Preliminary PTFA142401EL
PTFA142401FL

green Product

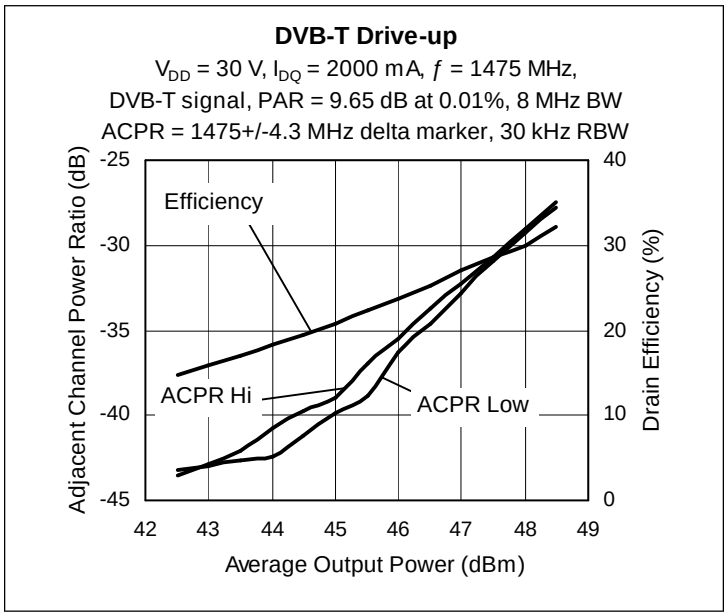
Thermally-Enhanced High Power RF LDMOS FET
240 W, 1450 – 1500 MHz

Description

The PTFA142401EL and PTFA142401FL are 240-watt LDMOS FETs designed for DVB and DAB applications in the 1450 to 1500 MHz frequency band. Features include internal I/O matching and thermally-enhanced packages with slotted or earless flanges. Manufactured with Infineon's advanced LDMOS process, these devices provide excellent thermal performance and superior reliability.

PTFA142401EL*
Package H-33288-2

PTFA142401FL*
Package H-34288-2



Features

- Pb-free, RoHS-compliant and thermally-enhanced packages with less than 0.25 micron Au plating
- Broadband internal matching
- Typical DVB-T performance at 1475 MHz, 30 V
  - Average output power = 47.0 dBm
  - Linear Gain = 16.0 dB
  - Efficiency = 27.5%
  - Adjacent channel power = –32 dBc
- Typical CW performance, 1475 MHz, 30 V
  - Output power at P–1dB = 240 W
  - Efficiency = 52%
- Integrated ESD protection: Human Body Model, Class 2 (minimum)
- Excellent thermal stability, low HCI drift
- Capable of handling 5:1 VSWR @ 30 V, 240 W (CW) output power

RF Characteristics

DVB-T Measurements (not subject to production test—verified by design/characterization in Infineon test fixture)

V_{DD} = 30 V, I_{DQ} = 2.0 A, P_{OUT} = 50 W average
f = 1475 MHz DVB-T, channel bandwidth = 8.0 MHz , peak/average = 9.65 dB @ 0.01% CCDF

Characteristic	Symbol	Min	Typ	Max	Unit
Gain	G_{ps}	—	16.0	—	dB
Drain Efficiency	η_D	—	27.5	—	%
Adjacent Channel Power Ratio (±4.3 MHz offset, 30 kHz RBW)	ACPR	—	–32	—	dBc

All published data at T_{CASE} = 25°C unless otherwise indicated

**See Infineon distributor for future availability.*

ESD: Electrostatic discharge sensitive device—observe handling precautions!

RF Characteristics (cont.)

Two-tone Measurements (tested in Infineon test fixture)

V_{DD} = 30 V, I_{DQ} = 2.0 A, P_{OUT} = 200 W PEP, f = 1475 MHz, tone spacing = 1 MHz

Characteristic	Symbol	Min	Typ	Max	Unit
Gain	G_{ps}	—	16.5	—	dB
Drain Efficiency	η_D	—	40	—	%
Intermodulation Distortion	IMD	—	–34	—	dBc

DC Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_{DS} = 10 mA	$V_{(BR)DSS}$	65	—	—	V
Drain Leakage Current	V_{DS} = 28 V, V_{GS} = 0 V	I_{DSS}	—	—	1.0	µA
Drain Leakage Current	V_{DS} = 63 V, V_{GS} = 0 V	I_{DSS}	—	—	10.0	µA
On-State Resistance	V_{GS} = 10 V, V_{DS} = 0.1 V	$R_{DS(on)}$	—	0.05	—	Ω
Operating Gate Voltage	V_{DS} = 30 V, I_{DQ} = 2.0 A	V_{GS}	2.0	2.5	3.0	V
Gate Leakage Current	V_{GS} = 10 V, V_{DS} = 0 V	I_{GSS}	—	—	1.0	µA

Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	65	V
Gate-Source Voltage	V_{GS}	–0.5 to +12	V
Junction Temperature	T_J	200	°C
Total Device Dissipation	P_D	625	W
Above 25°C derate by		3.57	W/°C
Storage Temperature Range	T_{STG}	–40 to +150	°C
Thermal Resistance (T_{CASE} = 70°C, 240 W CW)	$R_{\theta JC}$	0.28	°C/W

Ordering Information

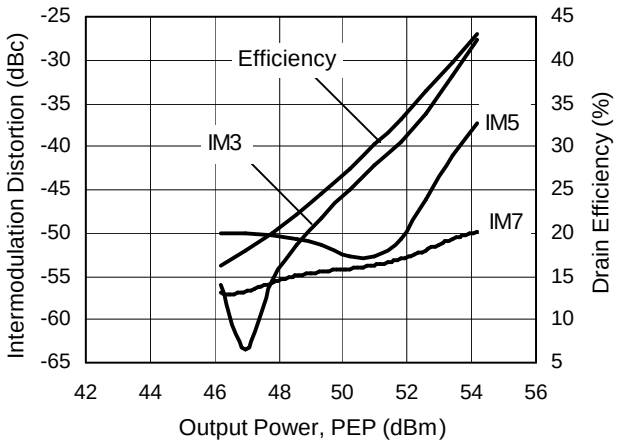
Type and Version	Package Outline	Package Description	Shipping	Marking
PTFA142401EL* V4	H-33288-2	Thermally-enhanced, slotted flange, single-ended	Tray	PTFA142401EL
PTFA142401FL* V4	H-34288-2	Thermally-enhanced, earless flange, single-ended	Tray	PTFA142401FL

**See Infineon distributor for future availability.*

Typical Performance (data taken in an Infineon test fixture)

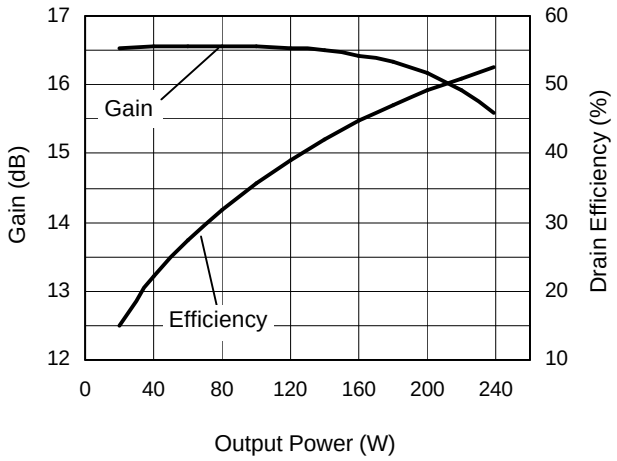
2-Tone Drive-up

V_{DD} = 30 V, I_{DQ} = 2000 mA,
f = 1475 MHz, tone spacing = 1 MHz



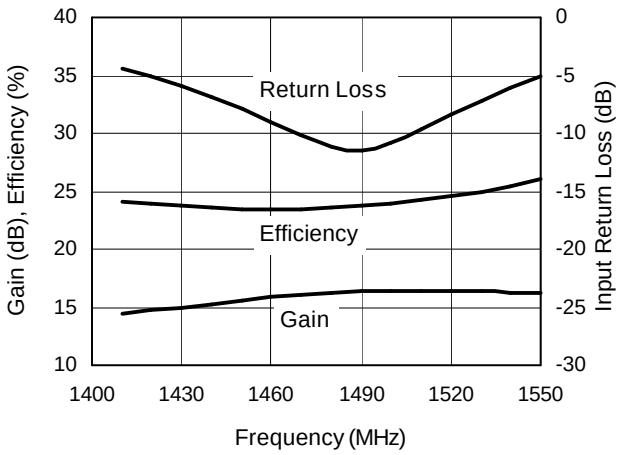
Power Sweep, CW Conditions

V_{DD} = 30 V, I_{DQ} = 2000 mA, f = 1475 MHz



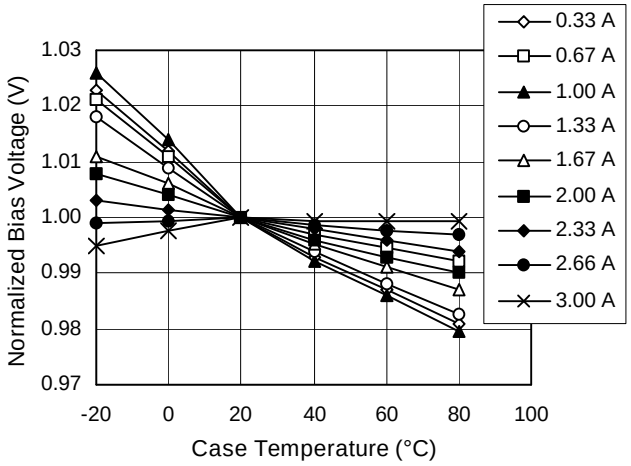
Broadband Performance

V_{DD} = 30 V, I_{DQ} = 2000 mA, P_{OUT} = 50 W



Bias Voltage vs. Temperature

Voltage normalized to typical gate voltage,
series show current



Preliminary Package Outline Specifications

Package H-33288-2 (preliminary)

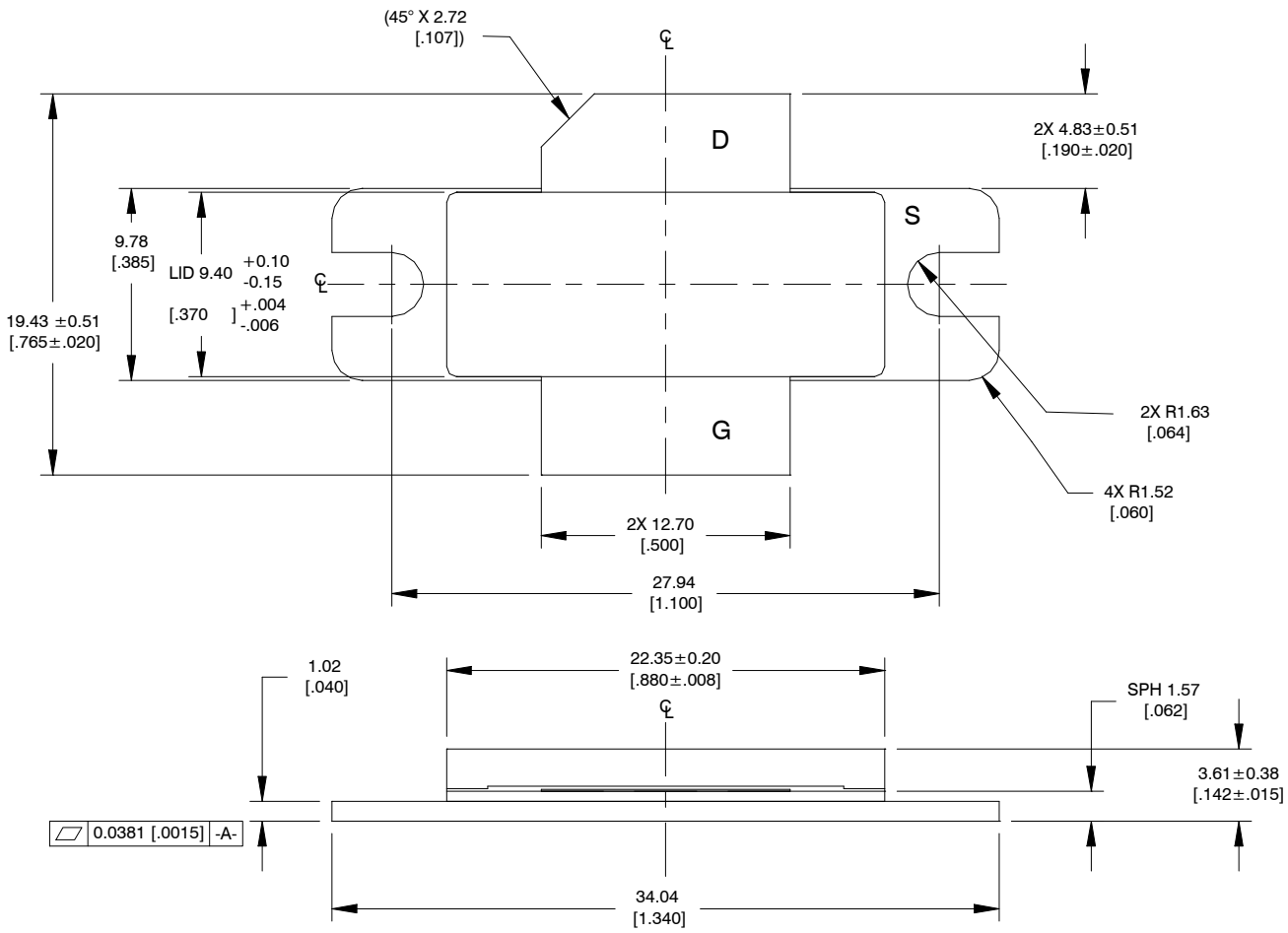


Diagram Notes—unless otherwise specified:

1. Lead thickness: 0.10 +0.051/–0.025 [.004 +.002/–.001].
2. All tolerances ± 0.127 [.005] unless specified otherwise.
3. Pins: D = drain, S = source, G = gate.
4. Interpret dimensions and tolerances per ASME Y14.5M-1994.
5. Primary dimensions are mm. Alternate dimensions are inches.
6. Gold plating less than 0.25 micron [10 microinch].

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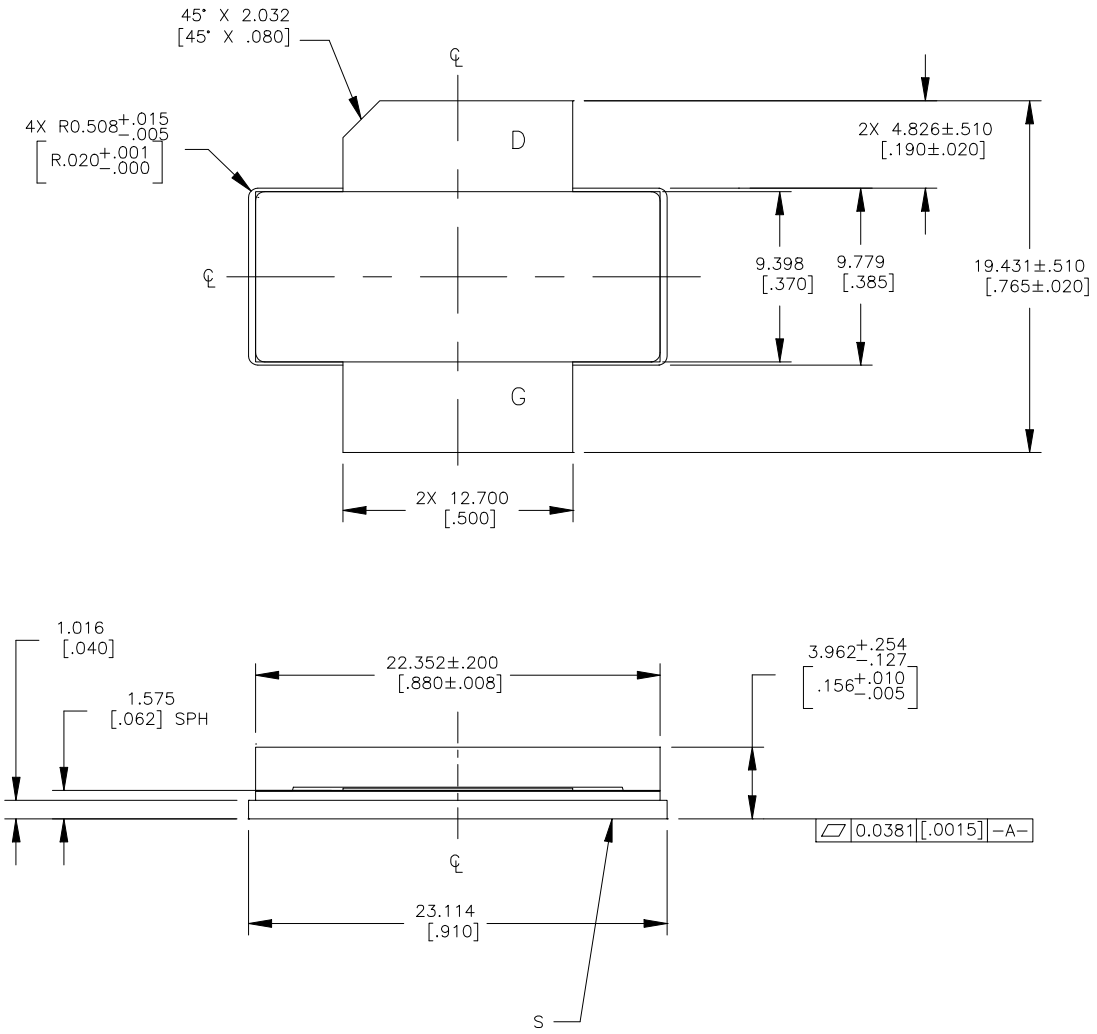
Preliminary Package Outline Specifications (cont.)

Package H-34288-2 (preliminary)



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Revision History:	2008-08-13	Preliminary Data Sheet
Previous Version:	None	

Page	Subjects (major changes since last revision)

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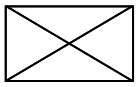

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