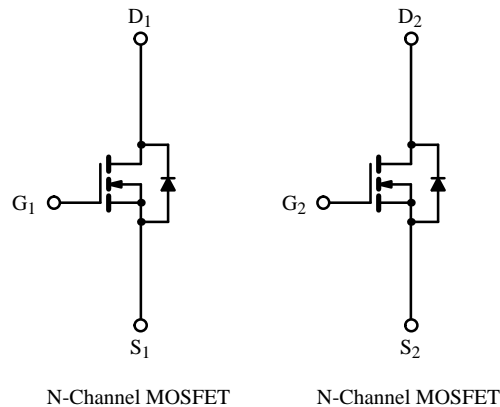
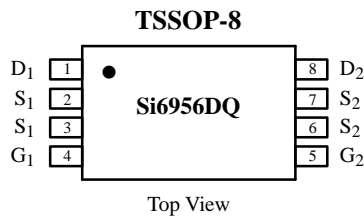


## Dual N-Channel Enhancement-Mode MOSFET

### Product Summary

| V <sub>DS</sub> (V) | r <sub>DS(on)</sub> (Ω)         | I <sub>D</sub> (A) |
|---------------------|---------------------------------|--------------------|
| 20                  | 0.09 @ V <sub>GS</sub> = 10 V   | ± 2.5              |
|                     | 0.175 @ V <sub>GS</sub> = 4.5 V | ± 1.8              |



### Absolute Maximum Ratings (T<sub>A</sub> = 25 °C Unless Otherwise Noted)

| Parameter   | Symbol                            | Limit                  | Unit  |
|---|-----------------------------------|------------------------|-------|
| Drain-Source Voltage  | V <sub>DS</sub>                   | 20                     | 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 | ± 2.5 |
|   |                                   | T <sub>A</sub> = 70 °C | ± 2.0 |
| Pulsed Drain Current  | I <sub>DM</sub>                   | ± 20                   | A     |
| Continuous Source Current (Diode Conduction) <sup>a</sup>       | I <sub>S</sub>                    | 1.25                   |       |
| Maximum Power Dissipation <sup>a</sup>                          | P <sub>D</sub>                    | T <sub>A</sub> = 25 °C | 1.0   |
|   |                                   | T <sub>A</sub> = 70 °C | 0.64  |
| 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> | 125   | °C/W |

#### Notes

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

Subsequent updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #1807. A SPICE Model data sheet is available for this product (FaxBack document #5125).

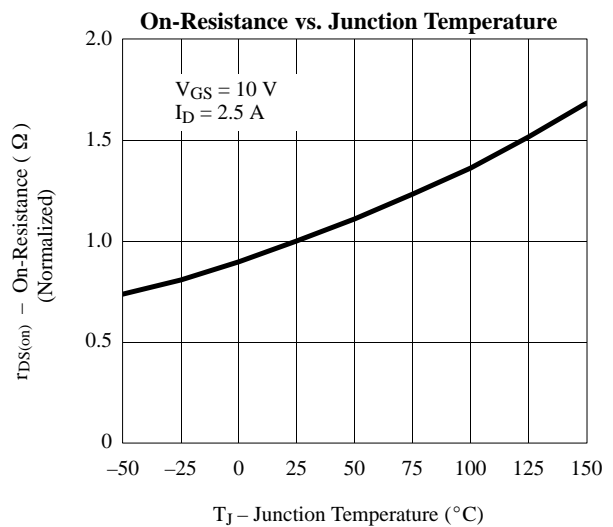
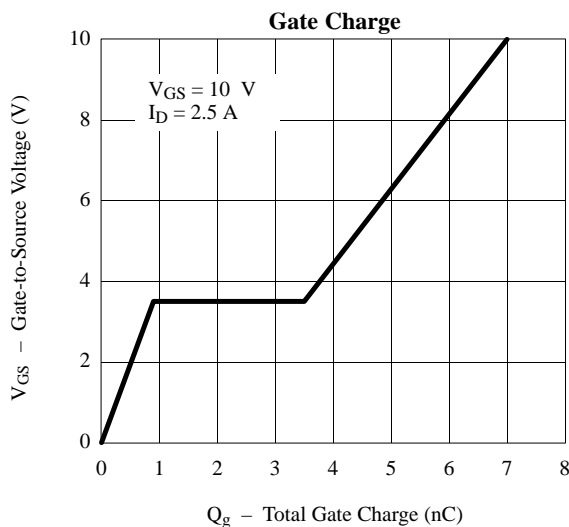
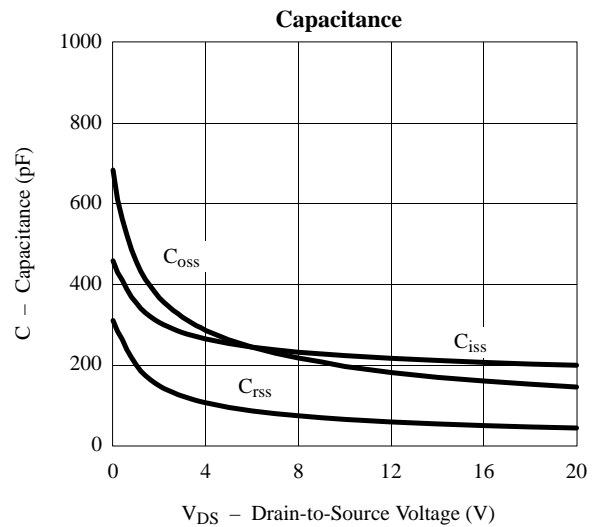
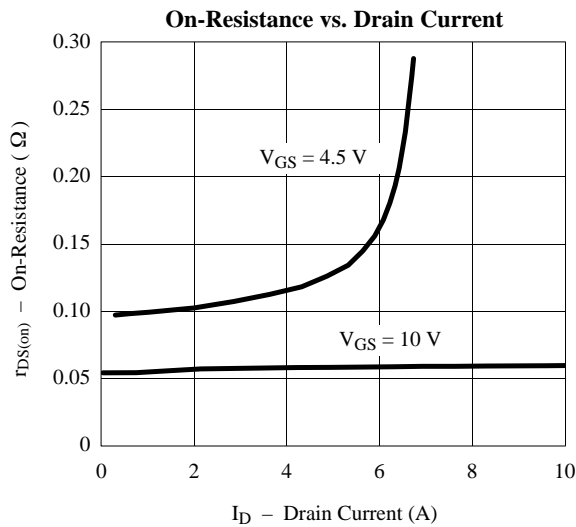
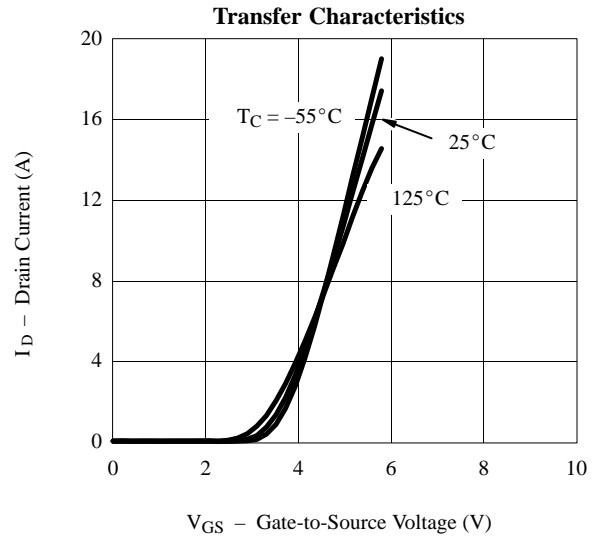
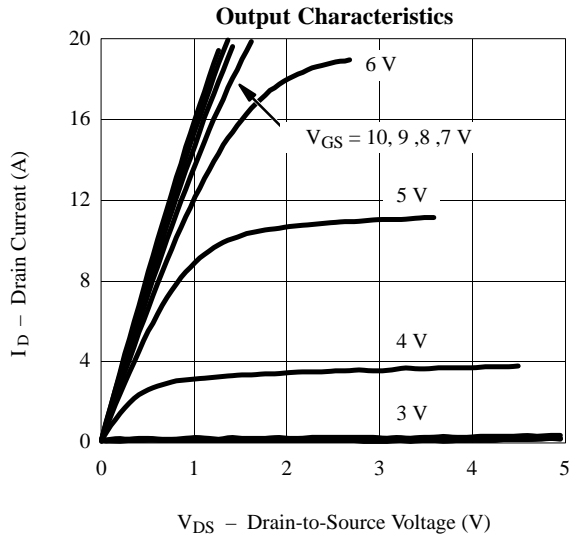
## Specifications ( $T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

| Parameter                                     | Symbol       | Test Condition  | Min | Typ   | Max       | Unit          |
|---|--------------|---|-----|-------|-----------|---------------|
| <b>Static</b>                                 |              |   |     |       |           |               |
| Gate Threshold Voltage                        | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$  | 1.0 |       |           | V             |
| Gate-Body Leakage                             | $I_{GSS}$    | $V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$   |     |       | $\pm 100$ | nA            |
| Zero Gate Voltage Drain Current               | $I_{DSS}$    | $V_{DS} = 20 \text{ V}, V_{GS} = 0 \text{ V}$   |     |       | 1         | $\mu\text{A}$ |
|   |              | $V_{DS} = 20 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$                                       |     |       | 25        |               |
| On-State Drain Current <sup>a</sup>           | $I_{D(on)}$  | $V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$   | 14  |       |           | A             |
| Drain-Source On-State Resistance <sup>a</sup> | $r_{DS(on)}$ | $V_{GS} = 10 \text{ V}, I_D = 2.5 \text{ A}$  |     | 0.065 | 0.09      | $\Omega$      |
|   |              | $V_{GS} = 4.5 \text{ V}, I_D = 1.8 \text{ A}$   |     | 0.100 | 0.175     |               |
| Forward Transconductance <sup>a</sup>         | $g_{fs}$     | $V_{DS} = 15 \text{ V}, I_D = 2.5 \text{ A}$  |     | 5     |           | S             |
| Diode Forward Voltage <sup>a</sup>            | $V_{SD}$     | $I_S = 1.25 \text{ A}, V_{GS} = 0 \text{ V}$  |     | 0.8   | 1.2       | V             |
| <b>Dynamic<sup>b</sup></b>                    |              |   |     |       |           |               |
| Total Gate Charge                             | $Q_g$        | $V_{DS} = 10 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 2.5 \text{ A}$   |     | 7     | 10        | nC            |
| Gate-Source Charge                            | $Q_{gs}$     |   |     | 0.9   |           |               |
| Gate-Drain Charge                             | $Q_{gd}$     |   |     | 2.1   |           |               |
| Turn-On Delay Time                            | $t_{d(on)}$  | $V_{DD} = 10 \text{ V}, R_L = 10 \Omega$<br>$I_D \cong 1 \text{ A}, V_{GEN} = 10 \text{ V}, R_G = 6 \Omega$ |     | 11    | 20        | ns            |
| Rise Time                                     | $t_r$        |   |     | 11    | 20        |               |
| Turn-Off Delay Time                           | $t_{d(off)}$ |   |     | 16    | 30        |               |
| Fall Time                                     | $t_f$        |   |     | 6     | 15        |               |
| Source-Drain Reverse Recovery Time            | $t_{rr}$     | $I_F = 1.25 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$   |     | 45    | 70        |               |

Notes

- a. Pulse test; pulse width  $\leq 300 \mu\text{s}$ , duty cycle  $\leq 2\%$ .  
 b. Guaranteed by design, not subject to production testing.

**Typical Characteristics (25°C Unless Otherwise Noted)**



## Typical Characteristics (25°C Unless Otherwise Noted)

