

# LDMOS RF Power Field Effect Transistor 160 W, 1930 – 1990 MHz

## Description

The PTF191601 is a 160 W, internally matched *GOLDMOS* FET intended for GSM and EDGE applications in the 1930 to 1990 MHz band. Full gold metallization ensures excellent device lifetime and reliability.



### Features

- Broadband internal matching
- Typical EDGE performance
  - Average output power = 62 W
  - Gain = 14 dB
  - Efficiency = 32%
  - EVM = 1.7%
- Typical CW performance
  Output power at P–1dB = 180 W
  - Gain = 13 dB
  - Efficiency = 47%
- Integrated ESD protection: Human Body Model, Class 1 (minimum)
- Excellent thermal stability
- Low HCI drift
- Capable of handling 10:1 VSWR @ 28 V, 160 W (CW) output power



ESD: Electrostatic discharge sensitive device—observe handling precautions!

### RF Characteristics at T<sub>CASE</sub> = 25°C unless otherwise indicated

**EDGE Measurements** (not subject to production test—verified by design/characterization in Infineon test fixture) V<sub>DD</sub> = 28 V, I<sub>DQ</sub> = 2.2 A, P<sub>OUT</sub> = 62 W, f = 1989.8 MHz

Characteristic	Symbol	Min	Тур	Max	Units
Error Vector Magnitude	EVM (RMS)	_	1.7	_	%
Modulation Spectrum @ 400 kHz	ACPR	_	-60	_	dBc
Modulation Spectrum @ 600 kHz	ACPR	_	-73	_	dBc
Gain	G <sub>ps</sub>	_	14	_	dB
Drain Efficiency	$\eta_D$		32	_	%

#### Two-Tone Measurements (tested in Infineon test fixture)

 $V_{DD}$  = 28 V,  $I_{DQ}$  = 2.2 A,  $P_{OUT}$  = 160 W PEP, f = 1990 MHz, tone spacing = 1 MHz

Characteristic	Symbol	Min	Тур	Max	Units
Gain	G <sub>ps</sub>	—	14	—	dB
Drain Efficiency	$\eta_D$	—	36	—	%
Intermodulation Distortion	IMD		-30	_	dBc



# **DC Characteristics** at $T_{CASE} = 25^{\circ}C$ unless otherwise indicated

Characteristic	Conditions	Symbol	Min	Тур	Max	Units	
Drain-Source Breakdown Voltage	$V_{GS}$ = 0 V, $I_{DS}$ = 10 µA	V <sub>(BR)DSS</sub>	65	_	_	V	
Drain Leakage Current	$V_{DS} = 28 \text{ V}, V_{GS} = 0 \text{ V}$	I <sub>DSS</sub>	_	_	1.0	μA	
On-State Resistance	tance $V_{GS} = 10 \text{ V}, V_{DS} = 0.1 \text{ V}$		_	0.07	_	Ω	
Operating Gate Voltage	$V_{DS} = 28 \text{ V}, I_{DQ} = 2.2 \text{ A}$	V <sub>GS</sub>	2.5	3.2	4.0	V	
Gate Leakage Current $V_{GS} = 10 \text{ V}, \text{ V}_{DS} = 0 \text{ V}$		I <sub>GSS</sub>	_	_	1.0	μA	

### **Maximum Ratings**

Parameter	Symbol	Value	Unit
Drain–Source Voltage	V <sub>DSS</sub>	65	V
Gate–Source Voltage	V <sub>GS</sub>	-0.5 to +12	V
Operating Junction Temperature	TJ	200	°C
Total Device Dissipation	PD	583	W
Above 25°C derate by		3.33	W/°C
Storage Temperature Range	T <sub>STG</sub>	-40 to +150	°C
Thermal Resistance (T <sub>CASE</sub> = 70°C, 130 W CW)	$R_{ ext{ heta}JC}$	0.30	°C/W



### **Ordering Information**

Туре	Package Outline	Package Description	Marking
PTF191601E	30260	Thermally enhanced, flange mount	PTF191601E

### **Package Outline Specifications**



Find the latest and most complete information about products and packaging at the Infineon Internet page http://www.infineon.com/products

PTF191601 Limited Dis Revision H	1 stribution listory: 04-03-17	Developmental Data Sheet
Previous Ve	ersion: none	
Page	Subjects (major changes since last revision)	

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#### highpowerRF@infineon.com

To request other information, contact us at: +1 877 465 3667 (1-877-GOLDMOS) USA or +1 408 776 0600 International

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