

PTF 10119

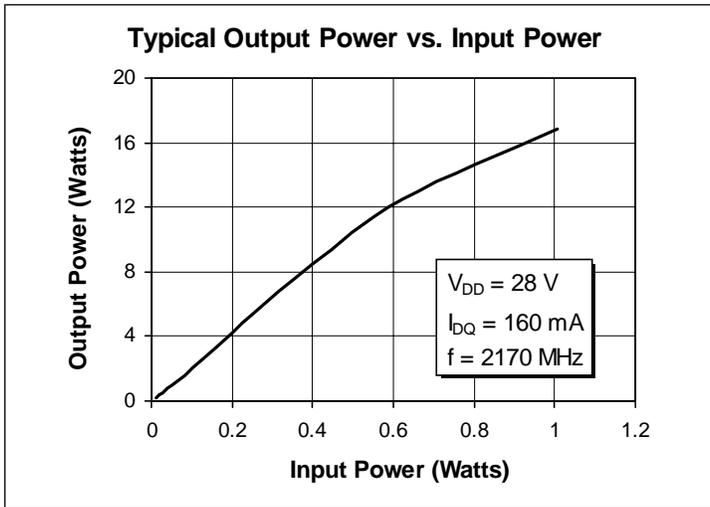
12 Watts, 2.1–2.2 GHz

GOLDMOS™ Field Effect Transistor

Description

The PTF 10119 is an internally matched, common source, N-channel enhancement-mode lateral MOSFET intended for WCDMA applications from 2.1 to 2.2 GHz. It is rated at 12 watts power output. Nitride surface passivation and gold metallization ensure excellent device reliability.

- **INTERNALLY MATCHED**
- **Performance at 2.17 GHz, 28 Volts**
 - Output Power = 12 Watts Min
 - Power Gain = 11 dB Typ
 - Efficiency = 43% Typ @ P-1dB
- **Full Gold Metallization**
- **Silicon Nitride Passivated**
- **Back Side Common Source**
- **Excellent Thermal Stability**
- **100% lot traceability**



Maximum Ratings

| Parameter | Symbol | Value | Unit |
|---|-----------------|-------------|---------------|
| Drain-Source Voltage | V_{DSS} | 65 | Vdc |
| Gate-Source Voltage | V_{GS} | ±20 | Vdc |
| Operating Junction Temperature | T_J | 200 | °C |
| Total Device Dissipation at $T_{flange} = 25^\circ\text{C}$ Above 25°C derate by | P_D | 55 0.31 | Watts W/°C |
| Storage Temperature Range | T_{STG} | -40 to +150 | °C |
| Thermal Resistance ($T_{flange} = 70^\circ\text{C}$) | $R_{\theta JC}$ | 3.2 | °C/W |

Electrical Characteristics (100% Tested)

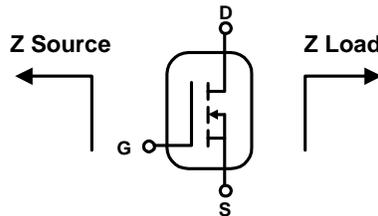
| Characteristic | Conditions | Symbol | Min | Typ | Max | Units |
|---------------------------------|---|---------------|-----|-----|-----|---------|
| Drain-Source Breakdown Voltage | $V_{GS} = 0\text{ V}, I_D = 50\text{ mA}$ | $V_{(BR)DSS}$ | 65 | — | — | Volts |
| Zero Gate Voltage Drain Current | $V_{DS} = 26\text{ V}, V_{GS} = 0\text{ V}$ | I_{DSS} | — | — | 1.0 | mA |
| Gate Threshold Voltage | $V_{DS} = 10\text{ V}, I_D = 75\text{ mA}$ | $V_{GS(th)}$ | 3.0 | — | 5.0 | Volts |
| Forward Transconductance | $V_{DS} = 10\text{ V}, I_D = 2\text{ A}$ | g_{fs} | — | 0.8 | — | Siemens |

RF Specifications (100% Tested)

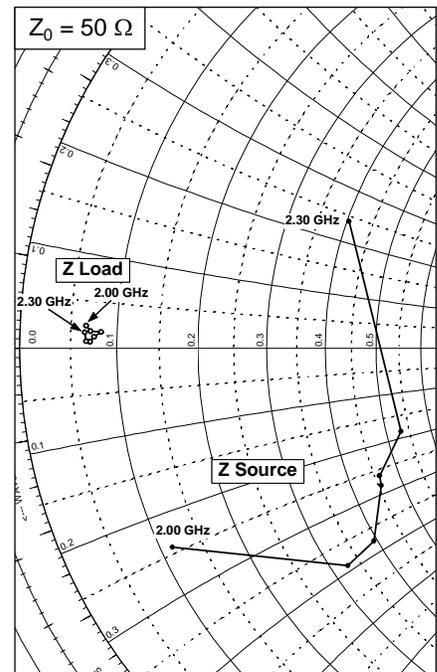
| Characteristic | Symbol | Min | Typ | Max | Units |
|---|----------|-----|-----|------|-------|
| Gain ($V_{DD} = 28\text{ V}, P_{OUT} = 3\text{ W}, I_{DQ} = 160\text{ mA}, f = 2.11, 2.17\text{ GHz}$) | G_{ps} | 10 | 11 | — | dB |
| Power Output at 1 dB Compressed ($V_{DD} = 28\text{ V}, I_{DQ} = 160\text{ mA}, f = 2.17\text{ GHz}$) | p-1dB | 12 | 14 | — | Watts |
| Drain Efficiency ($V_{DD} = 28\text{ V}, P_{OUT} = 12\text{ W}, I_{DQ} = 160\text{ mA}, f = 2.17\text{ GHz}$) | η_D | 30 | 43 | — | % |
| Load Mismatch Tolerance ($V_{DD} = 28\text{ V}, P_{OUT} = 12\text{ W}, I_{DQ} = 160\text{ mA}, f = 2.17\text{ GHz}$ —all phase angles at frequency of test) | Ψ | — | — | 10:1 | — |

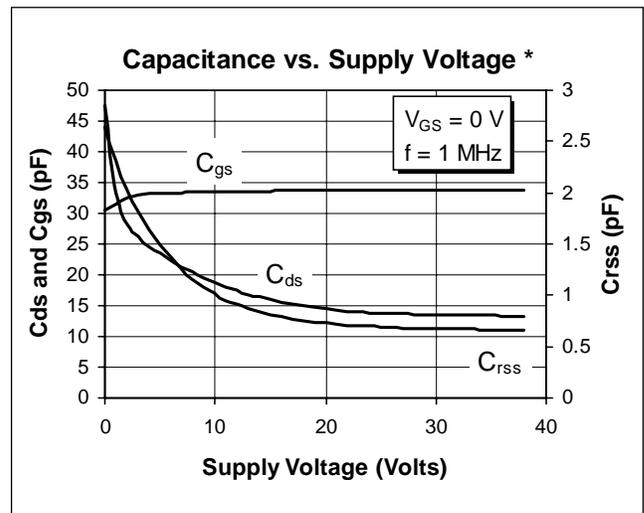
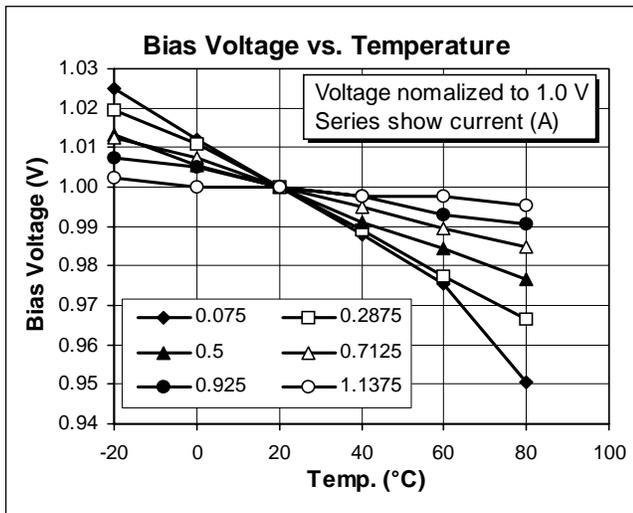
Impedance Data

$V_{DS} = 28\text{ V}, P_{OUT} = 12\text{ W}, I_{DQ} = 160\text{ mA}$



| Frequency GHz | Z Source Ω | | Z Load Ω | |
|------------------|-------------------|--------|-----------------|------|
| | R | jX | R | jX |
| 2.00 | 5.7 | -12.11 | 3.30 | 1.21 |
| 2.10 | 16.4 | -19.50 | 3.55 | 0.92 |
| 2.12 | 19.7 | -18.82 | 4.12 | 0.88 |
| 2.15 | 22.8 | -14.14 | 3.75 | 0.62 |
| 2.17 | 23.0 | -13.15 | 3.53 | 0.34 |
| 2.20 | 26.6 | -9.28 | 3.32 | 0.38 |
| 2.30 | 20.2 | 12.03 | 3.23 | 0.84 |





*This part is internally matched. Measurements of the finished product will not yield these figures.

Notes