

DATA SHEET

LXK6703: 5 GHz WLAN Front End Module for 802.11ac

Applications

- n IEEE 802.11a/n/ac wireless LAN system
- n 5GHz ISM Band application
- n WiFi-enabled wireless portable systems

Features

- n Integrated 5GHz PA, LNA with bypass and SPDT
- n Transmit gain: 31 dB
- n Receive gain: 10 dB
- n 50 Ohm input and output impedance
- n Output power: 18dBm@1.8% EVM, 11ac, 256QAM
- n Temperature compensation
- n Small QFN (16-pin, 3mm x 3mm) package

Product Description

The LXK6703 is a highly integrated front end module (FEM) including a 5 GHz Power amplifier, an LNA with bypass and a SPDT Transmit/Receive switch. It is intended for 802.11a/n/ac wireless LAN applications. A digital enable/disable function is included in both PA and LNA which allows power saving during off mode.

The LXK6703 is housed in a miniature 16-pin, 3mm x 3mm QFN package. A package and pin-out view of LXK6703 is shown in Figure 1.

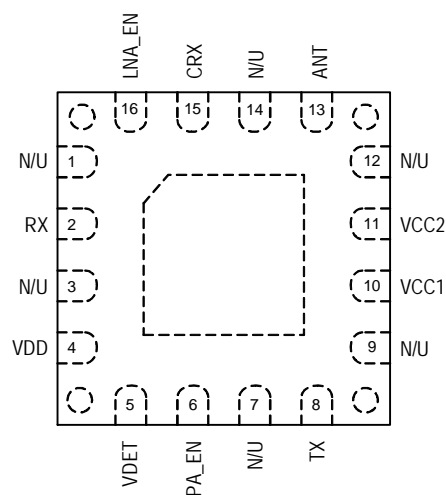


Figure 1. LXK6703 Pinout – 16-Pin QFN

Table 1. LXK6703 Signal Description

Pin#	Name	Description	Pin#	Name	Description
1	N/U	No connection	9	N/U	No connection
2	RX	RF receiver output	10	VCC1	PA Supply voltage 1
3	N/U	No connection	11	VCC2	PA Supply voltage 2
4	VDD	LNA supply voltage	12	N/U	No connection
5	VDET	Power detector output	13	ANT	Antenna port
6	PA_EN	PA enable control	14	N/U	No connection
7	N/U	No connection	15	CRX	Switch control voltage
8	TX	RF transmitter input	16	LNA_EN	LNA enable control

Table 2 Absolute Maximum Rating

Parameter	Symbol	Minimum	Maximum	Units
Supply voltage	VCC1,VCC2	-0.3	+5.5	V
Supply voltage	VDD		+4	V
DC input on control pins (PA_EN, LNA_EN, CRX)	V _{IN}	-0.3	+3.6	V
Input power (50 Ω load)	P _{IN}		+8	dBm
Supply current	I _{CC}		400	mA
Storage temperature	T _{STG}	-40	+150	°C
Operating ambient temperature	T _{OP}	-40	+85	°C

Table 3. Recommended Operating Conditions

Parameter	Symbol	Minimum	Typical	Maximum	Units
PA supply voltage	VCC1,VCC2	4.5	5	5.5	V
LNA supply voltage	VDD		3.3		V
PA supply current	I _{CC}		230		mA
LNA supply current	I _{DD}		12		mA
Control logic:					
High	V _{HI}		3.0		V
Low	V _{LO}	0		0.2	V
PA enable current (PA_EN high)	I _{PA_EN}		5		mA
LNA enable current(LNA_EN high)			2		mA
CRX enable current			10		uA

Table 4. Electrical Specifications (TA=+25 °C)

Parameters	Minimum	Typical	Maximum	Units
Transmit Characteristics (Vcc=+5V, PA_EN=3.0V, LNA_EN=CRX=0V)				
Frequency	5150		5850	MHz
Small signal gain		31		dB
Pout (EVM 1.8%, MCS9, HT40)		18		dBm
Harmonics (2 nd and 3 rd), Pout=18dBm		-28		dBm/MHz
Gain flatness over band		+/- 1.5		dB
1dB Gain Compression Point P1dB		30		dBm
Isolation (Ant port to TX or RX port)		40		dB
Quiescent supply current Icq		230		mA
Operating supply current, Pout=18dBm		280		mA
Input return loss		-10		dB
Transmit Characteristics (Vcc=+3.3V, PA_EN=3.3V, LNA_EN=CRX=0V)				
Frequency	5150		5850	MHz
Small signal gain		33		dB
Pout (EVM 1.8%, MCS9, HT40)		16		dBm
Quiescent supply current Icq		230		mA
Operating supply current, Pout=16dBm		250		mA
Receive Characteristics (VDD=+3.3V, PA_EN=0V, LNA_EN=CRX=3.0V)				
Frequency	5150		5850	MHz
Small signal gain		10		dB
3 rd order Input Intercept Point IIP3		+7		dBm
1dB Input Compression Point IP1dB		+3		dBm
Input return loss		-10		dB
Output return loss		-10		dB
Noise Figure		3.0		dB
Supply current, RX On		12		mA
Enable time		400		ns
Receive Bypass Characteristics				
Insertion loss S21		13		dB

Table 5 Control Logic

Mode	State	CRX	LNA_EN(note1)	PA_EN(note2)
All off (switch in TX mode)	1	0	0	0
WLAN receive	2	1	1	0
WLAN receive bypass	3	1	0	0
WLAN transmit	4	0	0	1

Note 1:LNA is on while LNA_EN is high. LNA is off and in bypass mode when LNA_EN is low.

Note 2:PA_EN controls only PA. It does not control the switch.

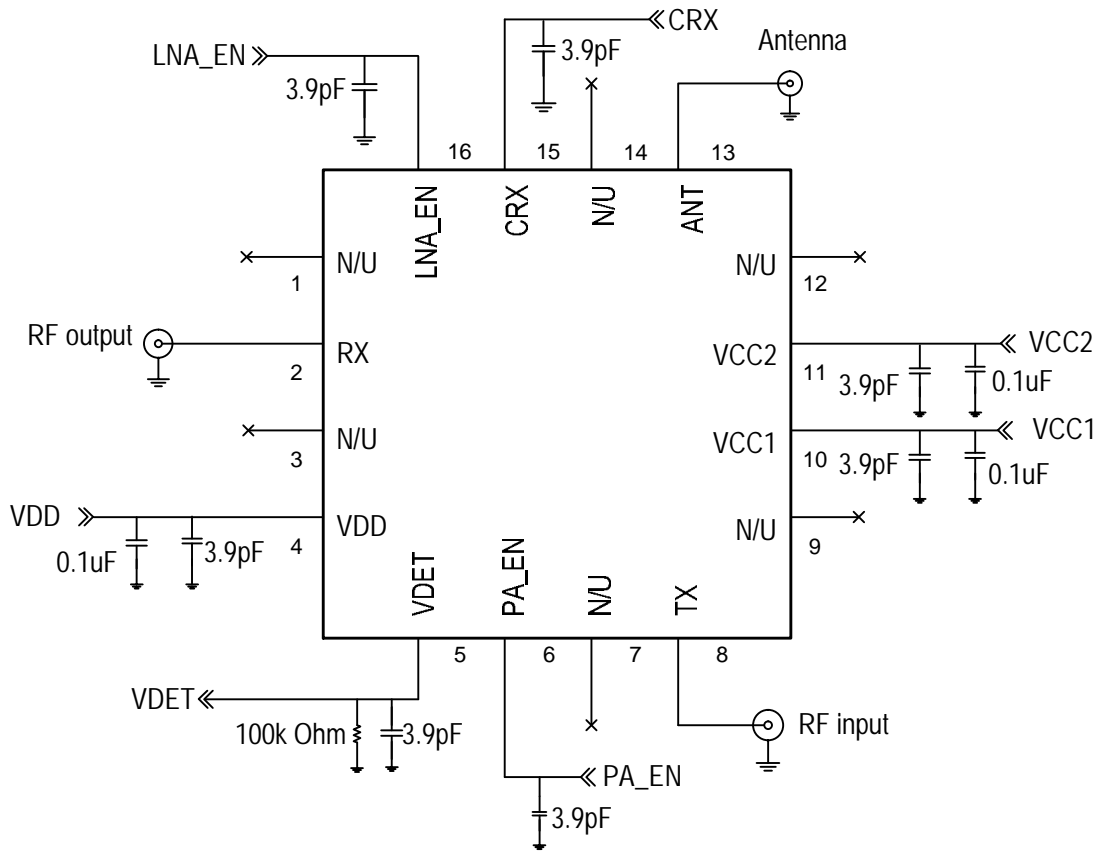
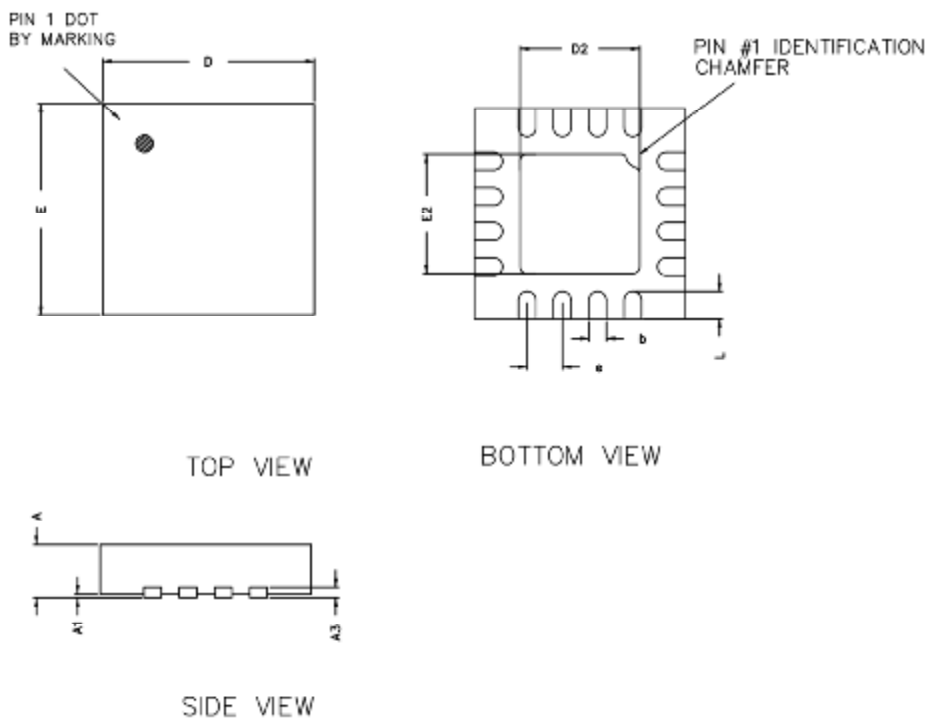
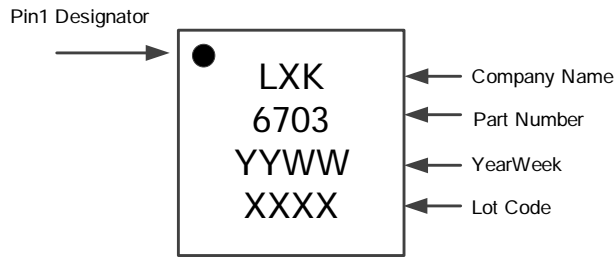


Figure 3.LXK6703 Application Schematic

Package diagram:



COMMON DIMENSIONS(MM)			
REF.	MIN.	NOM.	MAX
A	0.70	0.75	0.80
A1	0.00	-	0.05
A3	0.2 REF		
D	2.95	3.00	3.05
E	2.95	3.00	3.05
b	0.18	0.25	0.30
L	0.30	0.40	0.50
D2	1.55	1.70	1.80
E2	1.55	1.70	1.80
e	0.5 BSC		

Ordering Information

Model Name	Manufacturing Part Number	Evaluation Board Part Number
LXX6703FEM	LXX6703	EVB-LXX6703-01

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