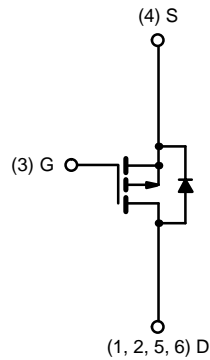
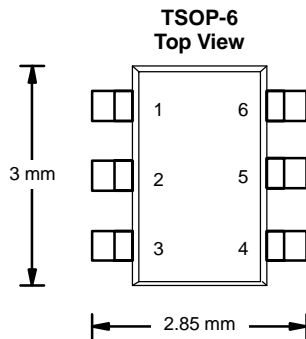




P-Channel 2.5-V (G-S) MOSFET

PRODUCT SUMMARY

| V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
|--------------|---------------------------|-----------|
| -20 | 0.090 @ $V_{GS} = -4.5$ V | -2.9 |
| | 0.130 @ $V_{GS} = -2.5$ V | -2.45 |

TrenchFET[®]
Power MOSFETs

P-Channel MOSFET

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

| Parameter | | Symbol | 5 secs | Steady State | Unit |
|--|-----------------------|-----------------------------------|------------|--------------|------|
| Drain-Source Voltage | | V _{DS} | -20 | | V |
| Gate-Source Voltage | | V _{GS} | ± 8 | | |
| Continuous Drain Current (T _J = 150°C) ^a | T _A = 25°C | I _D | -2.9 | -2.45 | A |
| | T _A = 70°C | | -2.35 | -1.95 | |
| Pulsed Drain Current | | I _{DM} | -16 | | |
| Continuous Diode Current (Diode Conduction) ^a | | I _S | -1.0 | -0.72 | |
| Maximum Power Dissipation ^a | T _A = 25°C | P _D | 1.25 | 0.86 | W |
| | T _A = 70°C | | 0.8 | 0.55 | |
| Operating Junction and Storage Temperature Range | | T _J , T _{stg} | -55 to 150 | | °C |

THERMAL RESISTANCE RATINGS

| Parameter | | Symbol | Typical | Maximum | Unit |
|--|----------------|------------|---------|---------|--------------------|
| Maximum Junction-to-Ambient ^a | $t \leq 5$ sec | R_{thJA} | 80 | 100 | $^\circ\text{C/W}$ |
| | Steady State | | 120 | 145 | |
| Maximum Junction-to-Foot (Drain) | Steady State | R_{thJF} | 70 | 85 | |

Notes

a. Surface Mounted on 1" x 1" FR4 Board.

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

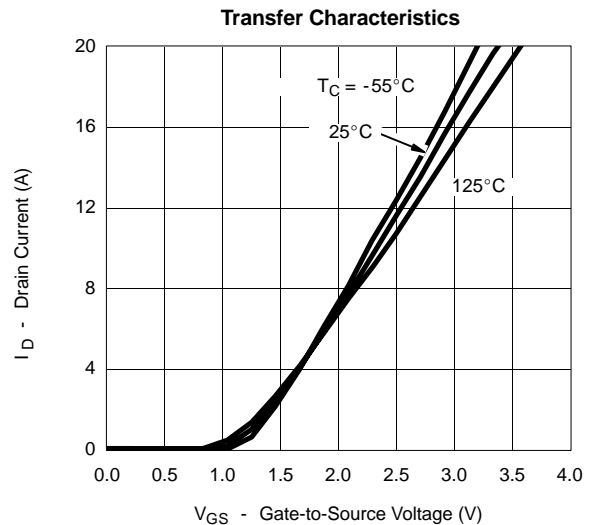
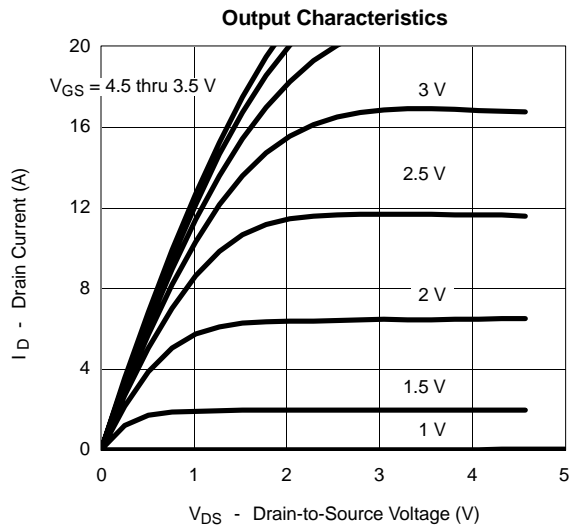
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

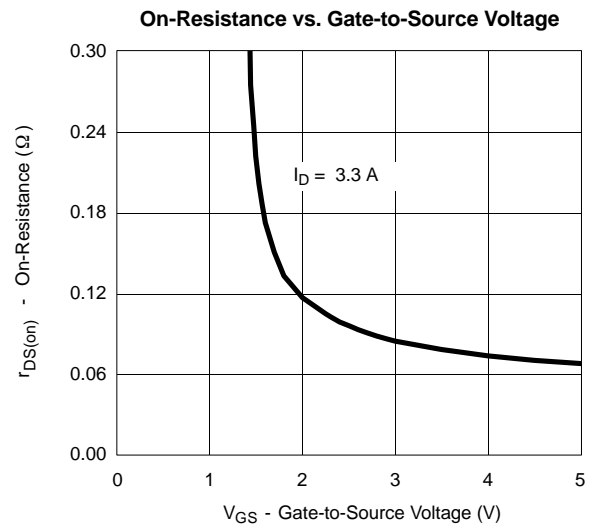
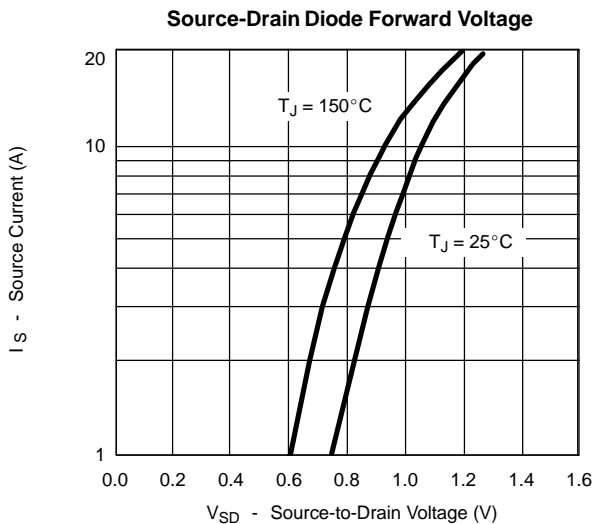
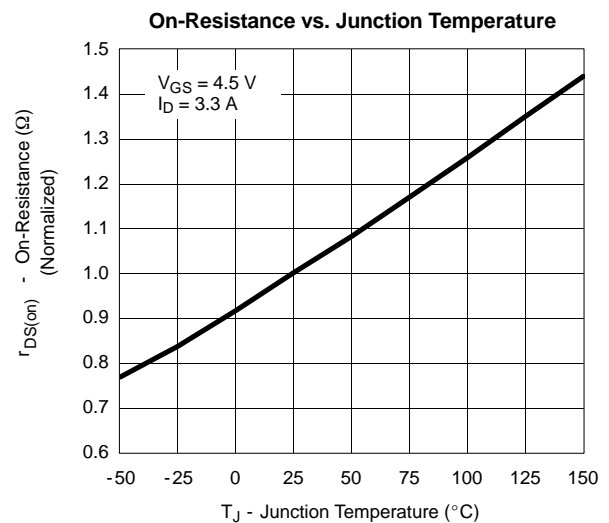
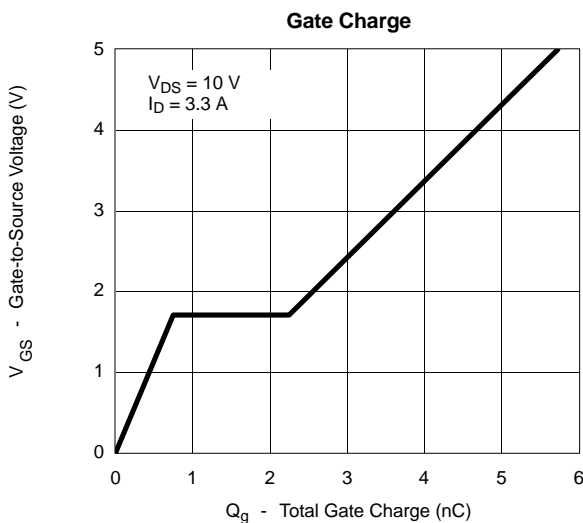
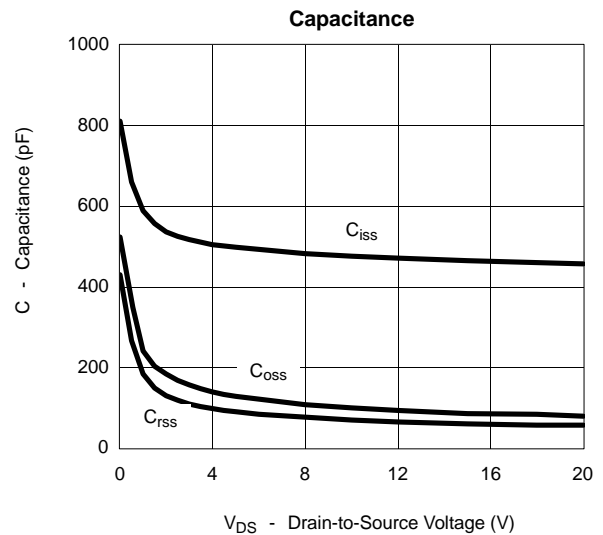
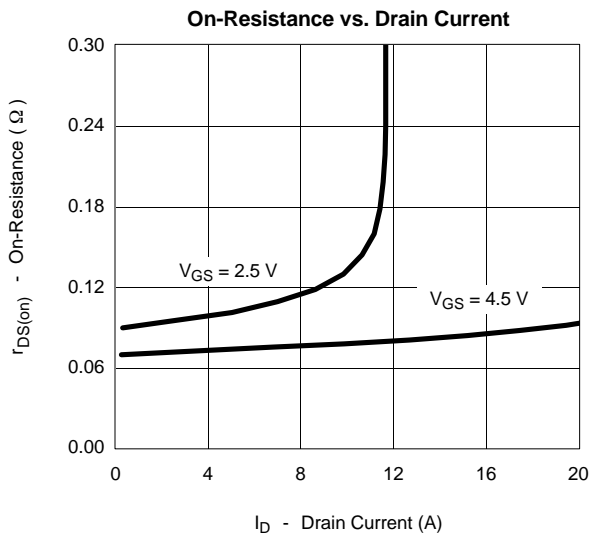
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|--------------|--|-------|-------|-----------|---------------|
| Static | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}$, $I_D = -250\ \mu\text{A}$ | -0.45 | | -0.85 | V |
| Gate-Body Leakage | I_{GSS} | $V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 8\ \text{V}$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -20\ \text{V}$, $V_{GS} = 0\ \text{V}$ | | | -1 | μA |
| | | $V_{DS} = -20\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 70^\circ\text{C}$ | | | -5 | |
| On-State Drain Current ^a | $I_{D(on)}$ | $V_{DS} = -5\ \text{V}$, $V_{GS} = -4.5\ \text{V}$ | -10 | | | A |
| | | $V_{DS} = -5\ \text{V}$, $V_{GS} = -2.5\ \text{V}$ | -4 | | | |
| Drain-Source On-State Resistance ^a | $r_{DS(on)}$ | $V_{GS} = -4.5\ \text{V}$, $I_D = -3.3\ \text{A}$ | | 0.070 | 0.090 | Ω |
| | | $V_{GS} = -2.5\ \text{V}$, $I_D = -2.9\ \text{A}$ | | 0.098 | 0.130 | |
| Forward Transconductance ^a | g_{fs} | $V_{DS} = -10\ \text{V}$, $I_D = -3.3\ \text{A}$ | | 8.0 | | S |
| Diode Forward Voltage ^a | V_{SD} | $I_S = -1.6\ \text{A}$, $V_{GS} = 0\ \text{V}$ | | -0.8 | -1.2 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | Q_g | $V_{DS} = -10\ \text{V}$, $V_{GS} = -4.5\ \text{V}$, $I_D = -3.3\ \text{A}$ | | 5.2 | 8.0 | nC |
| Gate-Source Charge | Q_{gs} | | | 0.8 | | |
| Gate-Drain Charge | Q_{gd} | | | 1.5 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = -10\ \text{V}$, $R_L = 10\ \Omega$ $I_D \approx -1.0\ \text{A}$, $V_{GEN} = -4.5\ \text{V}$, $R_G = 6\ \Omega$ | | 15 | 25 | ns |
| Rise Time | t_r | | | 55 | 85 | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 30 | 45 | |
| Fall Time | t_f | | | 40 | 60 | |
| Source-Drain Reverse Recovery Time | t_{rr} | $I_F = -1.6\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$ | | 50 | 80 | |

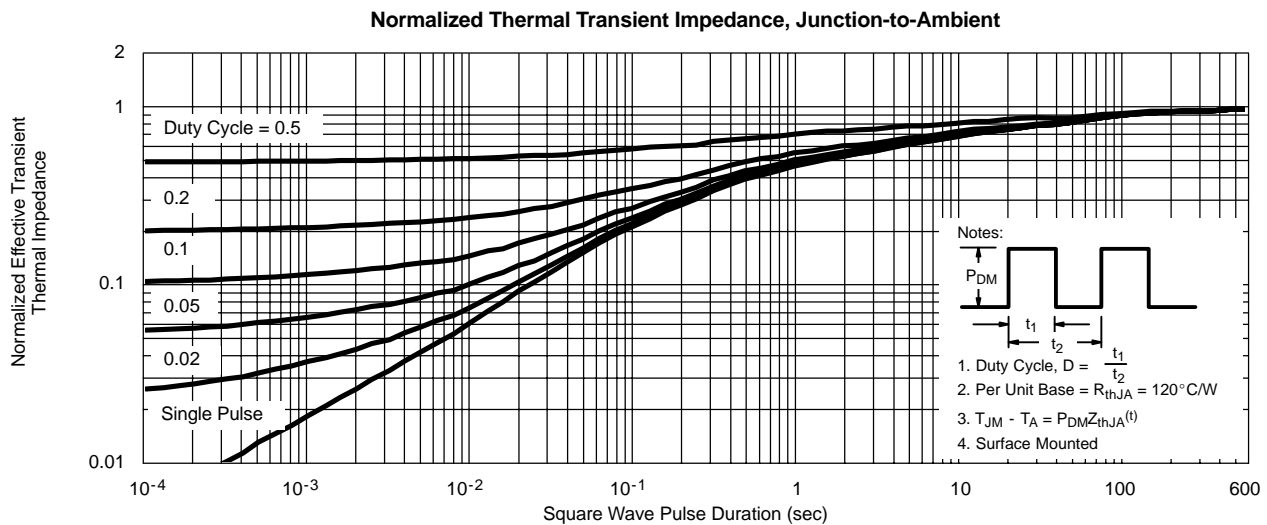
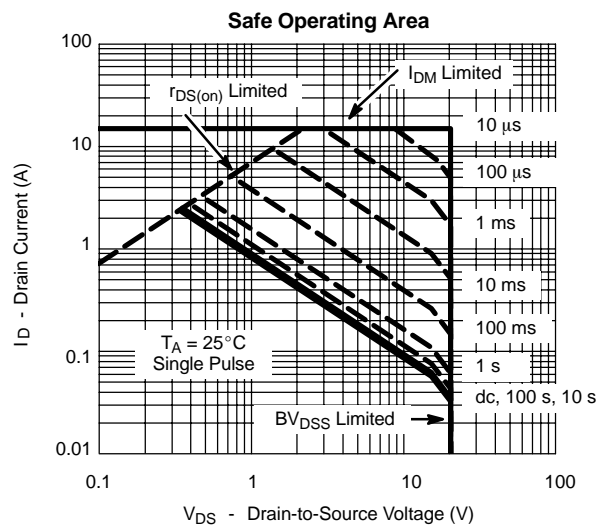
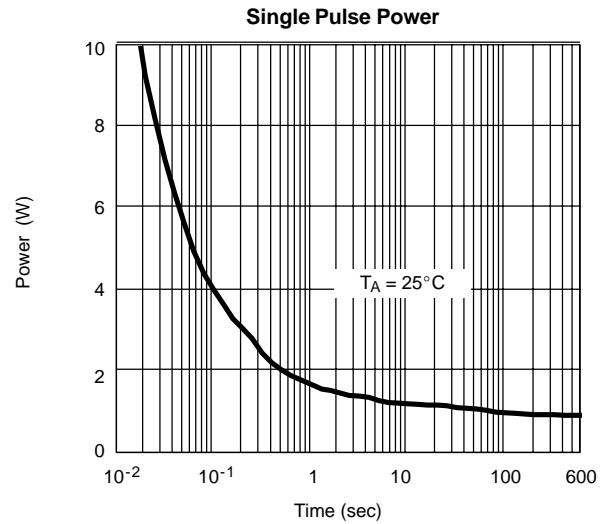
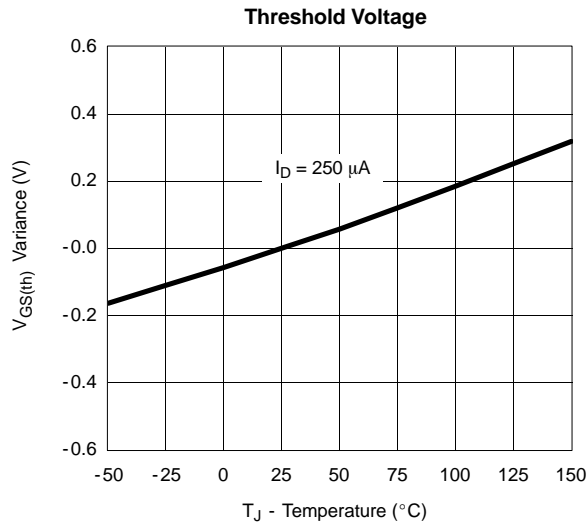
Notes

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 NOTED)

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

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)




TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

