LM3242

LM3242   PRODUCT BRIEF 6MHz, 750mA Miniature, Adjustable, Step-Down DC-DC Converter with Auto Bypass for RF Power Amplifiers

TEXAS INSTRUMENTS

TEXAS INSTRUMENTS

October 26, 2011

LM3242
PRODUCT BRIEF

6MHz, 750mA Miniature, Adjustable, Step-Down DC-DC Converter with Auto Bypass for RF Power Amplifiers

General Description

The LM3242 is a DC-DC converter optimized for powering RF power amplifiers (PAs) from a single Lithium-Ion cell; however, it may be used in many other applications. It steps down an input voltage from 2.7V to 5.5V to an adjustable output voltage from 0.4V to 3.6V. Output voltage is set using a VCON analog input for controlling power levels and efficiency of the RF PA.

The LM3242 offers five modes of operation. In PWM mode the device operates at a fixed frequency of 6MHz (typ.) at medium-to-heavy load range and minimizes RF interference. At light load, the device enters into ECO mode automatically and operates with reduced switching frequency. In ECO mode, the quiescent current is reduced and extends the battery life. Shutdown mode turns the device off and reduces battery consumption to 0.1 μA (typ.). In low-battery condition, Bypass mode reduces the voltage dropout to less than 50 mV (typ.). The part also features a Sleep mode.

The LM3242 is available in a 9-bump lead-free micro SMD package. A high switching frequency (6MHz) allows use of only three tiny surface-mount components: one inductor and two ceramic capacitors.

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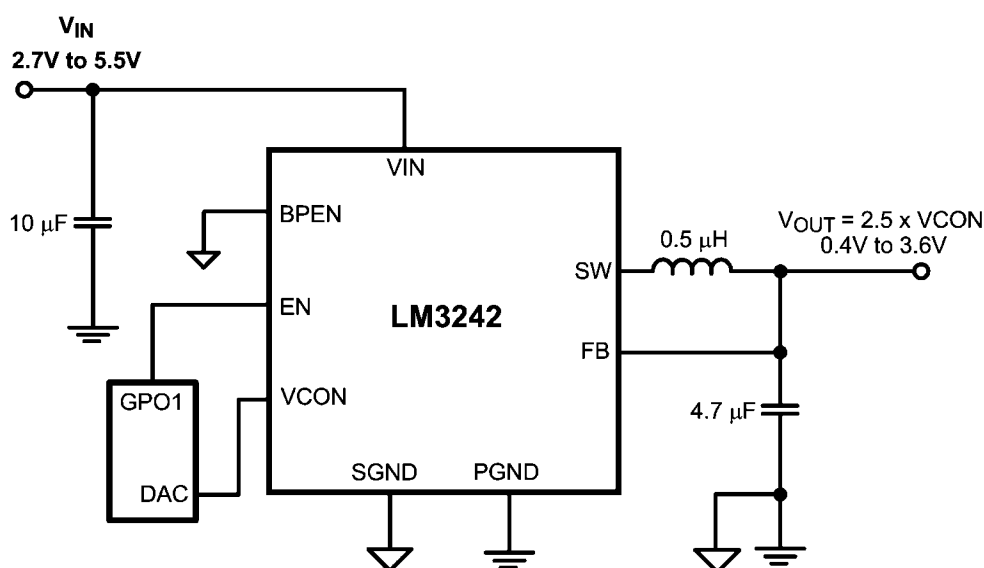
Features

- 6MHz (typ.) PWM Switching Frequency
- Operates from a Single Li-Ion Cell (2.7V to 5.5V)
- Adjustable Output Voltage (0.4V to 3.6V)
- 750 mA Maximum Load Capability (up to 1A in Bypass)
- High Efficiency (95% typ. at $3.9V_{IN}$, $3.3V_{OUT}$ at 500 mA)
- Automatic ECO/PWM/BP mode change
- 9-bump micro SMD Package
- Current Overload Protection
- Thermal Overload Protection
- Soft-Start Function
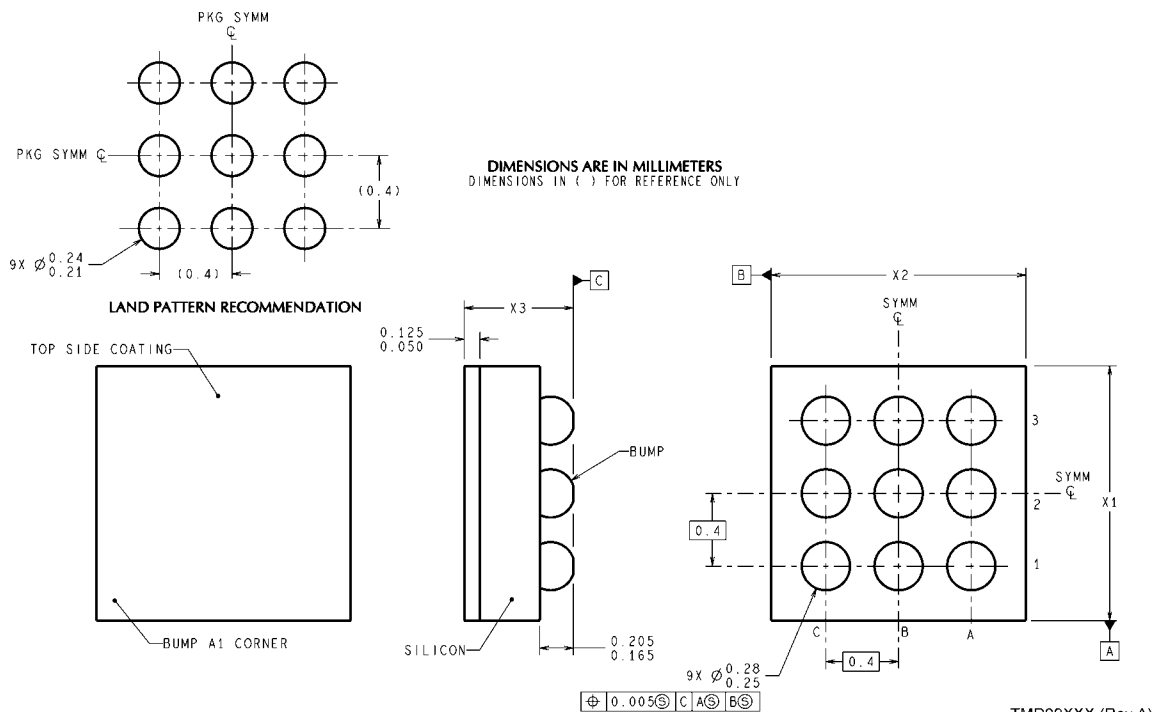- Small Chip Inductor in 0805 (2012) case size

Applications

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

Typical Application

30122201

Physical Dimensions inches (millimeters) unless otherwise noted

PKG SYMM

PKG SYMM

(0.4)

9X Ø 0.24 / 0.21

(0.4)

LAND PATTERN RECOMMENDATION

DIMENSIONS ARE IN MILLIMETERS
DIMENSIONS IN ( ) FOR REFERENCE ONLY

TOP SIDE COATING

BUMP A1 CORNER

0.125 / 0.050

X3

C

BUMP

SILICON

0.205 / 0.165

⊕ | 0.005 Ⓢ | C | A Ⓢ | B Ⓢ |

B

X2

SYMM

3

SYMM

2

X1

0.4

1

C   B   A

0.4

9X Ø 0.28 / 0.25

A

TMD09XXX (Rev A)

9-Bump Thin Micro SMD, Large Bump (0.4 mm pitch)
NS Package Number TMD09
X1 = 1.35 mm ±0.030 mm
X2 = 1.488 mm ±0.030 mm
X3 = 0.6 mm ±0.075 mm

Notes

Notes

TI/NATIONAL INTERIM IMPORTANT NOTICE

Texas Instruments has purchased National Semiconductor. As of Monday, September 26th, and until further notice, products sold or advertised under the National Semiconductor name or logo, and information, support and interactions concerning such products, remain subject to the preexisting National Semiconductor standard terms and conditions of sale, terms of use of website, and Notices (and/or terms previously agreed in writing with National Semiconductor, where applicable) and are not subject to any differing terms and notices applicable to other TI components, sales or websites. To the extent information on official TI and National websites and business social networking media, etc., pertains to both TI and National-branded products, both companies' instructions, warnings and limitations in the above-referenced terms of use apply.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products		Applications	
Audio	www.ti.com/audio	Communications and Telecom	www.ti.com/communications
Amplifiers	amplifier.ti.com	Computers and Peripherals	www.ti.com/computers
Data Converters	dataconverter.ti.com	Consumer Electronics	www.ti.com/consumer-apps
DLP® Products	www.dlp.com	Energy and Lighting	www.ti.com/energy
DSP	dsp.ti.com	Industrial	www.ti.com/industrial
Clocks and Timers	www.ti.com/clocks	Medical	www.ti.com/medical
Interface	interface.ti.com	Security	www.ti.com/security
Logic	logic.ti.com	Space, Avionics and Defense	www.ti.com/space-avionics-defense
Power Mgmt	power.ti.com	Transportation and Automotive	www.ti.com/automotive
Microcontrollers	microcontroller.ti.com	Video and Imaging	www.ti.com/video
RFID	www.ti-rfid.com	Wireless	www.ti.com/wireless-apps
RF/IF and ZigBee® Solutions	www.ti.com/lprf	**TI E2E Community Home Page**	e2e.ti.com

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265

IMPORTANT NOTICE