LM3212

LM3212 PRODUCT BRIEF Step-Down DC-DC Converter with Analog Bypass Mode for RF Power Amplifiers

TEXAS INSTRUMENTS

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LM3212 PRODUCT BRIEF

Step-Down DC-DC Converter with Analog Bypass Mode for RF Power Amplifiers

General Description

The LM3212 is a DC-DC converter optimized for powering GSM RF power amplifiers (PAs) from a single Lithium-Ion cell; however, it may also be used in other applications. The LM3212 steps down an input voltage from 2.7V to 5.5V to a dynamically adjustable output voltage of 0.5V to 3.4V. The output voltage is set through a VCON analog input that adjusts the output voltage to ensure efficient operation at all power levels of the RF PA.

The LM3212 has a unique Active Current Bypass (ACB) feature that speeds up output voltage transition times, provides extra drive and a low-resistance analog bypass. The LM3212 has an AUTO_BY pin to force the LM3212 into bypass mode during low input voltage operation, thus overriding the automatic analog bypass feature. Forced bypass can also be achieved by setting VCON > VIN/2.5.

In addition, the LM3212 offers a fixed-frequency PWM mode to minimize RF interference and a shutdown mode to turn the device off and reduce battery consumption to 0.02 µA (typ.).

The LM3212 is available in a 16-bump lead-free micro SMD package. A 1.6 MHz switching frequency allows use of tiny surface-mount components for the required inductor and two ceramic capacitors.

Note: This document is not a full datasheet. For more information regarding this product or to order samples, please contact your local Texas Instruments sales office or visit http://www.focus.ti.com/general/docs/dsnsuprt.tsp.
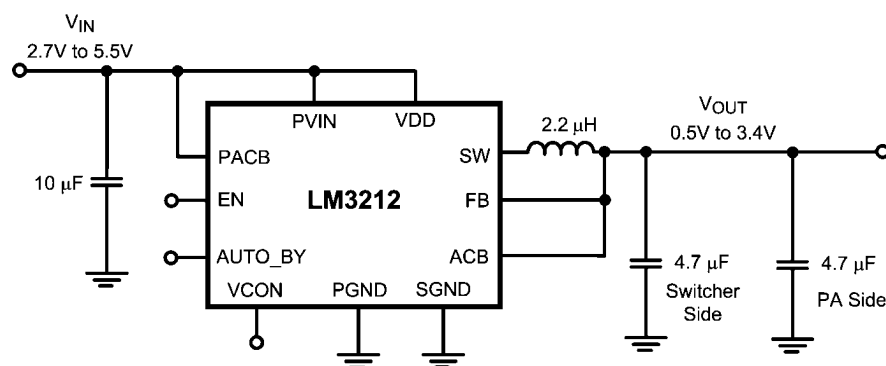
Features

- 1.6 MHz (typ.) PWM Switching Frequency
- ACB reduces inductor requirements and size
- Operates from a single Li-Ion cell (2.7V to 5.5V)
- Dynamically Adjustable Output Voltage (0.5V to 3.4V)
- 2.5A Maximum Load Current
- Analog bypass function with low bypass resistance (33 mΩ typ.)
- High Efficiency to 95% with Internal Synchronous Rectification
- 16-bump micro SMD Package
- Current Overload Protection
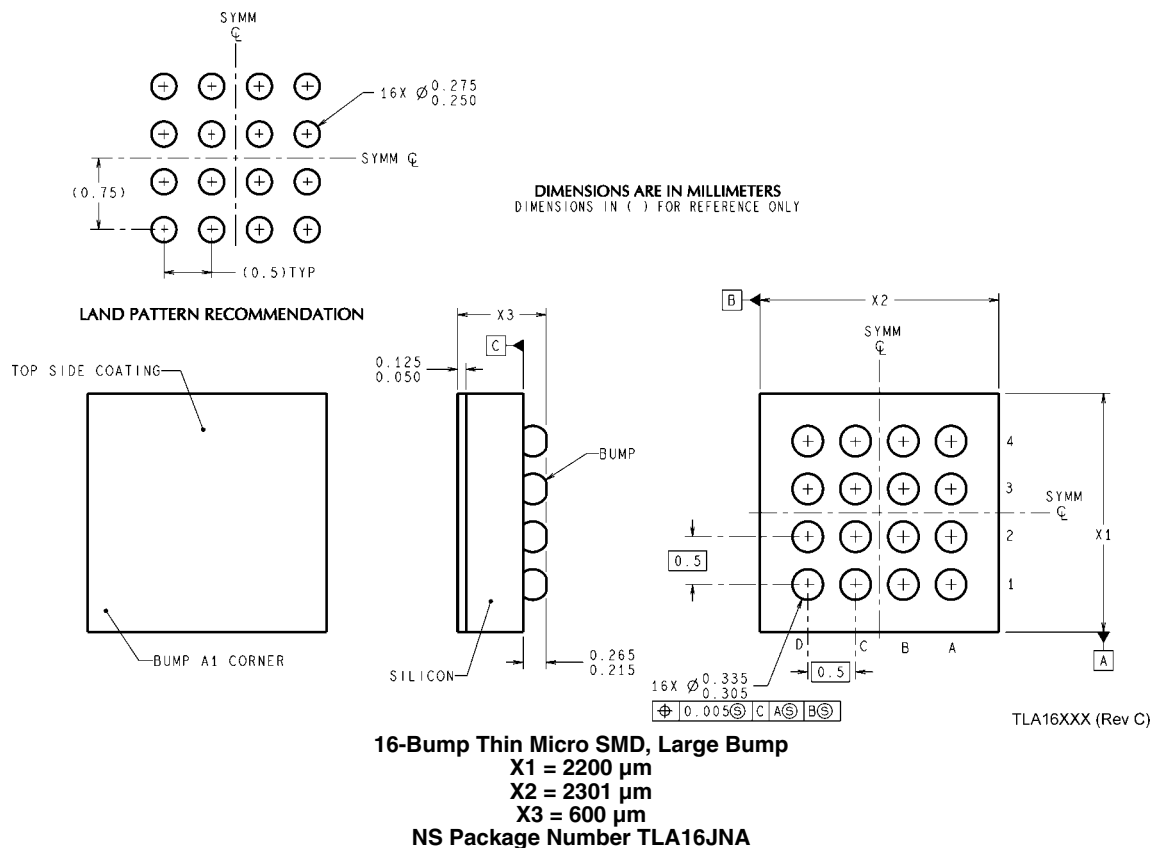- Thermal Overload Protection

Applications

- Battery-Powered 2G/3G/4G RF Power Amplifiers
- Hand-Held Radios
- RF PC Cards

Typical Application

30083601

Physical Dimensions inches (millimeters) unless otherwise noted

SYMM ℄

16X ∅ 0.275 / 0.250

SYMM ℄

(0.75)

(0.5)TYP

LAND PATTERN RECOMMENDATION

DIMENSIONS ARE IN MILLIMETERS
DIMENSIONS IN ( ) FOR REFERENCE ONLY

TOP SIDE COATING

BUMP A1 CORNER

X3

C

0.125 / 0.050

BUMP

SILICON

0.265 / 0.215

B

X2

SYMM ℄

0.5

SYMM ℄

X1

D   C   B   A

16X ∅ 0.335 / 0.305

0.5

⊕ 0.005 ⑤ C A ⑤ B ⑤

A

4
3
2
1

TLA16XXX (Rev C)

16-Bump Thin Micro SMD, Large Bump
X1 = 2200 μm
X2 = 2301 μm
X3 = 600 μm
NS Package Number TLA16JNA

Notes

www.ti.com

Notes

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