Revised Date: September 5, 2006

UA2752
Data Sheet

Doc. #: DS-2752-01
<Rev. 0.1>

The content of this technical information is subject to change without notice.
Please contact UBEC for further information.

Uniband Electronic Corp.
3F-3, No. 192, Dongguang Rd., Hsinchu 300, Taiwan
TEL: +886-3-5729898
FAX: +886-3-5718599
http:// www.ubec.com.tw

Revision History

Revision	Date	Description of Change
0.0	April 13, 2006	Original.
0.1	September 05, 2006	Add application Information.

DISCLAIMER

ALTHOUGH TO THE BEST KNOWLEDGE OF THE UNIBAND ELECTRONIC CORPORATION (UBEC) THIS DOCUMENT IS ADEQUATE FOR ITS INTENDED PURPOSES, UBEC MAKES NO WARRANTY OF ANY KIND WITH REGARD TO ITS COMPLETENESS AND ACCURACY. UBEC EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY INCLUDING WITHOUT LIMITATION WARRANTIES OF TITLE, MERCHANTABILITY, NON-INFRINGENT, AND FITNESS FOR A PARTICULAR PURPOSE, WHETHER ARISING IN LAW, CUSTOM, CONDUCT OR OTHERWISE.

1 Product Description

The UA2752 is an ISM band LNA IC with internal input/output matching and packaged in a 6-pin SOT363 plastic package.

2 Features

- Single 3.3V power supply
- Internally matched to 50Ω
- Low noise figure: 1.9dB at 2.5GHz
- Unconditionally stable
- P1dB over -1.5 dBm at 2.5GHz

3 Typical Applications

- ISM
- General Purpose

4 Pin Configuration

Table 1. Pin Descriptions

Pin #	Description
1	Vcc
2, 5	GND1
3	RF out
4	GND2
6	RF in

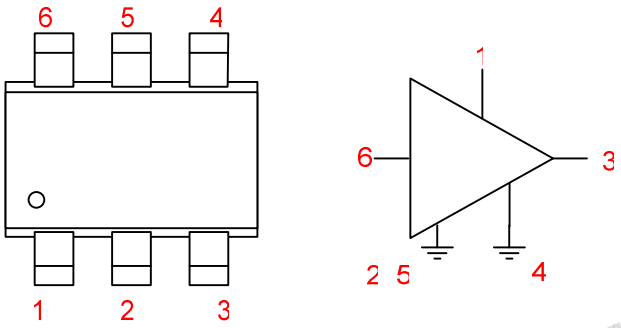
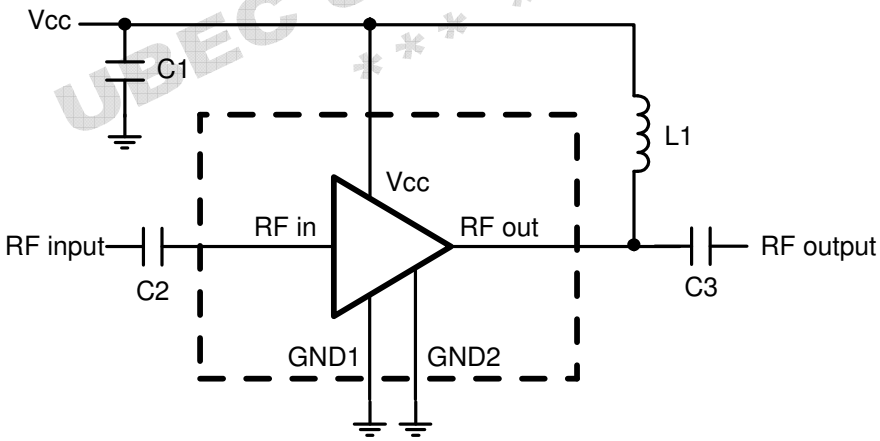


Figure 1. Simplified Outline (SOT363) and Symbol.

5 Application Circuit



C1=1nF, C2=100pF, C3=100pF, L1=15 nH.

Figure 2. Application Circuit Operating Condition

6 Application Information

The LNA is internally matched to 50 Ohm, and therefore it does not need any external matching. Supply decoupling capacitor C1 should be located as closely as possible to the LNA. The DC blocking capacitors C2 and C3 should be 10pF for ISM band application. The RF choke L1 is 15nH for good impedance matching for ISM band.

7 Operating Condition

Table 2. Absolute Maximum Ratings

Symbol	Parameters	Conditions	Typ.	Max.	Unit
Vcc	DC Supply Voltage	RF input AC coupled	-	4	V
Icc	Supply Current		-	30	mA
P_{tot}	Total Power Dissipation	$T_a \leqq 90$ ℃	-	120	mW
T_{st}	Storage Temperature		-65	150	℃
T_j	Operating Junction Temperature		-40	150	℃
P_D	Maximum Drive Power		-	-5	dBm

Table 3. Thermal Characteristics

Symbol	Parameters	Conditions	Value	Unit
R_{th}	Thermal Resistance from Junction to Solder Point	P_{tot} = 85 mW; $T_a \leqq 90$ ℃	300	K/W

8 Electrical Characteristics

Table 4. Electrical Characteristics

Vcc = 3.3 V; Icc = 12 mA; T_a = 25 ℃; unless otherwise specified.

Symbol	Parameters	Conditions	Min.	Typ.	Max.	Unit
Icc	Supply Current		-	12	-	mA
$\|S_{21}\|^2$	Insertion Power Gain	f = 2.4 GHz	-	20	-	dB
		f = 2.45 GHz	-	20	-	dB
		f = 2.5 GHz	-	20	-	dB
$\|S_{11}\|^2$	Input Return Loss	f = 2.4 GHz	10	-	-	dB
		f = 2.45 GHz	10	-	-	dB
		f = 2.5 GHz	10	-	-	dB
$\|S_{22}\|^2$	Output Return Loss	f = 2.4 GHz	10	-	-	dB
		f = 2.45 GHz	10	-	-	dB
		f = 2.5 GHz	10	-	-	dB
$\|S_{12}\|^2$	Isolation	f = 2.4 GHz	-	31.5	-	dB
		f = 2.45 GHz	-	31.5	-	dB
		f = 2.5 GHz	-	31.5	-	dB
NF	Noise Figure	f = 2.4 GHz	-	1.9	-	dB
		f = 2.45 GHz	-	1.9	-	dB
		f = 2.5 GHz	-	1.9	-	dB
BW	Bandwidth	at $\|S_{21}\|^2$ -3 dB below flat gain at 2.45 GHz	-	0.5	-	GHz
K	Stability Factor	f = 2.4 GHz	-	2	-	-
		f = 2.5 GHz	-	2	-	-
$P_{L(sat)}$	Saturated Load Power	f = 2.4 GHz	-	4	-	dBm
		f = 2.5 GHz	-	4	-	dBm
$P_{L,1\ dB}$	Load Power	at 1 dB gain compression; f = 2.4 GHz	-	-1.5	-	dBm
		at 1 dB gain compression; f = 2.5 GHz	-	-1.5	-	dBm

Caution: ESD sensitive.

9 Package Drawing

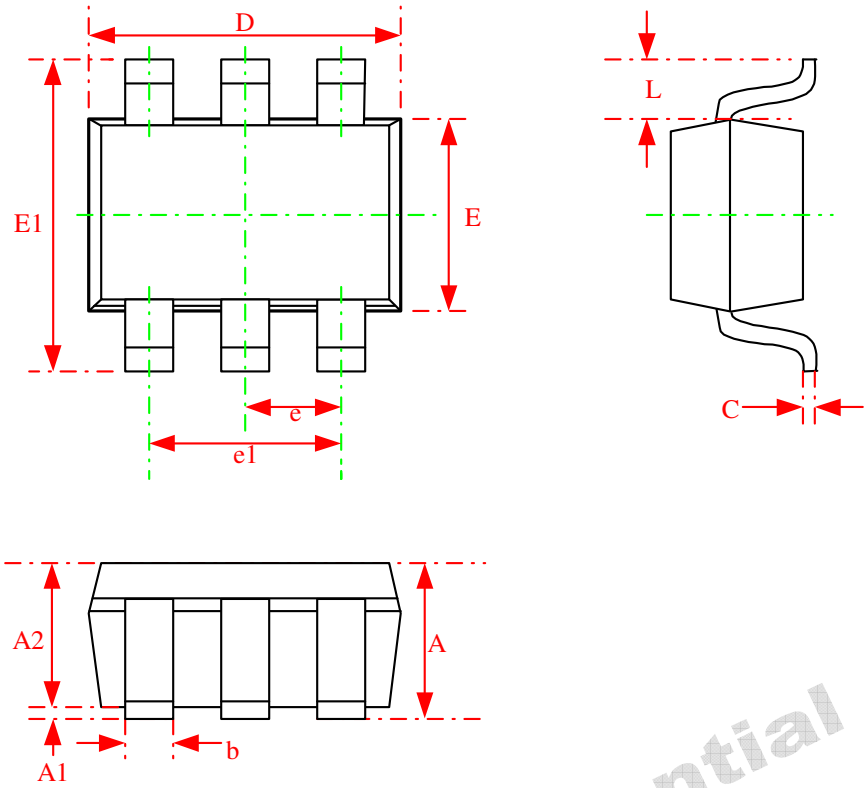


Figure 3. Package Outline

Table 5. Dimension Description

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.10	.038	.044
A1	0.025	0.10	.001	.004
A2	0.875	1.00	.035	.040
b	0.20	0.40	.008	.016
C	0.10	0.15	.004	.006
D	1.90	2.10	.076	.084
E	1.15	1.35	.046	.054
E1	2.00	2.20	.080	.088
e	0.65 BSC.		.026 BSC.	
e1	1.30 BSC.		.052 BSC.	
L	0.425 REF.		.017 BSC.	