

PTF 10119

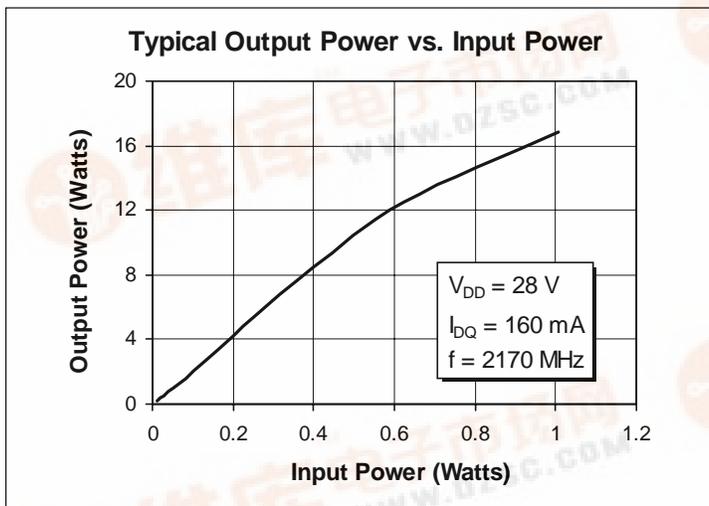
12 Watts, 2.1–2.2 GHz

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	$^{\circ}\text{C}$
Total Device Dissipation at $T_{flange} = 25^{\circ}\text{C}$ Above 25°C derate by	P_D	55 0.31	Watts $\text{W}/^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-40 to +150	$^{\circ}\text{C}$
Thermal Resistance ($T_{flange} = 70^{\circ}\text{C}$)	$R_{\theta JC}$	3.2	$^{\circ}\text{C}/\text{W}$

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Electrical Characteristics (100% Tested)

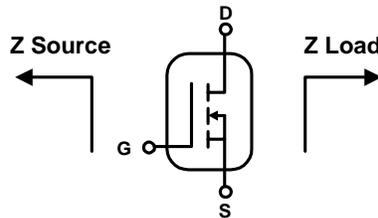
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 50\text{ mA}$	$V_{(BR)DSS}$	65	—	—	Volts
Zero Gate Voltage Drain Current	$V_{DS} = 26\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	—	—	1.0	mA
Gate Threshold Voltage	$V_{DS} = 10\text{ V}, I_D = 75\text{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

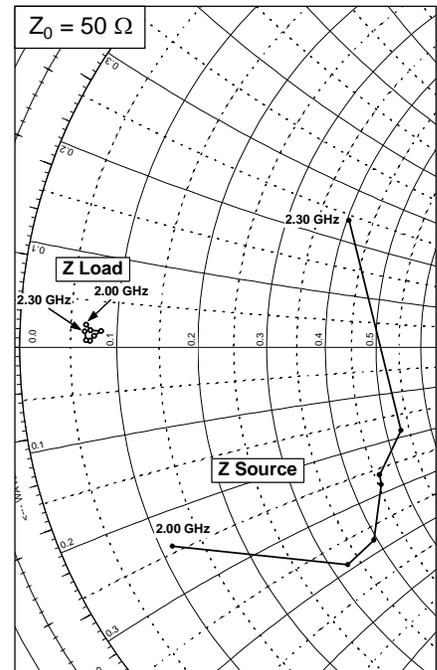
Characteristic	Symbol	Min	Typ	Max	Units
Gain ($V_{DD} = 28\text{ V}, P_{OUT} = 3\text{ W}, I_{DQ} = 160\text{ mA}, f = 2.11, 2.17\text{ GHz}$)	G_{ps}	10	11	—	dB
Power Output at 1 dB Compressed ($V_{DD} = 28\text{ V}, I_{DQ} = 160\text{ mA}, f = 2.17\text{ GHz}$)	p-1dB	12	14	—	Watts
Drain Efficiency ($V_{DD} = 28\text{ V}, P_{OUT} = 12\text{ W}, I_{DQ} = 160\text{ mA}, f = 2.17\text{ GHz}$)	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	—

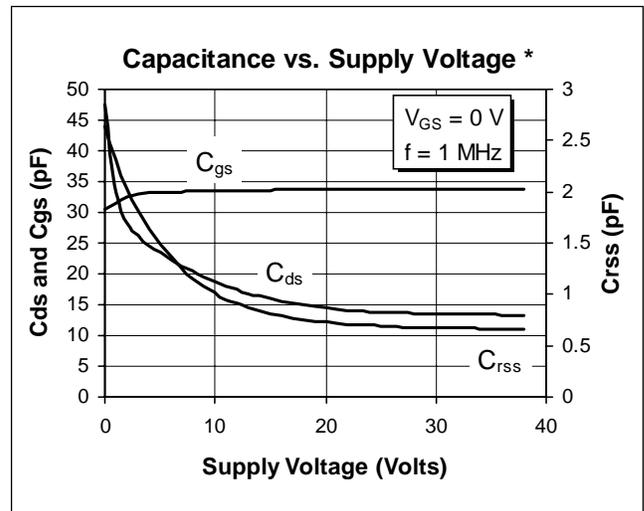
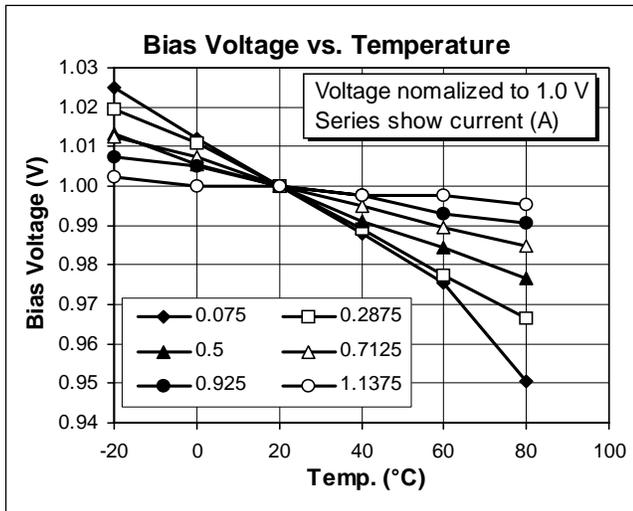
Impedance Data

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



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