

Thermally-Enhanced High Power RF LDMOS FET 50 W, 50 V, 1200 – 1400 MHz

Description

The PTVA120501EA LDMOS FET is designed for use in power amplifier applications in the 1200 to 1400 MHz frequency band. Features include high gain and thermally-enhanced package with bolt-down flange. Manufactured with Infineon's advanced LDMOS process, this device provides excellent thermal performance and superior reliability.

Advance Specification Data Sheets describe products that are being considered by Infineon for development and market introduction. The target performance shown in Advance Specifications is not final and should not be used for any design activity. Please contact Infineon about the future availability of these products.

Features

- Broadband input matching
- High gain and efficiency
- Integrated ESD protection
- Low thermal resistance
- Pb-free and RoHS compliant
- Capable of withstanding a 10:1 load mismatch (all phase angles) at 50 W peak under RF pulse, 300 μ s, 10% duty cycle.



PTVA120501EA
 Package H-36265-2

Target RF Characteristics

Typical Pulsed RF Performance

$V_{DD} = 50$ V, $I_{DQ} = 50$ mA, Input signal ($t_r = 5$ ns, $t_f = 5$ ns), $f_1 = 1200$ MHz, $f_2 = 1300$ MHz, $f_3 = 1400$ MHz, 300 μ s pulse width, 10 % duty cycle, class AB test

Test Signal	IRL (dB)	P _{1dB}			P _{3dB}			Max P _{droop (pulse)} dB @ P _{1dB}	t _r (ns) @ P _{1dB}	t _f (ns) @ P _{1dB}	Gain Flatness (dB)
		Gain (dB)	Eff (%)	P _{OUT} (W)	Gain (dB)	Eff (%)	P _{OUT} (W)				
300 μ s, 10%	-8.0	16.5	55	54	14.5	57	63	0.2	5	<2	1

All published data at $T_{CASE} = 25^\circ\text{C}$ unless otherwise indicated

ESD: Electrostatic discharge sensitive device—observe handling precautions!

DC Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 \text{ V}$, $I_{DS} = 10 \text{ mA}$	$V_{(BR)DSS}$	105	—	—	V
Drain Leakage Current	$V_{DS} = 50 \text{ V}$, $V_{GS} = 0 \text{ V}$	I_{DSS}	—	—	1	μA
	$V_{DS} = 105 \text{ V}$, $V_{GS} = 0 \text{ V}$	I_{DSS}	—	—	10	μA
On-State Resistance	$V_{GS} = 10 \text{ V}$, $V_{DS} = 0.1 \text{ V}$	$R_{DS(on)}$	—	0.4	—	Ω
Operating Gate Voltage	$V_{DS} = 50 \text{ V}$, $I_{DQ} = 50 \text{ mA}$	V_{GS}	3.0	3.5	4.0	V
Gate Leakage Current	$V_{GS} = 10 \text{ V}$, $V_{DS} = 0 \text{ V}$	I_{GSS}	—	—	1	μA

Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	105	V
Gate-Source Voltage	V_{GS}	—6 to +12	V
Junction Temperature	T_J	200	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	—65 to +150	$^{\circ}\text{C}$
Thermal Resistance	$R_{\theta JC}$	TBD	$^{\circ}\text{C}/\text{W}$

Ordering Information

Type and Version	Order Code	Package Description	Shipping
PTVA120501EA V1	TBD	H-36265-2, bolt-down	Tray
PTVA120501EA V1 R250	TBD	H-36265-2, bolt-down	Tape & Reel, 250 pcs

Package Outline Specifications

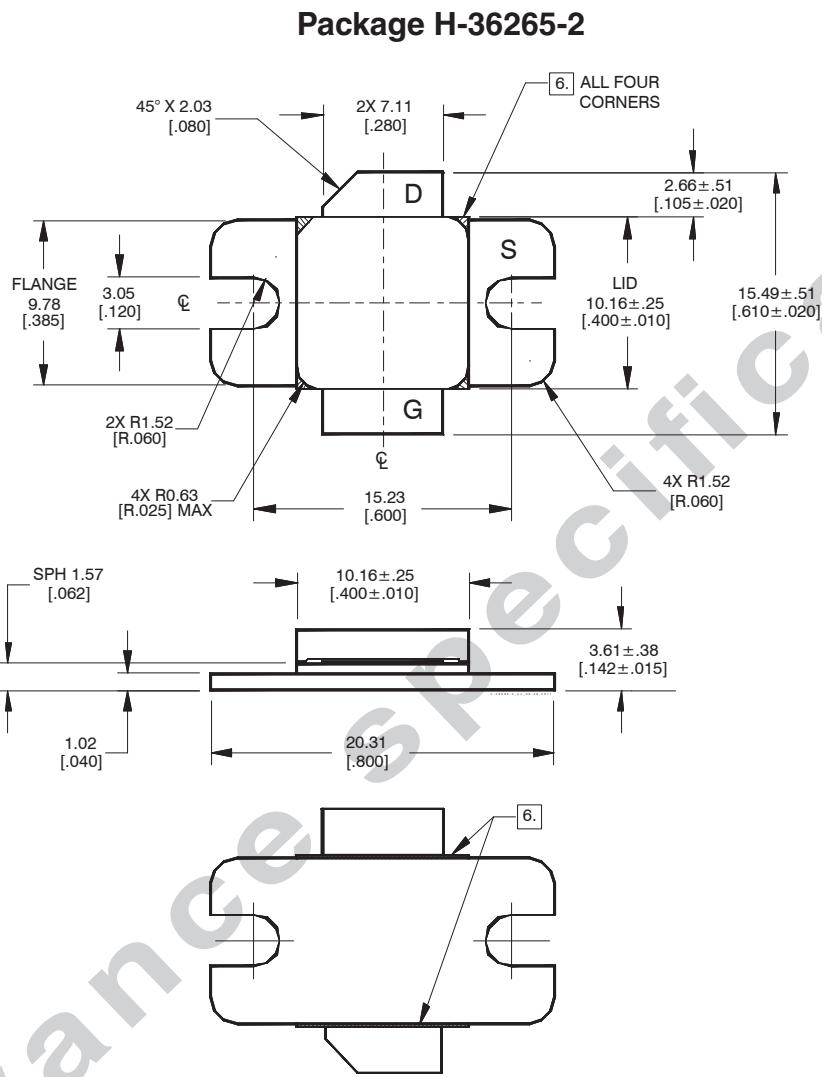


Diagram Notes—unless otherwise specified:

1. Interpret dimensions and tolerances per ASME Y14.5M-1994.
2. Primary dimensions are mm. Alternate dimensions are inches.
3. All tolerances ± 0.127 [0.005] unless specified otherwise.
4. Pins: D – drain; G – gate; S – source
5. Lead thickness: $0.10 + 0.051/-0.025$ mm [$0.004 + 0.002/-0.001$ inch].
6. Exposed metal plane on top and bottom of ceramic insulator.
7. Gold plating thickness: 1.14 ± 0.38 micron [45 ± 15 microinch].

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

Revision History: 2013-05-21

Advance Specification

Previous Version: None

Page Subjects (major changes since last revision)

We Listen to Your Comments

Any information within this document that you feel is wrong, unclear or missing at all?

Your feedback will help us to continuously improve the quality of this document.

Please send your proposal (including a reference to this document) to:

highpowerRF@infineon.com

To request other information, contact us at:

+1 877 465 3667 (1-877-GO-LDMOS) USA

or +1 408 776 0600 International

**Edition 2013-05-29****Published by****Infineon Technologies AG
85579 Neubiberg, Germany****© 2013 Infineon Technologies AG****All Rights Reserved.****Legal Disclaimer**

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics.

With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office (www.infineon.com/rfpower).

Warnings

Due to technical requirements, components may contain dangerous substances. For information on the types in question, please contact the nearest Infineon Technologies Office.

Infineon Technologies components may be used in life-support devices or systems only with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.