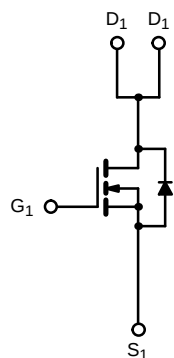
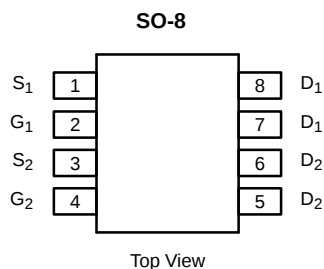


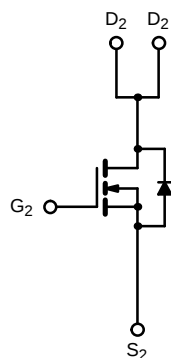


## Dual N-Channel 20-V (D-S) MOSFET

| PRODUCT SUMMARY |                           |           |
|-----------------|---------------------------|-----------|
| $V_{DS}$ (V)    | $r_{DS(on)}$ ( $\Omega$ ) | $I_D$ (A) |
| 20              | 0.10 @ $V_{GS} = 10$ V    | $\pm 3.5$ |
|                 | 0.20 @ $V_{GS} = 4.5$ V   | $\pm 2.0$ |



N-Channel MOSFET



N-Channel MOSFET

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

| Parameter                                                           |                          | Symbol         | Limit      | Unit             |
|---------------------------------------------------------------------|--------------------------|----------------|------------|------------------|
| Drain-Source Voltage                                                |                          | $V_{DS}$       | 20         | V                |
| Gate-Source Voltage                                                 |                          | $V_{GS}$       | $\pm 20$   |                  |
| Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup> | $T_A = 25^\circ\text{C}$ | $I_D$          | $\pm 3.5$  | A                |
|                                                                     | $T_A = 70^\circ\text{C}$ |                | $\pm 2.8$  |                  |
| Pulsed Drain Current                                                |                          | $I_{DM}$       | $\pm 14$   |                  |
| Continuous Source Current (Diode Conduction) <sup>a</sup>           |                          | $I_S$          | 1.7        | W                |
| Maximum Power Dissipation <sup>a</sup>                              | $T_A = 25^\circ\text{C}$ | $P_D$          | 2.0        |                  |
|                                                                     | $T_A = 70^\circ\text{C}$ |                | 1.3        |                  |
| Operating Junction and Storage Temperature Range                    |                          | $T_J, T_{stg}$ | -55 to 150 | $^\circ\text{C}$ |

### THERMAL RESISTANCE RATINGS

| Parameter                                | Symbol     | Limit | Unit               |
|------------------------------------------|------------|-------|--------------------|
| Maximum Junction-to-Ambient <sup>a</sup> | $R_{thJA}$ | 62.5  | $^\circ\text{C/W}$ |

Notes

a. Surface Mounted on FR4 Board,  $t \leq 10$  sec.

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

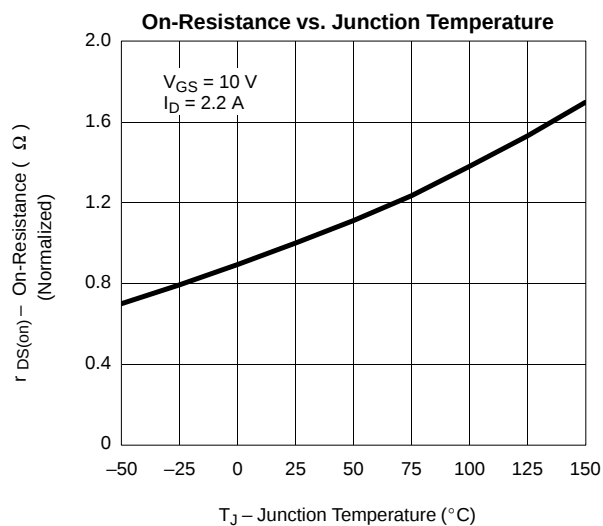
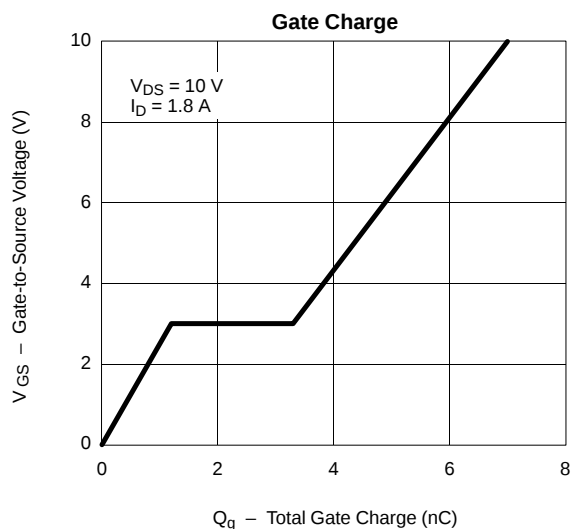
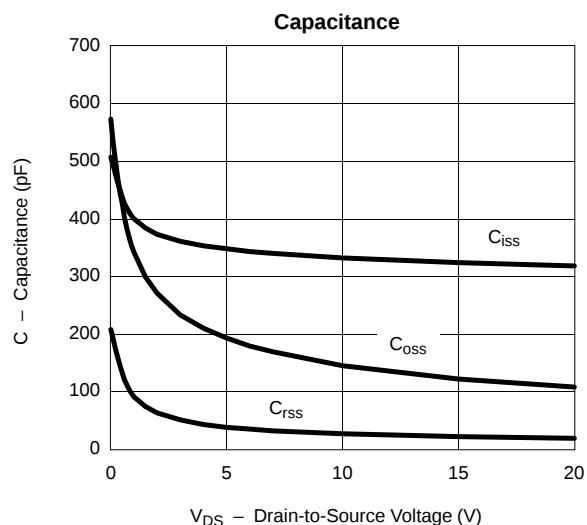
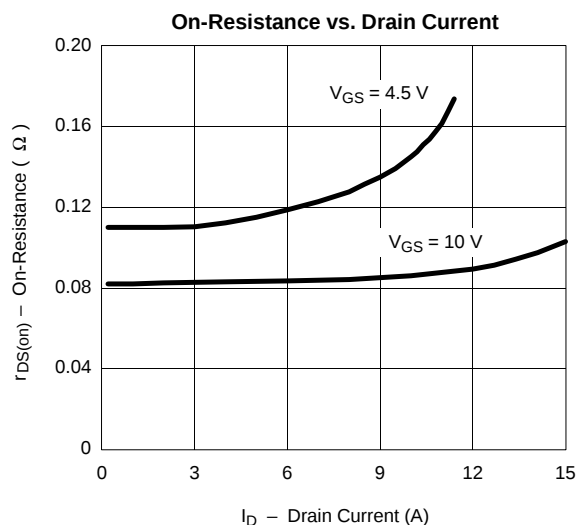
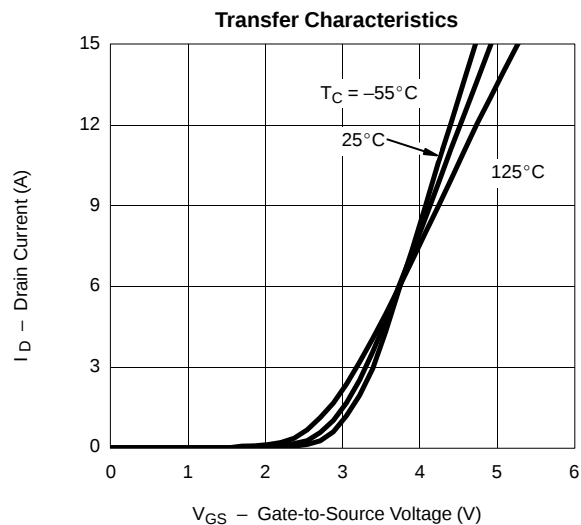
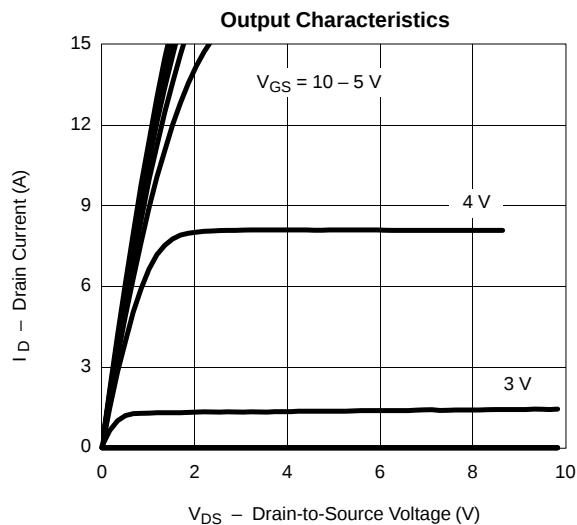
| <b>SPECIFICATIONS (T<sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)</b> |                     |                                                                                                                      |     |                  |      |      |
|----------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------|-----|------------------|------|------|
| 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                                                          | 1.0 |                  |      | 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> = 16 V, V <sub>GS</sub> = 0 V                                                                        |     |                  | 2    | μA   |
|                                                                      |                     | V <sub>DS</sub> = 16 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55°C                                                 |     |                  | 25   |      |
| On-State Drain Current <sup>b</sup>                                  | I <sub>D(on)</sub>  | V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 10 V                                                                        | 14  |                  |      | A    |
| Drain-Source On-State Resistance <sup>b</sup>                        | r <sub>DS(on)</sub> | V <sub>GS</sub> = 10 V, I <sub>D</sub> = 2.2 A                                                                       |     | 0.082            | 0.10 | Ω    |
|                                                                      |                     | V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 1 A                                                                        |     | 0.12             | 0.20 |      |
| Forward Transconductance <sup>b</sup>                                | g <sub>fs</sub>     | V <sub>DS</sub> = 15 V, I <sub>D</sub> = 3.5 A                                                                       |     | 6.5              |      | S    |
| Diode Forward Voltage <sup>b</sup>                                   | V <sub>SD</sub>     | I <sub>S</sub> = 1.7 A, V <sub>GS</sub> = 0 V                                                                        |     | 0.75             | 1.2  | V    |
| <b>Dynamic<sup>a</sup></b>                                           |                     |                                                                                                                      |     |                  |      |      |
| Total Gate Charge                                                    | Q <sub>g</sub>      | V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 1.8 A                                               |     | 7                | 30   | nC   |
| Gate-Source Charge                                                   | Q <sub>gs</sub>     |                                                                                                                      |     | 1.2              |      |      |
| Gate-Drain Charge                                                    | Q <sub>gd</sub>     |                                                                                                                      |     | 2.1              |      |      |
| Turn-On Delay Time                                                   | t <sub>d(on)</sub>  | V <sub>DD</sub> = 10 V, R <sub>L</sub> = 10 Ω<br>I <sub>D</sub> ≅ 1 A, V <sub>GEN</sub> = 10 V, R <sub>G</sub> = 6 Ω |     | 8                | 20   | ns   |
| Rise Time                                                            | t <sub>r</sub>      |                                                                                                                      |     | 12               | 20   |      |
| Turn-Off Delay Time                                                  | t <sub>d(off)</sub> |                                                                                                                      |     | 21               | 90   |      |
| Fall Time                                                            | t <sub>f</sub>      |                                                                                                                      |     | 8                | 50   |      |
| Source-Drain Reverse Recovery Time                                   | t <sub>rr</sub>     | I <sub>F</sub> = 1.7 A, di/dt = 100 A/μs                                                                             |     | 50               | 100  |      |

Notes

- a. Guaranteed by design, not subject to production testing.  
b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.



**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**



**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

