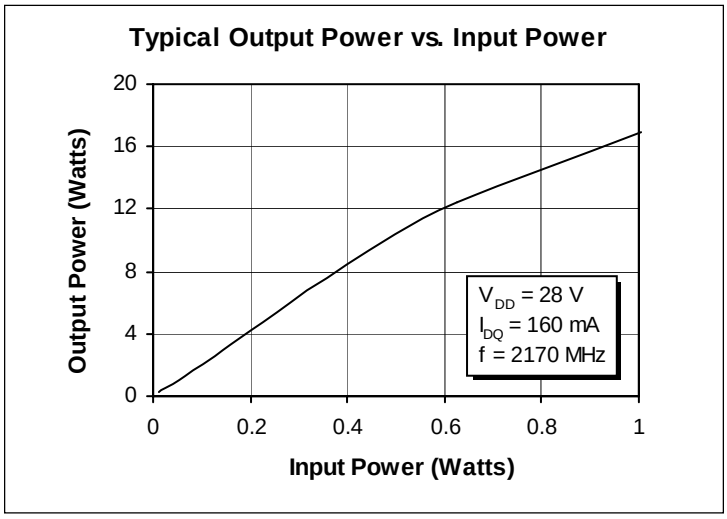
PTF 10119
GOLDMOS® Field Effect Transistor
12 Watts, 2.1–2.2 GHz

Description

The PTF 10119 is a 12–watt *GOLDMOS* FET intended for WCDMA applications from 2.1 to 2.2 GHz. It operates at 43% efficiency with 11 dB typical gain. Nitride surface passivation and full gold metallization ensure excellent device lifetime and 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**



Package 20222

RF Specifications (100% Tested)

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

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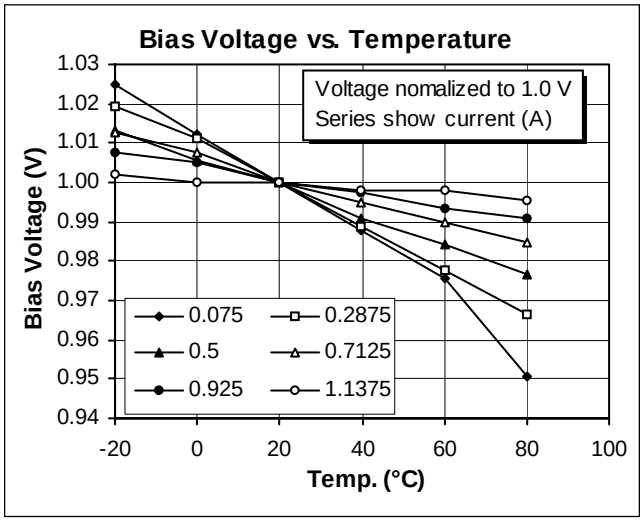
Electrical Characteristics (100% Tested)

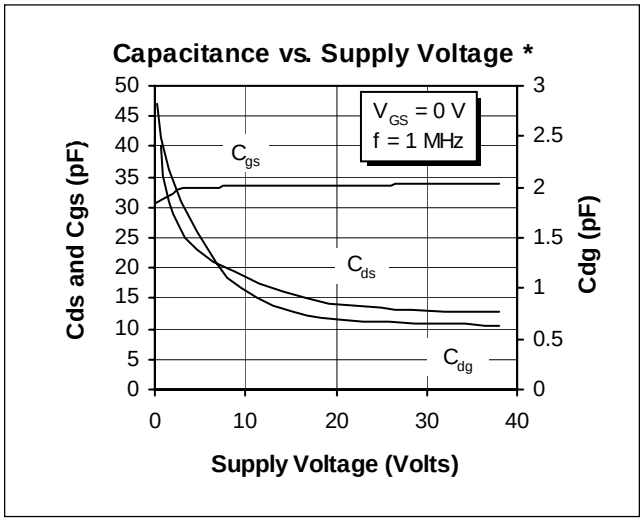
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = 50 mA	$V_{(BR)DSS}$	65	—	—	Volts
Zero Gate Voltage Drain Current	V_{DS} = 26 V, V_{GS} = 0 V	I_{DSS}	—	—	1.0	µA
Gate Threshold Voltage	V_{DS} = 10 V, I_D = 75 mA	$V_{GS(th)}$	3.0	—	5.0	Volts
Forward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

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 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_{CASE} = 70°C)	$R_{\theta JC}$	3.2	°C/W

Tycical Performance

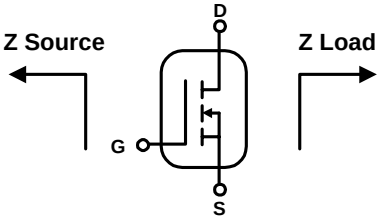


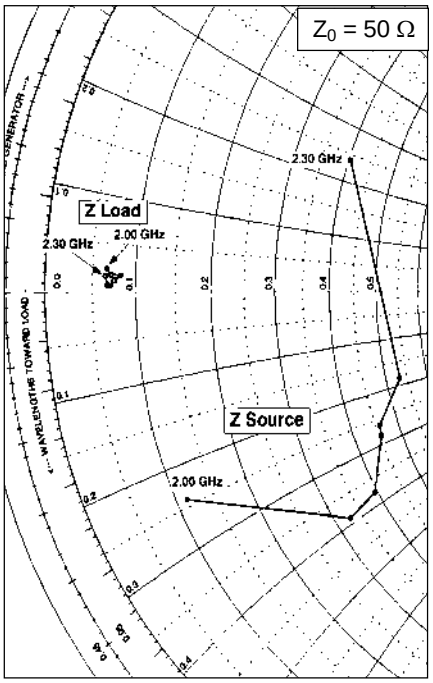


*This part is internally matched. Measurements of the finished product will not yield these figures.

Impedance Data

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

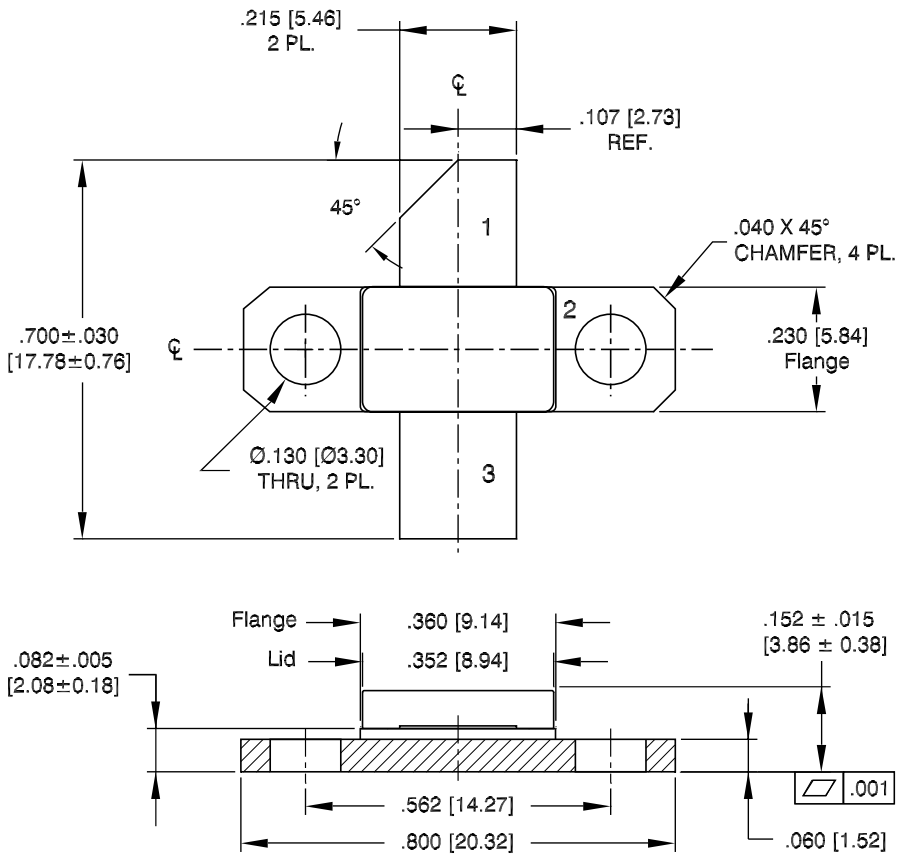




Frequency	Z Source Ω		Z Load Ω	
GHz	R	jX	R	jX
2.00	5.7	-12.11	3.30	1.21
2.10	16.4	-19.50	3.55	0.92
2.12	19.7	-18.82	4.12	0.88
2.15	22.8	-14.14	3.75	0.62
2.17	23.0	-13.15	3.53	0.34
2.20	26.6	-9.28	3.32	0.38
2.30	20.2	12.03	3.23	0.84

Case Outline Specifications

Case 20222



Unless otherwise specified
all tolerances ±.003 [±0.08]

Pins: 1. Drain 2. Source 3. Gate
Lead Thickness: .004±.001" [0.10±0.03mm]

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