

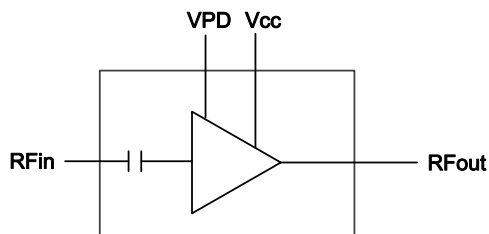
# LXK6623: High Efficiency 5~6GHz 1 W Power Amplifier

## Applications

- WiMAX & WiFi
- Private & Mobile Radio
- UNII & ISM

## Features

- Frequency band: 5 to 6GHz
- PA output power (P1dB): 27.5 dBm
- Power added efficiency: 33% @ 28dBm
- 50 Ohm input internally matched
- High gain: 22 dB
- Active bias circuit
- Temperature compensation
- Package: MSOP-8



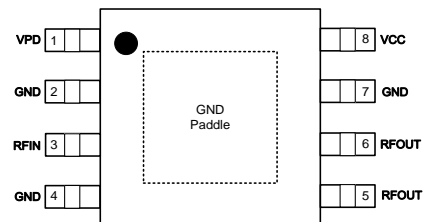
**Figure 1. LXK6623 Functional Block Diagram**

## Product Description

The LXK6623 is a high-power, high-gain, high-efficiency power amplifier (PA). The device has been designed for use as the final RF amplifier in WiMAX & WiFi, Private & Mobile Radio and UNII & ISM applications. The device is internally matched to 50 Ohms at the input and the output can be easily matched to obtain optimum power and efficiency characteristics.

The LXK6623 is housed in MSOP-8 package. The compact footprint coupled with high gain and high efficiency makes LXK6623 an ideal choice as a power amplifier for point to point radio communication .

A functional block diagram of LXK6623 is shown in Figure 1. The MSOP-8 package and pinouts are provided in Figure 2. Signal pin assignments and functional pin descriptions are provided in Table 1.



**Figure 2. LXK6623 Pinout-MSOP-8**

**Table 1. L XK6623 Pin Names and Descriptions**

Pin	Name	Description
1	VPD	Power supply for bias control circuit
2,4,7	GND	GND
3	RFIN	RF input
5,6	RFOUT	RF output
8	VCC	Power supply

**Table 2. Absolute Maximum Ratings**

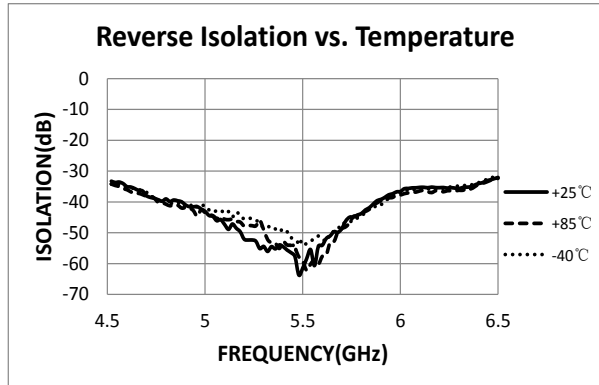
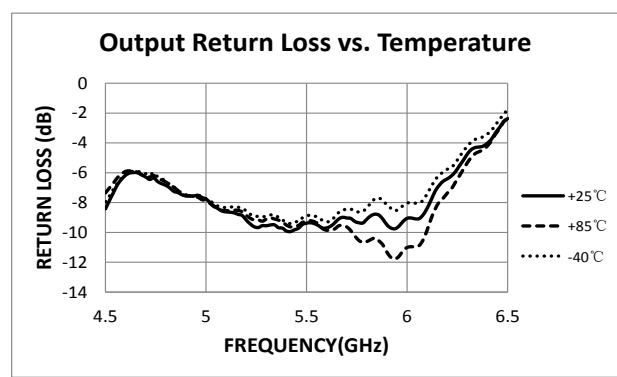
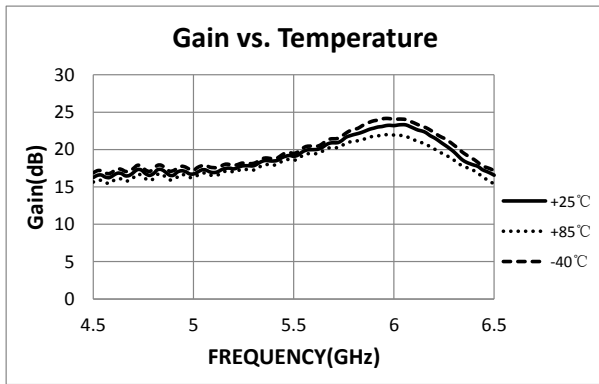
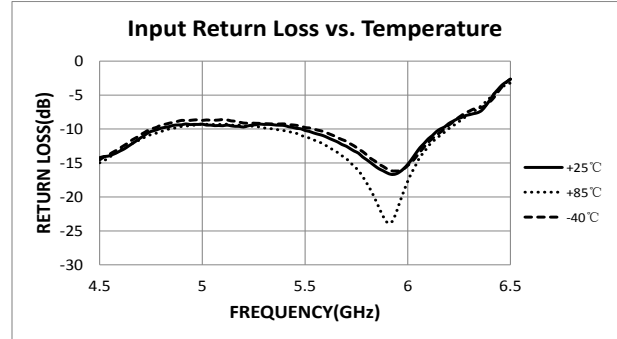
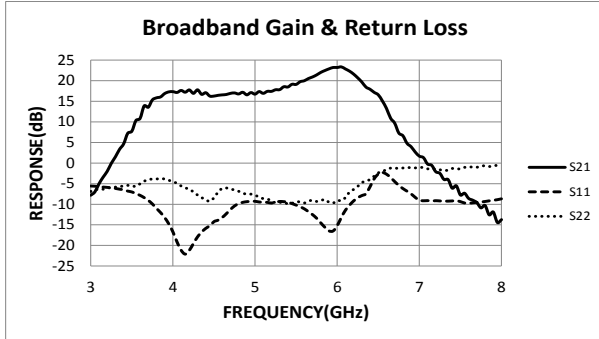
Parameters	Minimum	Maximum	Units
RF input power (CW)		15	dBm
Supply voltage		6	V
Storage temperature	-40	125	°C
Operating temperature	-40	75	°C
Junction temperature		150	°C
ESD (Human Body Model)		1000	V
ESD (Charge Device Model)		1000	V

**Table 3. Electrical Specifications**

(VCC=5.0V, VPD=5.0V, Ta=+25 °C, Zs=50Ω, f=5.8GHz, CW)					
Parameters	Test Condition	Minimum	Typical	Maximum	Units
Frequency		5		6	GHz
Supply voltage		3	5	6	V
P1dB			27.5		dBm
Quiescent current			160		mA
S11			10		dB
S22			9		dB
S21			22		dB
S12			39		dB
PAE	Pout=28dBm		33		%

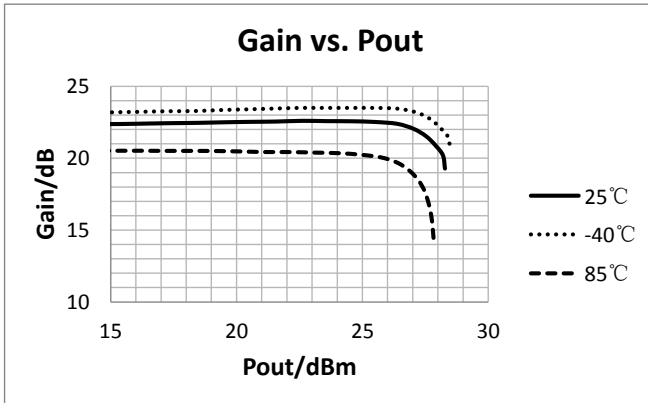
Typical Performance Characteristics

S-parameter (  $V_{CC} = 5.0 V$ ,  $V_{PD} = 5.0 V$ ,  $T_A = 25^\circ C$ , 50 ohm system )

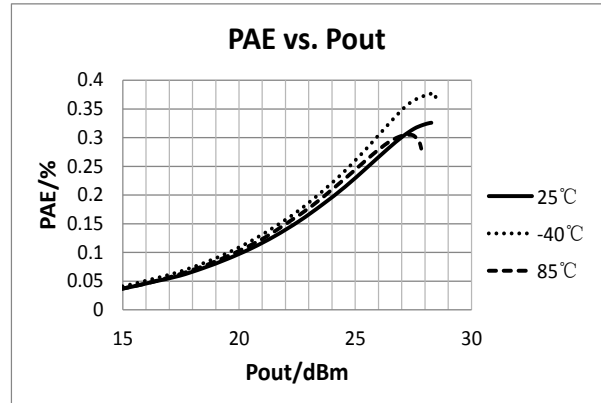


**Typical Performance Characteristics**

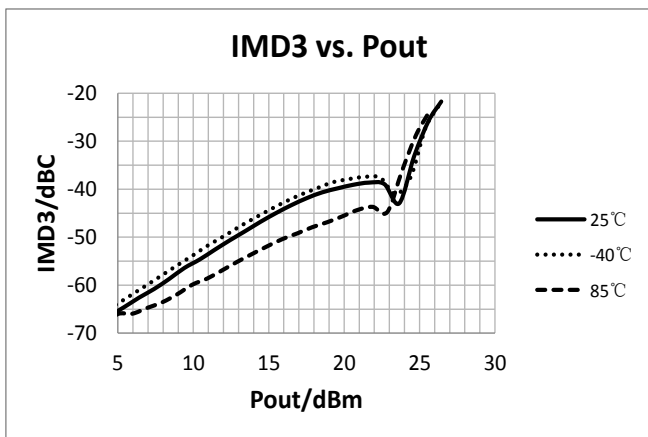
(  $V_{CC} = 5.0\text{ V}$ ,  $V_{PD} = 5.0\text{ V}$ ,  $T_A = 25^\circ\text{C}$ , 50 ohm system )



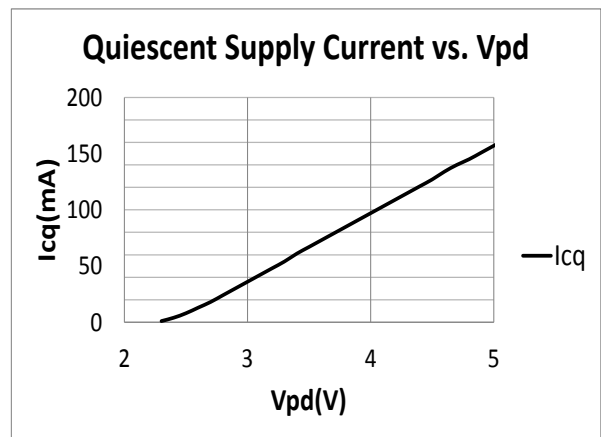
( CW signal )



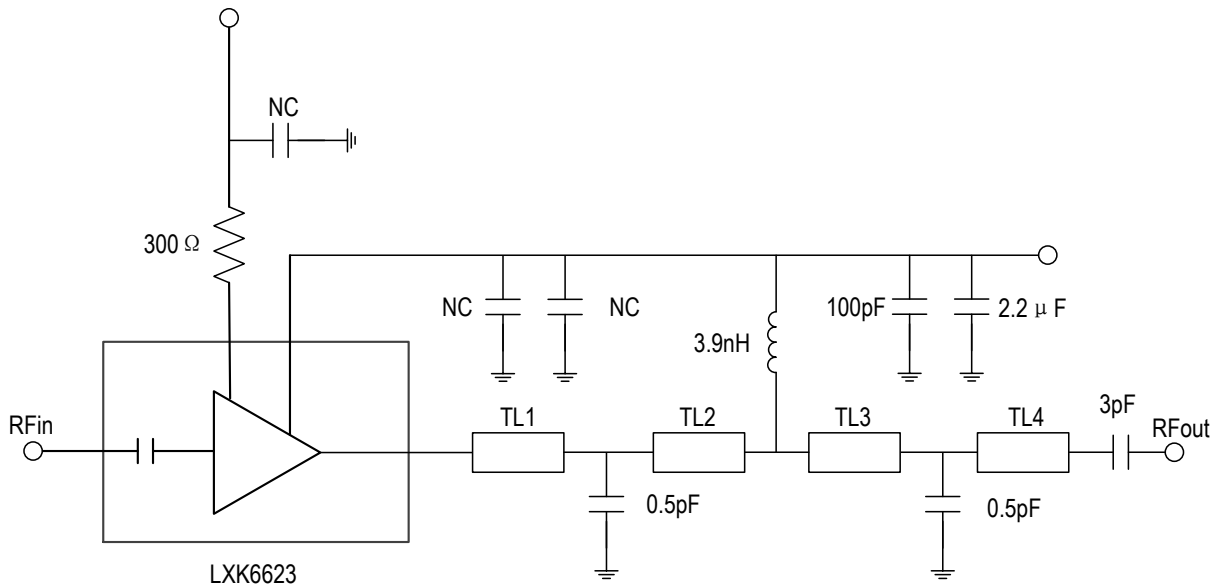
( CW signal )



( Two-tone signal, tone space=1MHz )



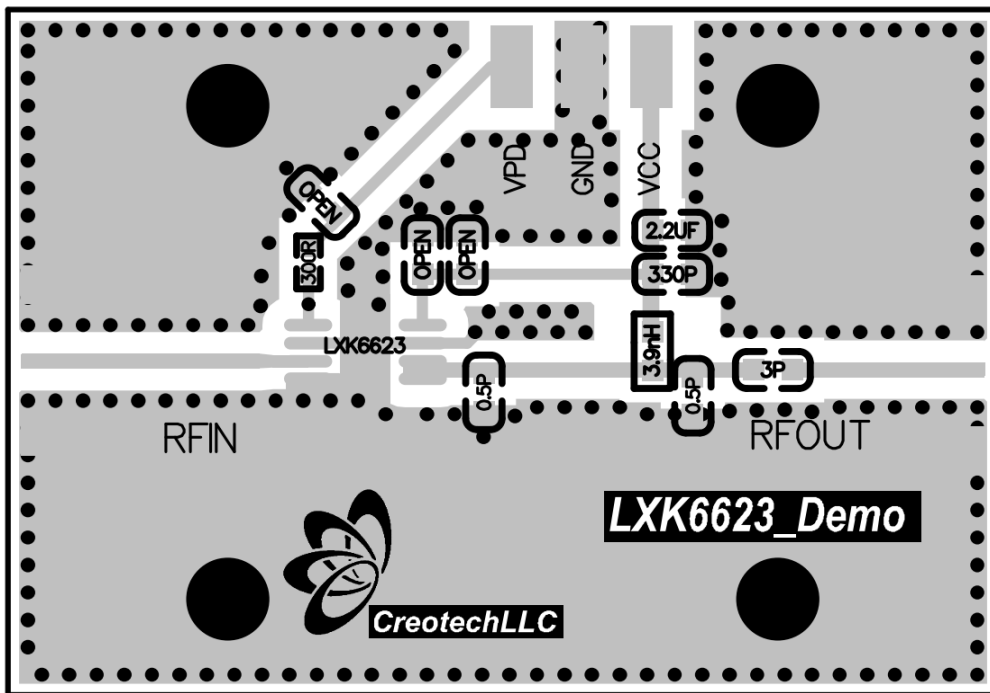
**Application Circuit**



- TL1:Z=50 Ohm, E=15.9 deg, F=5.8GHz
- TL2:Z=50 Ohm, E=70.9 deg, F=5.8GHz
- TL3:Z=50 Ohm, E=17.2 deg, F=5.8GHz
- TL4:Z=50 Ohm, E=25.6 deg, F=5.8GHz

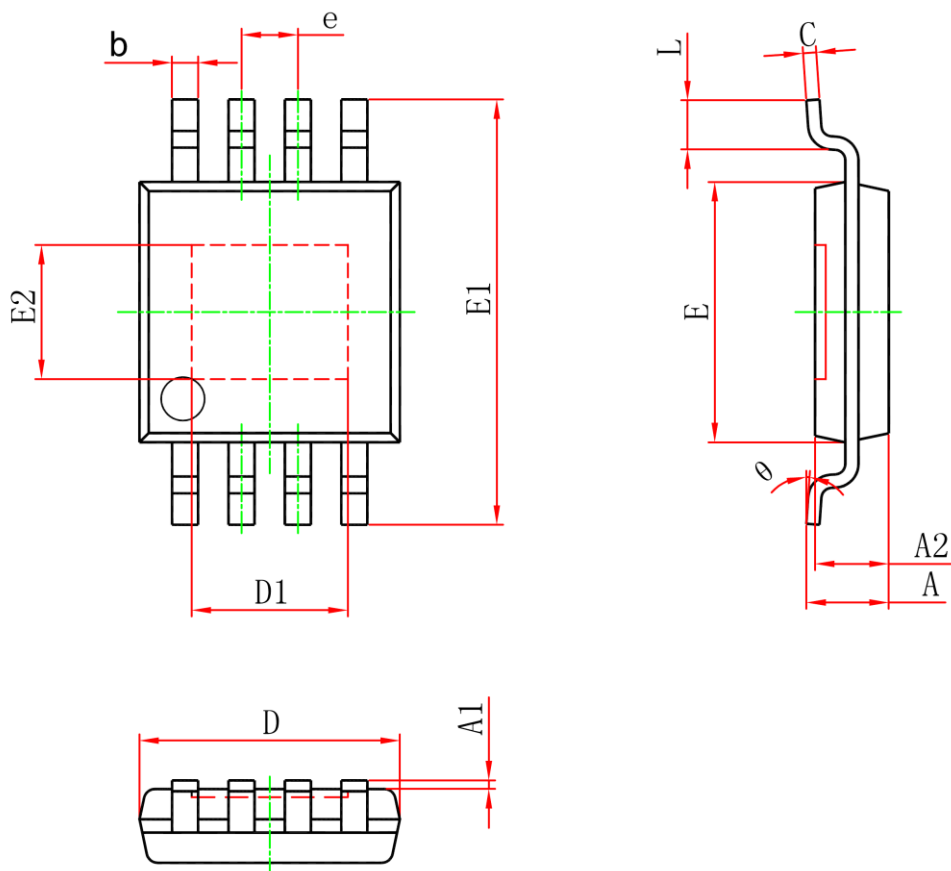
**Application Circuit Schematic**

**Evaluation PCB**



**Application Circuit PCB Layout**

**MSOP8/PP PACKAGE OUTLINE DIMENSIONS**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.820	1.100	0.032	0.043
A1	0.020	0.150	0.001	0.006
A2	0.750	0.950	0.030	0.037
b	0.250	0.380	0.010	0.015
c	0.090	0.230	0.004	0.009
D	2.900	3.100	0.114	0.122
D1	1.700	1.900	0.067	0.075
e	0.65 (BSC)		0.026 (BSC)	
E	2.900	3.100	0.114	0.122
E1	4.750	5.050	0.187	0.199
E2	1.450	1.650	0.057	0.065
L	0.400	0.800	0.016	0.031
$\theta$	0°	6°	0°	6°

## Ordering Information

Part No.	Description
LXK6623	5~6GHz 1W power amplifier
EVB-LXK6623	Evaluation Board

## Document Change History

Revision	Date	Notes
1.0	Mar. 17, 2015	Created

Copyright ©2012-2015 Creotech Company. All Rights Reserved. DS150317.

Information in this document is provided in connection with Creotech products or services. These materials, including the information contained herein, are provided by Creotech as a service to its customers and may be used for information purposes only by the customer. Creotech assumes no responsibility for errors or omissions in these materials or the information contained herein. Creotech may change its documentation, products, services, specifications or product descriptions at any time, without notice. Creotech makes no commitment to update the materials or information and shall have no responsibility whatsoever for conflicts, incompatibilities, or other difficulties arising from any future changes.

The material, products and information are provided 'as is' without warranty of any kind, whether express, implied, statutory, or otherwise, including fitness for a particular purpose or use, merchantability, performance, quality or non-infringement of any intellectual property right. All such warranties are hereby expressly disclaimed. Creotech does not warrant the accuracy or completeness of the information, text, graphics or other items contained within these materials. Creotech should not be liable for any damages, including but not limited to any special, indirect, incidental, statutory, or consequential damages, including without limitation, loss revenues or lost profits that may result from the use of the materials or information, whether or not the recipient of materials has been advised of the possibility of such damage.

Customers are responsible for their products and applications using Creotech products, which may deviate from published specifications as a result of design defects, errors, or operation of products outside of published parameters or design specifications. Customers should include design and operating safeguards to minimize these and other risks. Skyworks assumes no liability for applications assistance, customer product design, or damage to any equipment resulting from the use of Creotech products outside of stated published specifications or parameters.