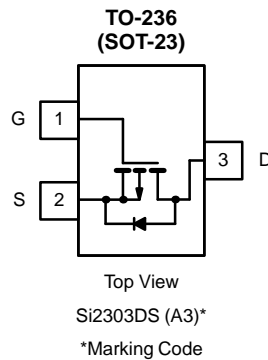


P-Channel 30-V (D-S) MOSFET

| PRODUCT SUMMARY | | |
|-----------------|---------------------------|-----------|
| V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
| -30 | 0.240 @ $V_{GS} = -10$ V | -1.7 |
| | 0.460 @ $V_{GS} = -4.5$ V | -1.3 |



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED) | | | | |
|--|--------------------------|----------------|------------|------------------|
| Parameter | | Symbol | Limit | Unit |
| Drain-Source Voltage | | V_{DS} | -30 | V |
| Gate-Source Voltage | | V_{GS} | ± 20 | |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) (surface mounted on FR4 board, $t \leq 5$ sec) | $T_A = 25^\circ\text{C}$ | I_D | -1.7 | A |
| | $T_A = 70^\circ\text{C}$ | | -1.4 | |
| Pulsed Drain Current ^a | | I_{DM} | -10 | |
| Continuous Source Current (MOSFET Diode Conduction) (surface mounted on FR4 board, $t \leq 5$ sec) | | I_S | -1.25 | |
| Maximum Power Dissipation ^a | $T_A = 25^\circ\text{C}$ | P_D | 1.25 | W |
| | $T_A = 70^\circ\text{C}$ | | 0.8 | |
| Operating Junction and Storage Temperature Range | | T_J, T_{stg} | -55 to 150 | $^\circ\text{C}$ |

| THERMAL RESISTANCE RATINGS | | | |
|--|------------|---------|--------------------|
| Parameter | Symbol | Typical | Unit |
| Maximum Junction-to-Ambient (surface mounted on FR4 board, $t \leq 5$ sec) | R_{thJA} | 100 | $^\circ\text{C/W}$ |
| Maximum Junction-to-Ambient (surface mounted on FR4 board) | | 166 | |

Notes

a. Pulse width limited by maximum junction temperature.

For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>



| MOSFET SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED) | | | | | | |
|---|----------------------|---|------|-------|-------|------|
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
| Static | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} = 0 V, I _D = -10 μA | -30 | | | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = -250 μA | -1.0 | | | |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ±20 V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = -30 V, V _{GS} = 0 V | | | -1 | μA |
| | | V _{DS} = -30 V, V _{GS} = 0 V, T _J = 55 °C | | | -10 | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} ≥ -5 V, V _{GS} = -10 V | -6 | | | A |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = -10 V, I _D = -1.7 A | | 0.190 | 0.240 | Ω |
| | | V _{GS} = -4.5 V, I _D = -1.3 A | | 0.240 | 0.460 | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = -10 V, I _D = -1.7 A | | 2.4 | | S |
| Diode Forward Voltage | V _{SD} | I _S = -1.25 A, V _{GS} = 0 V | | -0.8 | -1.2 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = -15 V, V _{GS} = -10 V, I _D = -1.7 A | | 5.8 | 10 | nC |
| Gate-Source Charge | Q _{gs} | | | 0.8 | | |
| Gate-Drain Charge | Q _{gd} | | | 1.5 | | |
| Input Capacitance | C _{iss} | V _{DS} = -15 V, V _{GS} = 0 V, f = 1 MHz | | 226 | | pF |
| Output Capacitance | C _{oss} | | | 87 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 19 | | |
| Switching^b | | | | | | |
| Turn-On Delay Time | t _{d(on)} | V _{DD} = -15 V, R _L = 15 Ω I _D ≅ -1 A, V _{GEN} = -10 V, R _G = 6 Ω | | 9 | 20 | ns |
| Rise Time | t _r | | | 9 | 20 | |
| Turn-Off Delay Time | t _{d(off)} | | | 18 | 35 | |
| Fall Time | t _f | | | 6 | 20 | |

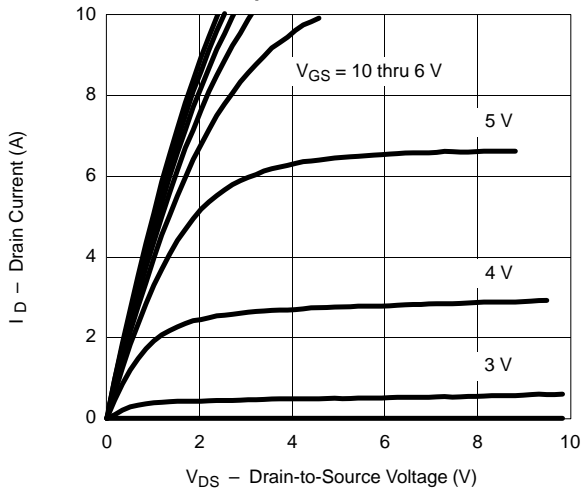
Notes

- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
- b. For DESIGN AID ONLY, not subject to production testing.
- c. Switching time is essentially independent of operating temperature.

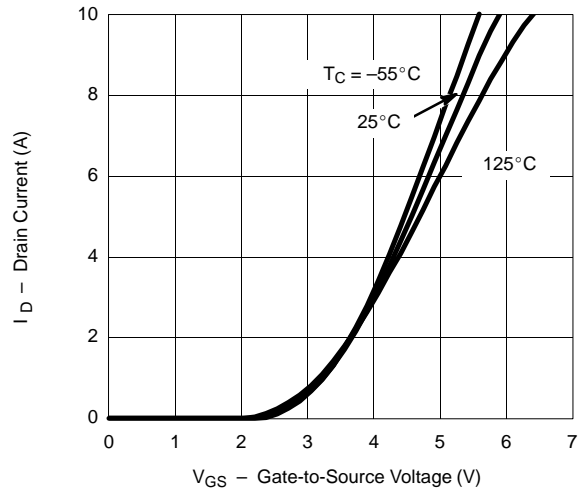


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

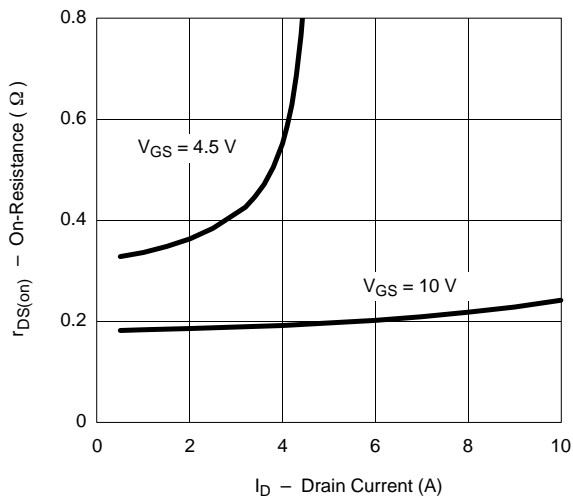
Output Characteristics



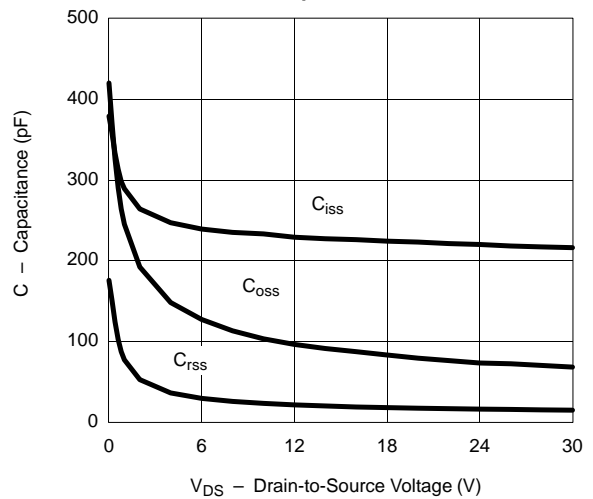
Transfer Characteristics



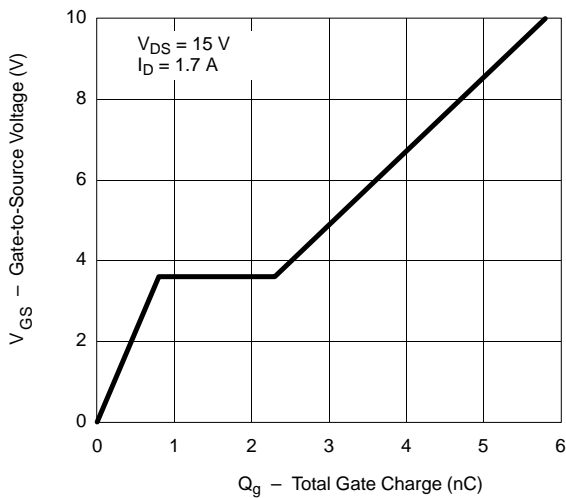
On-Resistance vs. Drain Current



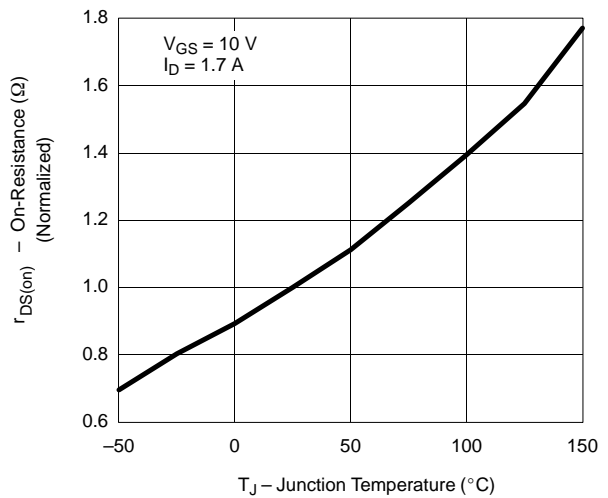
Capacitance



Gate Charge



On-Resistance vs. Junction Temperature



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) MOSFET

