LM3262 DSBGA Evaluation Board

1 Introduction

The LM3262 evaluation board is a working demonstration of an adjustable step-down DC-DC converter optimized for powering RF power amplifiers (PAs) from a single Lithium-Ion cell. Output voltage is set using a VCON analog input for controlling power levels and efficiency of the RF PA.

2 Operating Conditions

The device will operate under the following conditions:

- V_{IN} range: 2.5V to 5.5V
- V_{OUT} range: 0.4V to 3.6V
- VCON range: 0.16V to 1.44V
- V_{OUT} equation: V_{OUT} = 2.5 x VCON
- I_{OUT} range: 0 mA to 800 mA

3 Package

The LM3262 is available in a 9-bump (0.4 mm pitch) lead-free DSBGA (1.355 mm x 1.48 mm x 0.6 mm) package. The total solution size of the LM3262 and external components is ≈ 7.1 mm^2.

4 Typical Application Circuit

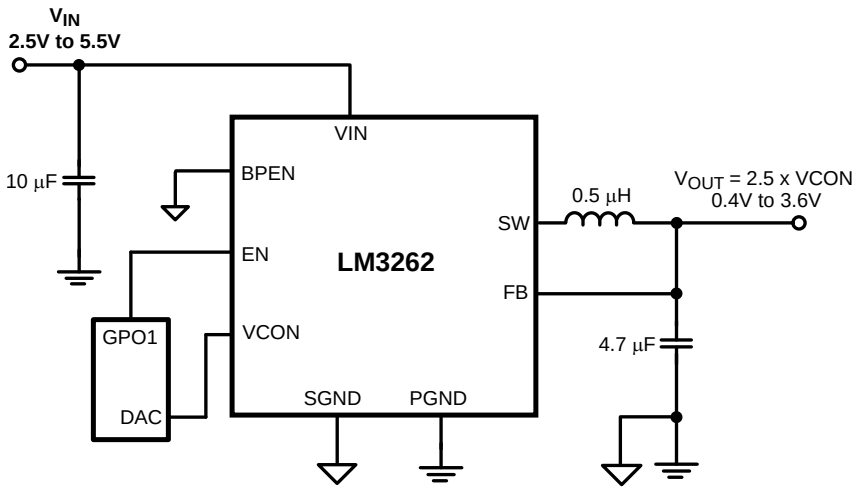

Figure 1. Application Circuit

5 BOM For Typical Configurations*

Designator	Model	Description	Manufacturer
C1	CL05A106MQ5NUNC	10 µF, 6.3V, 0402	Samsung
C2	CL05A475MQ5NRNC	4.7 µF, 6.3V, 0402	Samsung
L1	LQM21PNR50XGHL11	0.5 µH, 2.0 x 1.25 x 1.0 mm	Murata
C4	GRM32ER60J107ME	100 µF, 6.3V, 1210	Murata
U1	LM3262	Buck DC/DC Converter	Texas Instruments

* Please refer to the *LM3262 6MHz 800mA Mini, Adj., Step-Down DC-DC Cnvtr w Auto BP for RF PAs* (SNVS875) data sheet for a list of additional recommended external components.

NOTE: Note: If battery voltage source is note on the same PC board as the LM3262, user should employ a 100 µF ceramic cap between VIN and GND terminals of the board to reduce effects of wire impedance.
If considering using the LM3262 in a system design, please see the PCB Layout Considerations section of the *LM3262 6MHz 800mA Mini, Adj., Step-Down DC-DC Cnvtr w Auto BP for RF PAs* (SNVS875) data sheet.

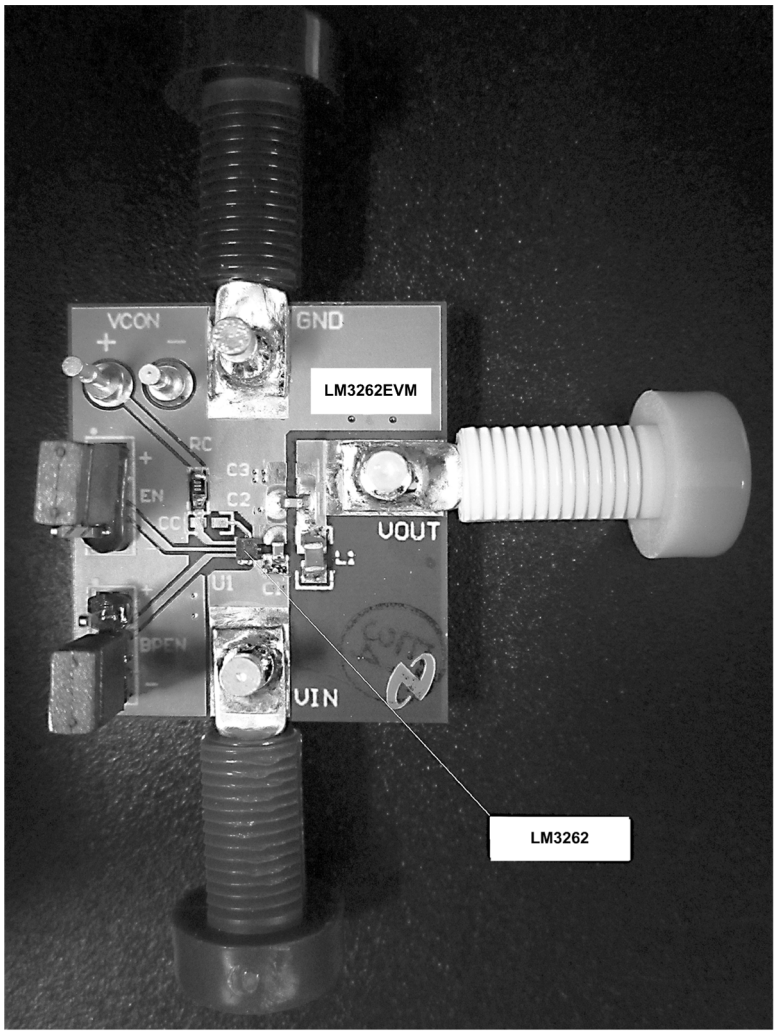

Figure 2. LM3262 Evaluation Board

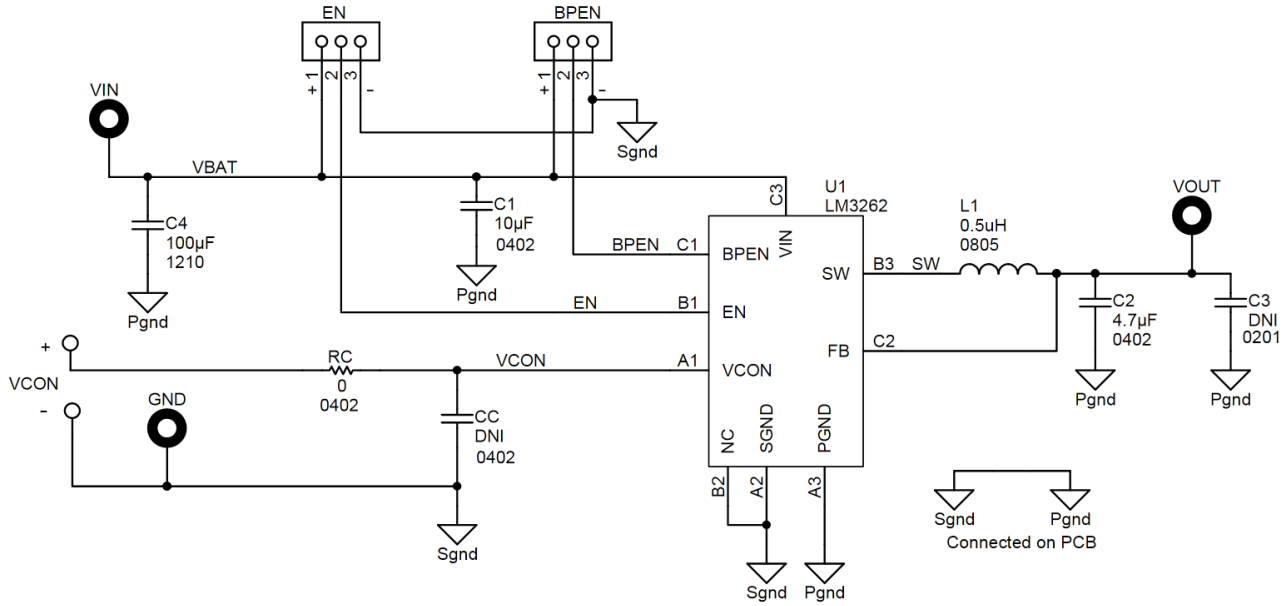

Figure 3. LM3262 Evaluation Board Schematic

6 Power Up Sequence

1. Ensure EN jumper is at "EN/-" position and BPEN jumper is at "BPEN/-" position prior to powering the evaluation board. (See Figure 4.)
2. Power up VIN (within the VIN range of 2.5V to 5.5V).
3. Set VCON for VOUT = 2.5 x VCON (within the specification of 0.4V to 3.6V)
   - Example: VCON = 1.0V will give the result of VOUT =2.5 x 1.0V = 2.5V.
4. Set EN jumper to “+/EN."
5. Measure VOUT.

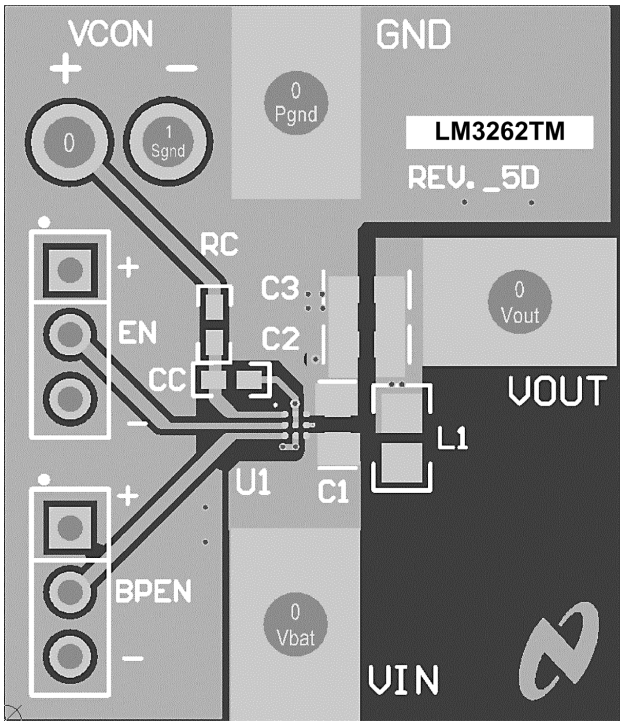

Figure 4. Top Layer:
All Components on Top Layer

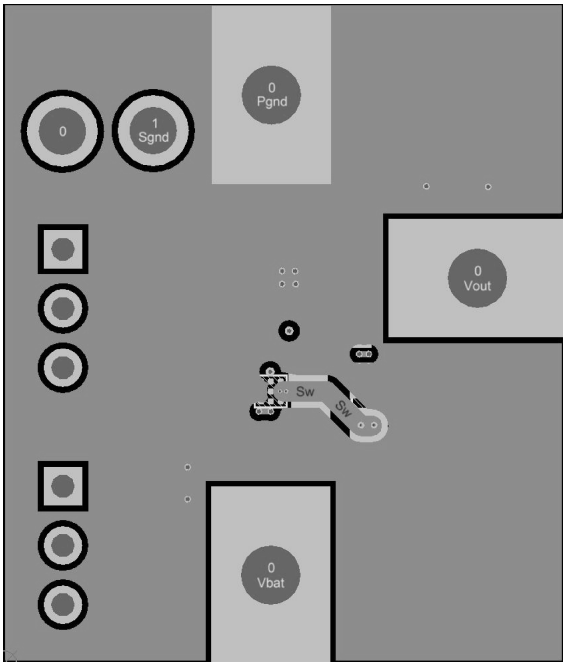

Figure 5. Mid Layer 1:
Switching Path and Power Ground Plane

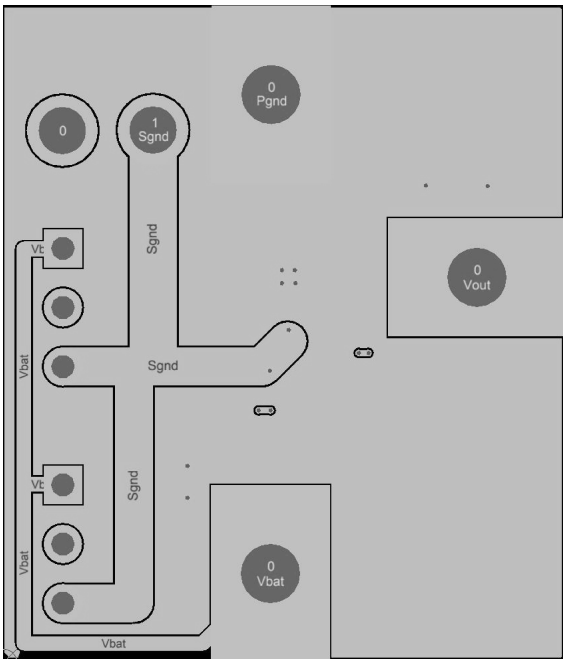

Figure 6. Mid Layer 2:
Isolated Signal Ground and Power Ground Plane

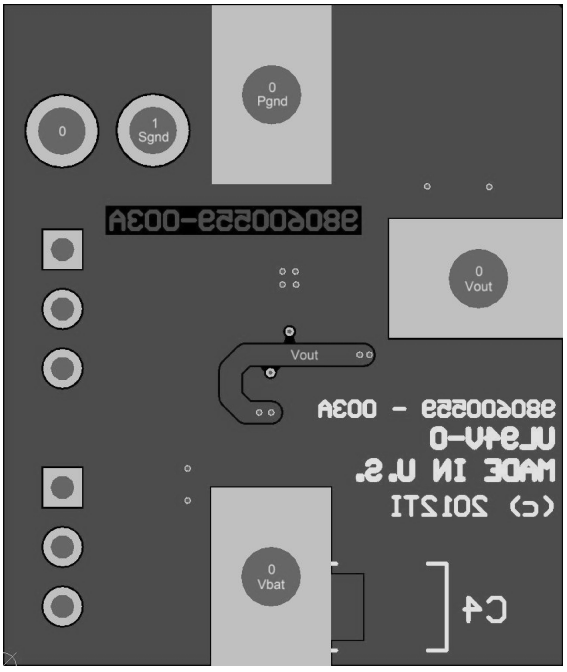

Figure 7. Bottom Layer:
Feedback Path and Power Ground Plane

7 Connection Diagram and Package Mark Information

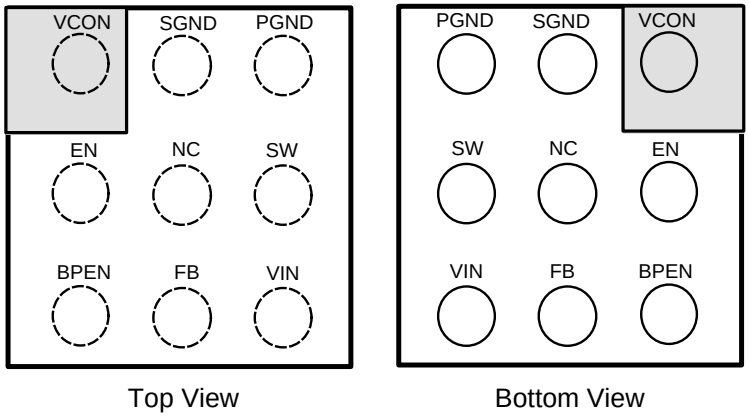

Figure 8. Connection Diagram

8 Pin Descriptions

Pin #	Name	Description
A1	VCON	Voltage Control Analog input. VCON controls VOUT in PWM and ECO modes. VCON may also be used to force part into sleep mode by setting VCON < 80 mV or into bypass condition by setting VCON > 1.5V.
A2	SGND	Signal Ground for analog and control circuitry.
A3	PGND	Power Ground for the Power MOSFETs and gate drive circuitry.
B1	EN	Enable Input. Set this digital input high for normal operation. For shutdown, set low. Do not leave EN pin floating.
B2	NC	Do not connect to PGND directly — internally connected to SGND. Connect to SGND or leave floating.
B3	SW	Switching Node connection to the internal PFET switch and NFET synchronous rectifier. Connect to an inductor with a saturation current rating that exceeds the maximum Switch Peak Current Limit specification of the LM3262.
C1	BPEN	Bypass Enable input. Set this digital input high to force bypass operation. For normal operation with automatic bypass, set low or connect to ground. Do not leave this pin floating.
C2	FB	Feedback Analog Input and Bypass FET output. Connect to the output at the output filter capacitor.
C3	VIN	Voltage supply input for SMPS converter.

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- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

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3. Use of EVMs only after User obtains the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to EVMs. Also, do not transfer EVMs, unless User gives the same notice above to the transferee. Please note that if User does not follow the instructions above, User will be subject to penalties of Radio Law of Japan.

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