



P-Channel 20-V (D-S) MOSFET

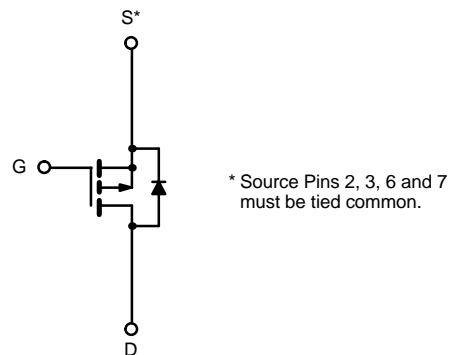
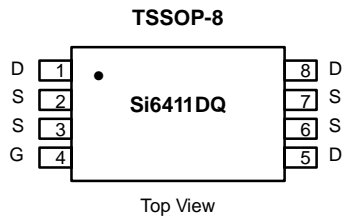
| PRODUCT SUMMARY | | |
|---------------------|------------------------------------|--------------------|
| V _{DS} (V) | r _{DS(on)} (Ω) | I _D (A) |
| -20 | 0.01125 @ V _{GS} = -4.5 V | -9.5 |
| | 0.01425 @ V _{GS} = -2.5 V | -8.5 |
| | 0.0185 @ V _{GS} = -1.8 V | -7.3 |

FEATURES

- TrenchFET® Power MOSFET

APPLICATIONS

- Load Switch
- PA Switch
- Charger Switch



P-Channel MOSFET

| ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED) | | | | | |
|---|-----------------------|-----------------------------------|------------|--------------|------|
| Parameter | | Symbol | 10 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 | -9.5 | -7.5 | A |
| | T _A = 70°C | | -7.5 | -6 | |
| Pulsed Drain Current (10 μs Pulse Width) | | I _{DM} | -30 | | |
| Continuous Source Current (Diode Conduction) ^a | | I _S | -1.5 | -0.95 | W |
| Maximum Power Dissipation ^a | T _A = 25°C | P _D | 1.75 | 1.08 | |
| | T _A = 70°C | | 1.14 | 0.69 | |
| 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 ≤ 10 sec | R _{thJA} | 55 | 70 | °C/W |
| | Steady State | | 95 | 115 | |
| Maximum Junction-to-Foot | Steady State | R _{thJF} | 38 | 50 | |

Notes

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

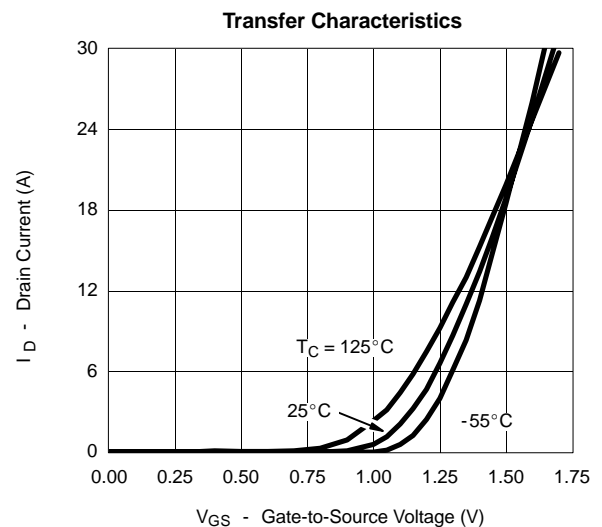
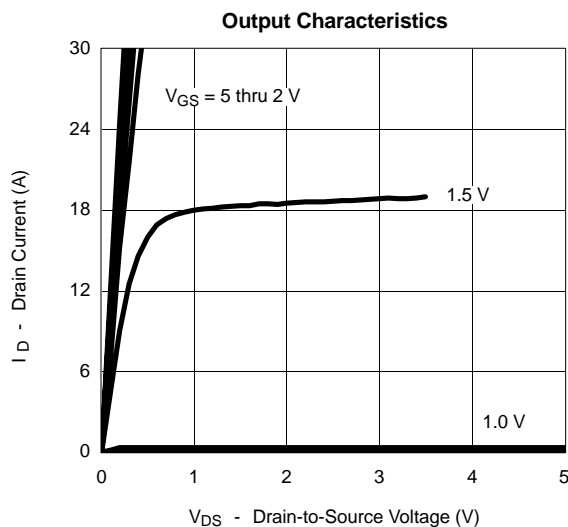
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---------------------|--|-------|--------|---------|------|
| Static | | | | | | |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = -500 μA | -0.40 | | -0.8 | V |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ± 8 V | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = -16 V, V _{GS} = 0 V | | | -1 | μA |
| | | V _{DS} = -16 V, V _{GS} = 0 V, T _J = 70 °C | | | -10 | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} = -5 V, V _{GS} = -4.5 V | -20 | | | A |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = -4.5 V, I _D = -9.5 A | | 0.009 | 0.01125 | Ω |
| | | V _{GS} = -2.5 V, I _D = -8.5 A | | 0.0115 | 0.01425 | |
| | | V _{GS} = -1.8 V, I _D = -7.5 A | | 0.0147 | 0.0185 | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = -15 V, I _D = -9.5 A | | 45 | | S |
| Diode Forward Voltage ^a | V _{SD} | I _S = -1.5 A, V _{GS} = 0 V | | -0.64 | -1.1 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = -10 V, V _{GS} = -5 V, I _D = -9.5 A | | 55 | 85 | nC |
| Gate-Source Charge | Q _{gs} | | 7.2 | | | |
| Gate-Drain Charge | Q _{gd} | | 12 | | | |
| Gate Resistance | R _g | | | 4.5 | | Ω |
| Turn-On Delay Time | t _{d(on)} | V _{DD} = -10 V, R _L = 15 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω | | 45 | 70 | ns |
| Rise Time | t _r | | | 75 | 115 | |
| Turn-Off Delay Time | t _{d(off)} | | | 240 | 360 | |
| Fall Time | t _f | | | 110 | 170 | |
| Source-Drain Reverse Recovery Time | t _{rr} | I _F = -1.5 A, di/dt = 100 A/μs | | 80 | 120 | |

Notes

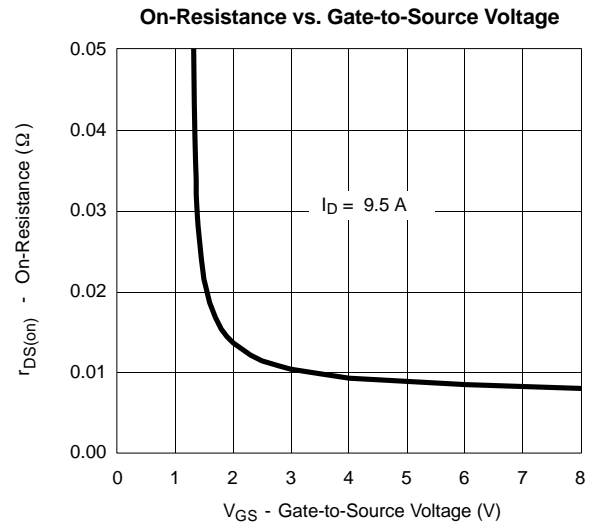
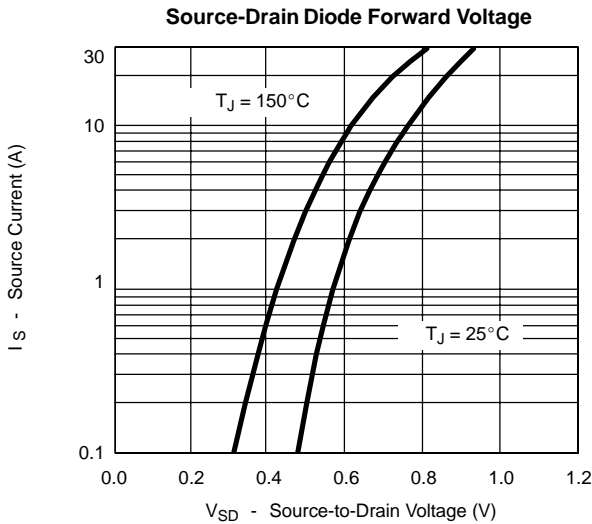
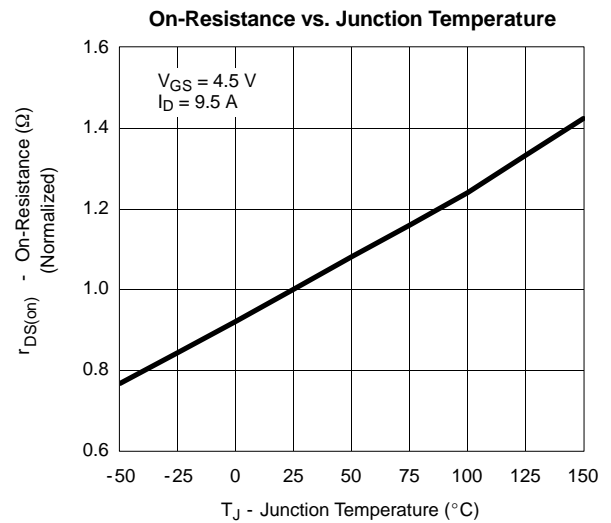
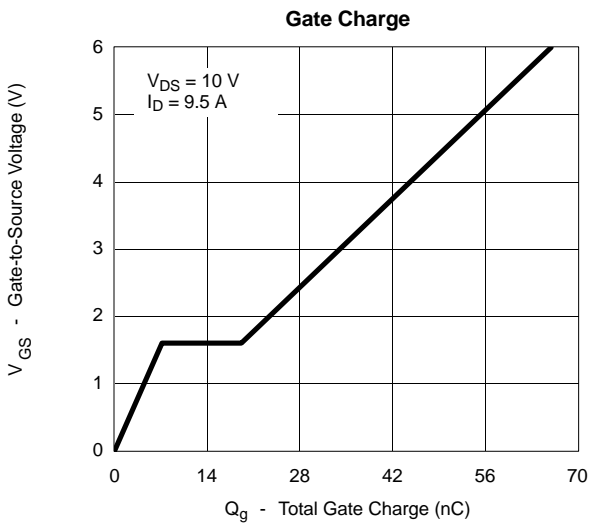
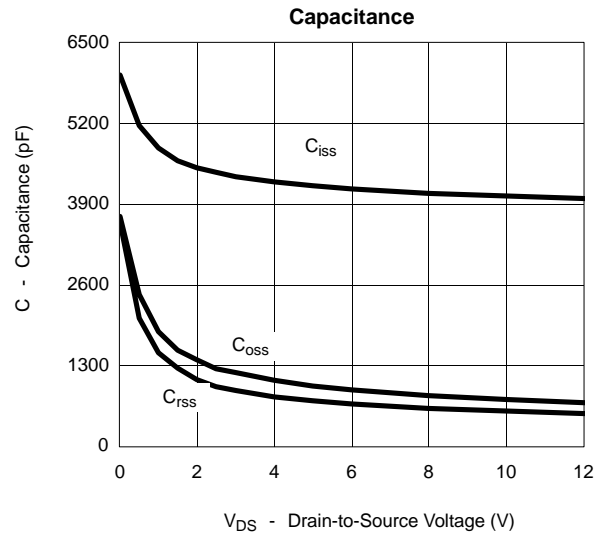
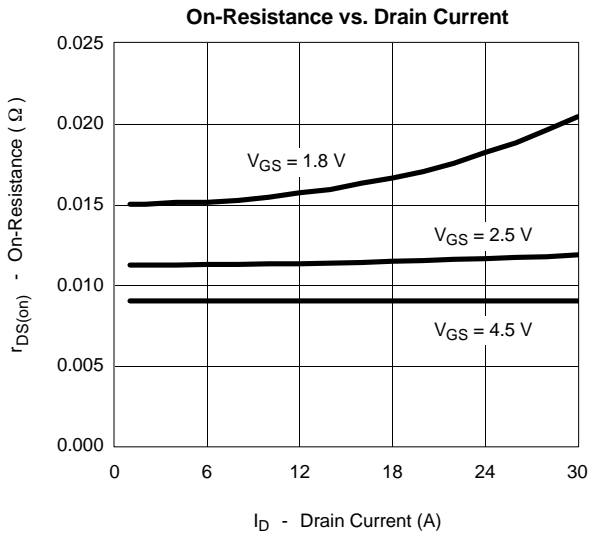
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

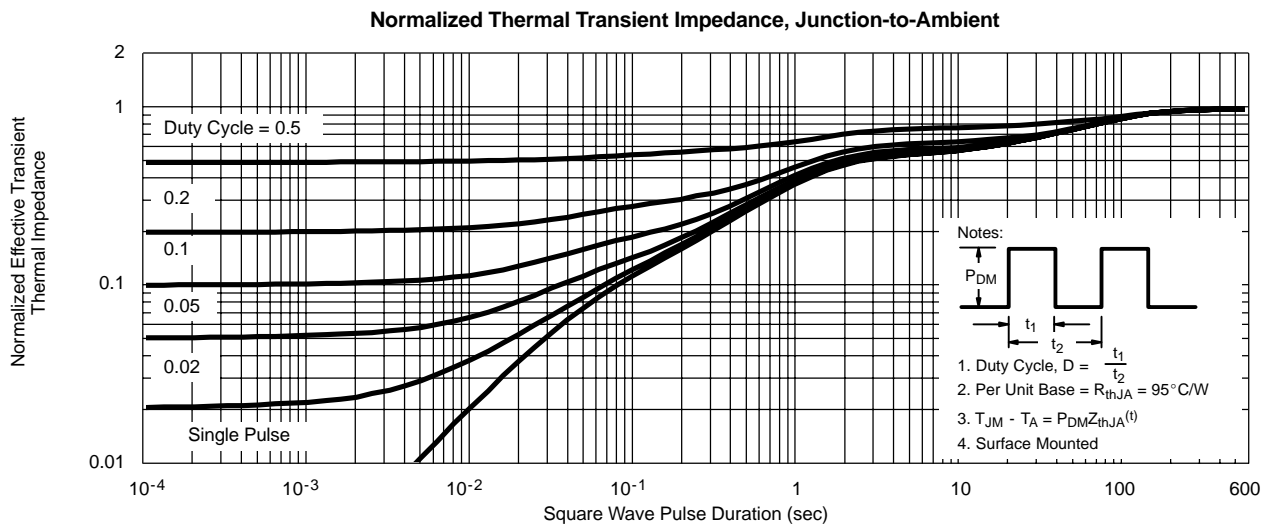
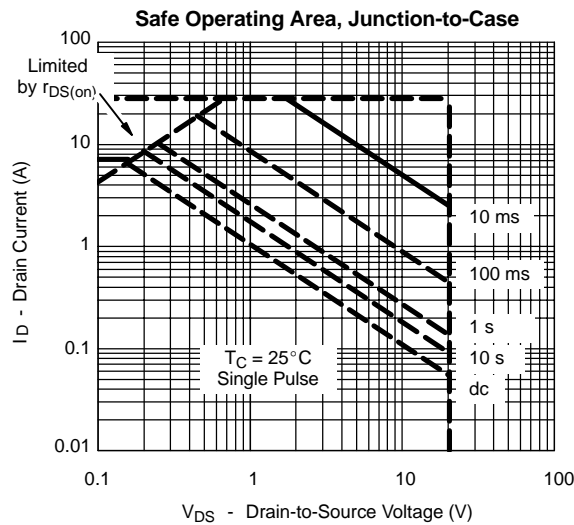
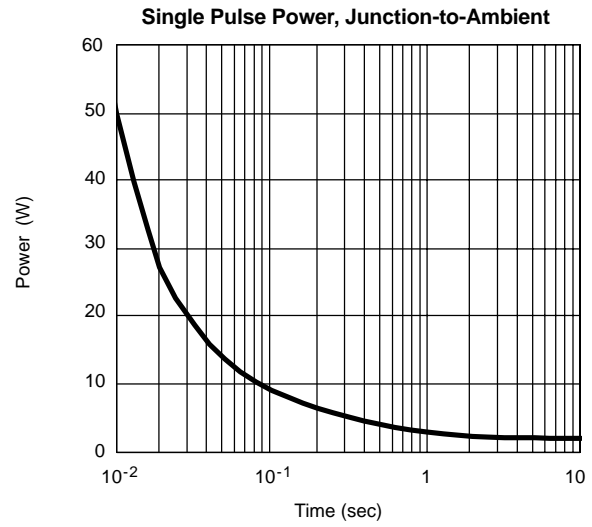
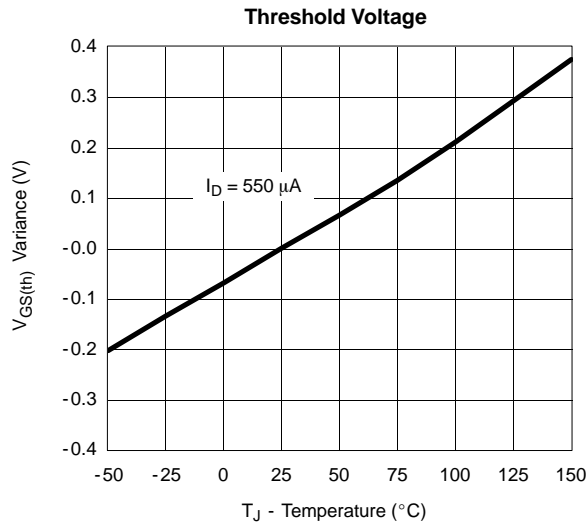




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