

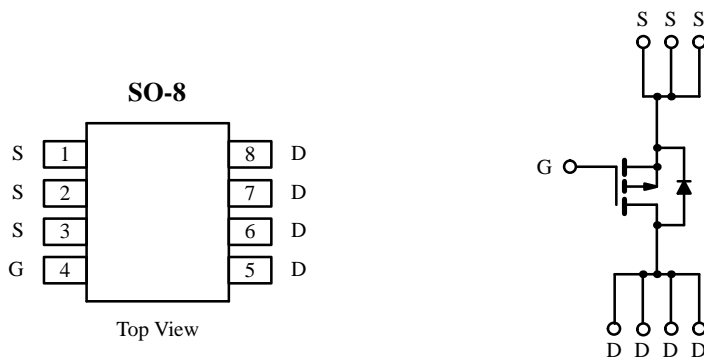
P-Channel Enhancement-Mode MOSFET

Product Summary

| V _{DS} (V) | r _{DS(on)} (Ω) | I _D (A) |
|---------------------|----------------------------------|--------------------|
| -30 | 0.055 @ V _{GS} = -10 V | ± 5.1 |
| | 0.07 @ V _{GS} = -6 V | ± 4.6 |
| | 0.105 @ V _{GS} = -4.5 V | ± 3.6 |

Recommended upgrade: Si4435DY or Si4953DY

Lower profile/smaller size—see LITE FOOT® equivalent: Si6435DQ



P-Channel MOSFET

Absolute Maximum Ratings (T_A = 25°C Unless Otherwise Noted)

| Parameter | Symbol | Limit | Unit |
|--|-----------------------------------|-----------------------|-------|
| Drain-Source Voltage | V _{DS} | -30 | V |
| Gate-Source Voltage | V _{GS} | ± 20 | |
| Continuous Drain Current (T _J = 150°C) ^a | I _D | T _A = 25°C | ± 5.1 |
| | | T _A = 70°C | ± 4.6 |
| Pulsed Drain Current | I _{DM} | ± 15 | A |
| Continuous Source Current (Diode Conduction) ^a | I _S | -2.6 | |
| Maximum Power Dissipation ^a | P _D | T _A = 25°C | 2.5 |
| | | T _A = 70°C | 1.6 |
| Operating Junction and Storage Temperature Range | T _J , T _{stg} | -55 to 150 | °C |

Thermal Resistance Ratings

| Parameter | Symbol | Limit | Unit |
|--|-------------------|-------|------|
| Maximum Junction-to-Ambient ^a | R _{thJA} | 50 | °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 #1208. A SPICE Model data sheet is available for this product (FaxBack document #5105).

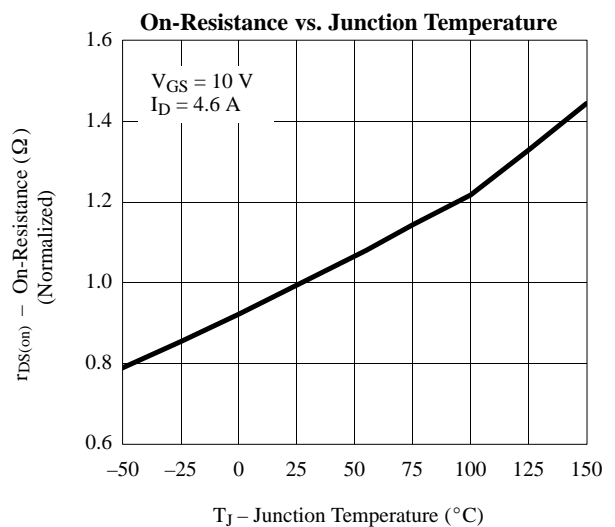
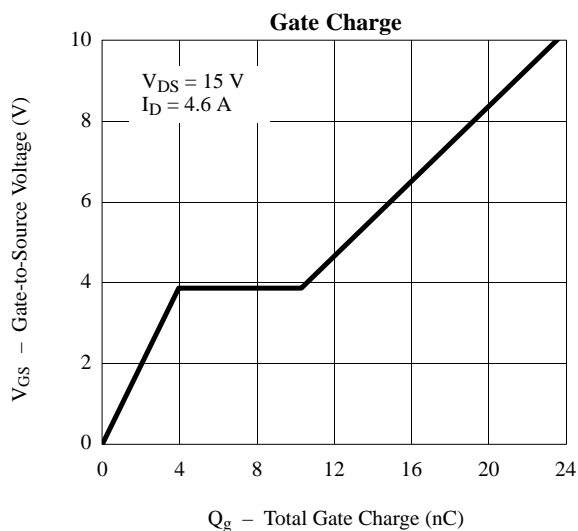
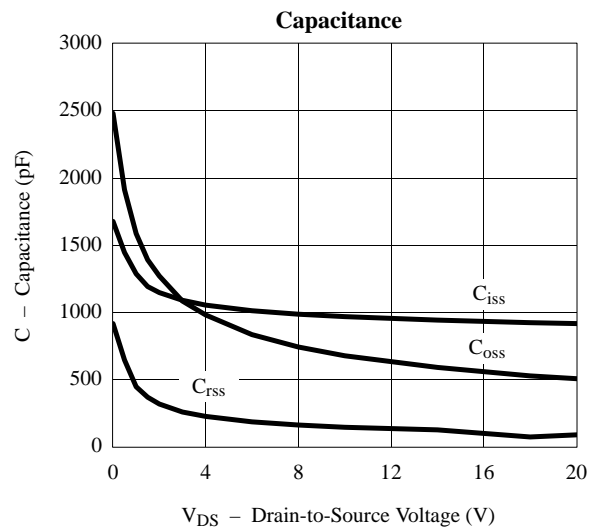
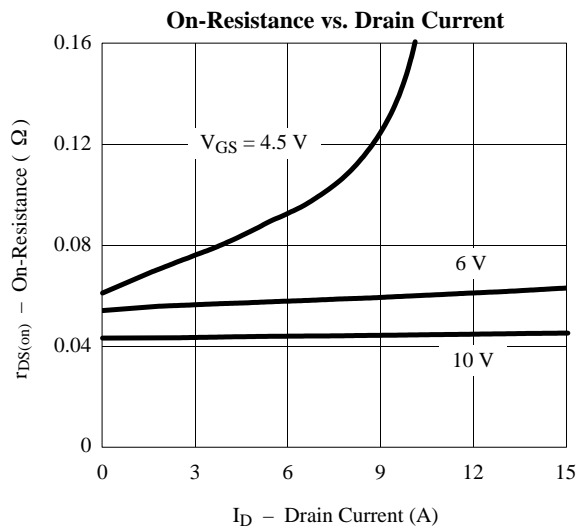
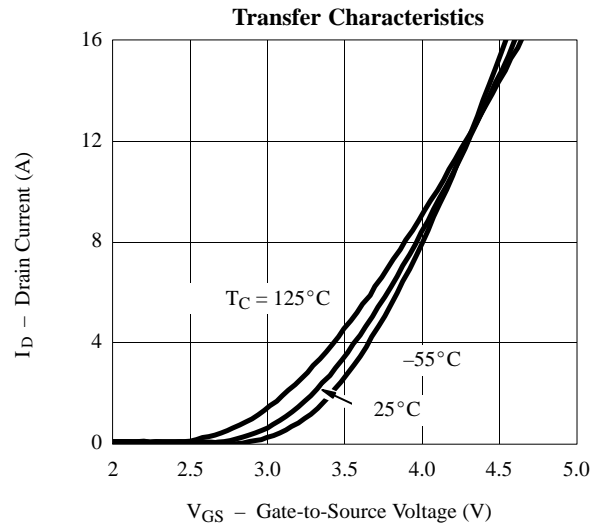
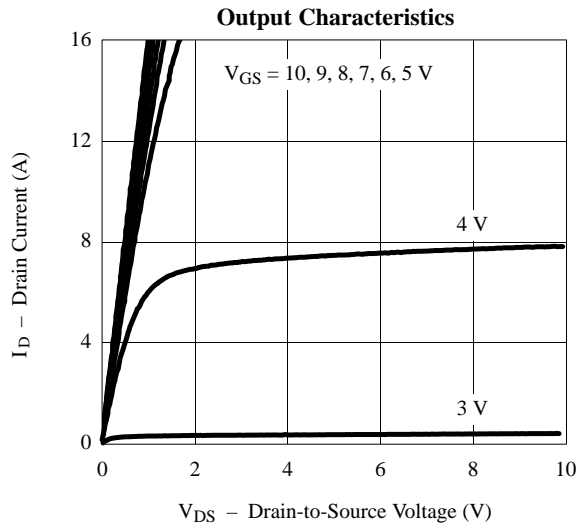
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

| Parameter | Symbol | Test Condition | Min | Typ ^a | Max | Unit |
|---|--------------|--|------|------------------|-----------|---------------|
| Static | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$ | -1.0 | | | V |
| Gate-Body Leakage | I_{GSS} | $V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -24 \text{ V}, V_{GS} = 0 \text{ V}$ | | | -1 | μA |
| | | $V_{DS} = -15 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 70^\circ\text{C}$ | | | -5 | |
| On-State Drain Current ^b | $I_{D(on)}$ | $V_{DS} \leq -10 \text{ V}, V_{GS} = -10 \text{ V}$ | -15 | | | A |
| | | $V_{DS} \leq -5 \text{ V}, V_{GS} = -4.5 \text{ V}$ | -4 | | | |
| Drain-Source On-State Resistance ^b | $r_{DS(on)}$ | $V_{GS} = -10 \text{ V}, I_D = -4.6 \text{ A}$ | | 0.045 | 0.055 | Ω |
| | | $V_{GS} = -6 \text{ V}, I_D = -4.1 \text{ A}$ | | 0.060 | 0.07 | |
| | | $V_{GS} = -4.5 \text{ V}, I_D = -2.0 \text{ A}$ | | 0.075 | 0.105 | |
| Forward Transconductance ^b | g_{fs} | $V_{DS} = -15 \text{ V}, I_D = -4.6 \text{ A}$ | | 7.0 | | S |
| Diode Forward Voltage ^b | V_{SD} | $I_S = -2.6 \text{ A}, V_{GS} = 0 \text{ V}$ | | -0.9 | -1.2 | V |
| Dynamic^a | | | | | | |
| Total Gate Charge | Q_g | $V_{DS} = -15 \text{ V}, V_{GS} = -10 \text{ V}, I_D = -4.6 \text{ A}$ | | 23 | 40 | nC |
| Gate-Source Charge | Q_{gs} | | 4 | | | |
| Gate-Drain Charge | Q_{gd} | | 6 | | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = -15 \text{ V}, R_L = 15 \Omega$ $I_D \cong -1 \text{ A}, V_{GEN} = -10 \text{ V}, R_G = 6 \Omega$ | | 12 | 30 | ns |
| Rise Time | t_r | | | 21 | 60 | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 45 | 120 | |
| Fall Time | t_f | | | 27 | 100 | |
| Source-Drain Reverse Recovery Time | t_{rr} | $I_F = 2.6 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$ | | 70 | 100 | |

Notes

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

Typical Characteristics (25°C Unless Otherwise Noted)



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