许昌富奥星智能科技有限公司

For Phosense Internal Only

XBR816

Preliminary Datasheet

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REVISION HISTORY

File Name	Revision	Date	Remark
PHO-XBR816-1908A	Rev A	08/2019	First release
PHO-XBR816-1908B	Rev B	08/2019	Update pin 16/17/18 pin name
PHO-XBR816-1909C	Rev C	09/2019	Update pin 11/16/17
PHO-XBR816-1912D	Rev D	12/2019	Update System Diagram

Contents

1 General Description

The XBR816 is highly integrated X band Radar transceiver device in RF CMOS technology. The device is optimized for applications at higher temperatures and it is rated of operating up to 70℃.

2 Key Features

- 1.2V supply voltage
- Typical 50mA current for default mode
- Fully integrated 9.85 GHz CMOS transceiver
- Single-ended transmitter and receiver
- Max 2dBm transmit output power
- < -95dBm receiver sensitivity
- Harmonic rejection: > 30dBc
- Output noise voltage: max 0.5uVrms for low gain and max 45uVrms for high gain
- Operation condition: -40~ 70℃
- QFN 24 pins, 4mm x 4mm package

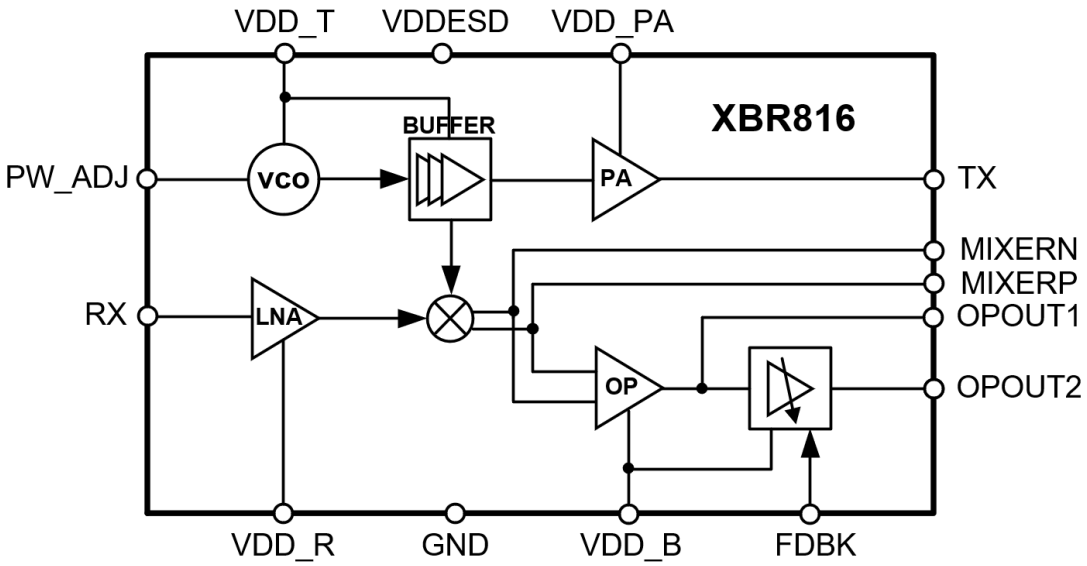
3 Key Benefits

- Low power consumption
- Small system size
- Low system cost

4 Applications

- Smart Radar Sensor
- Lighting Controller
- Security & Surveillance Products
- Automotive
- Industrial Applications
- Consumer Appliances

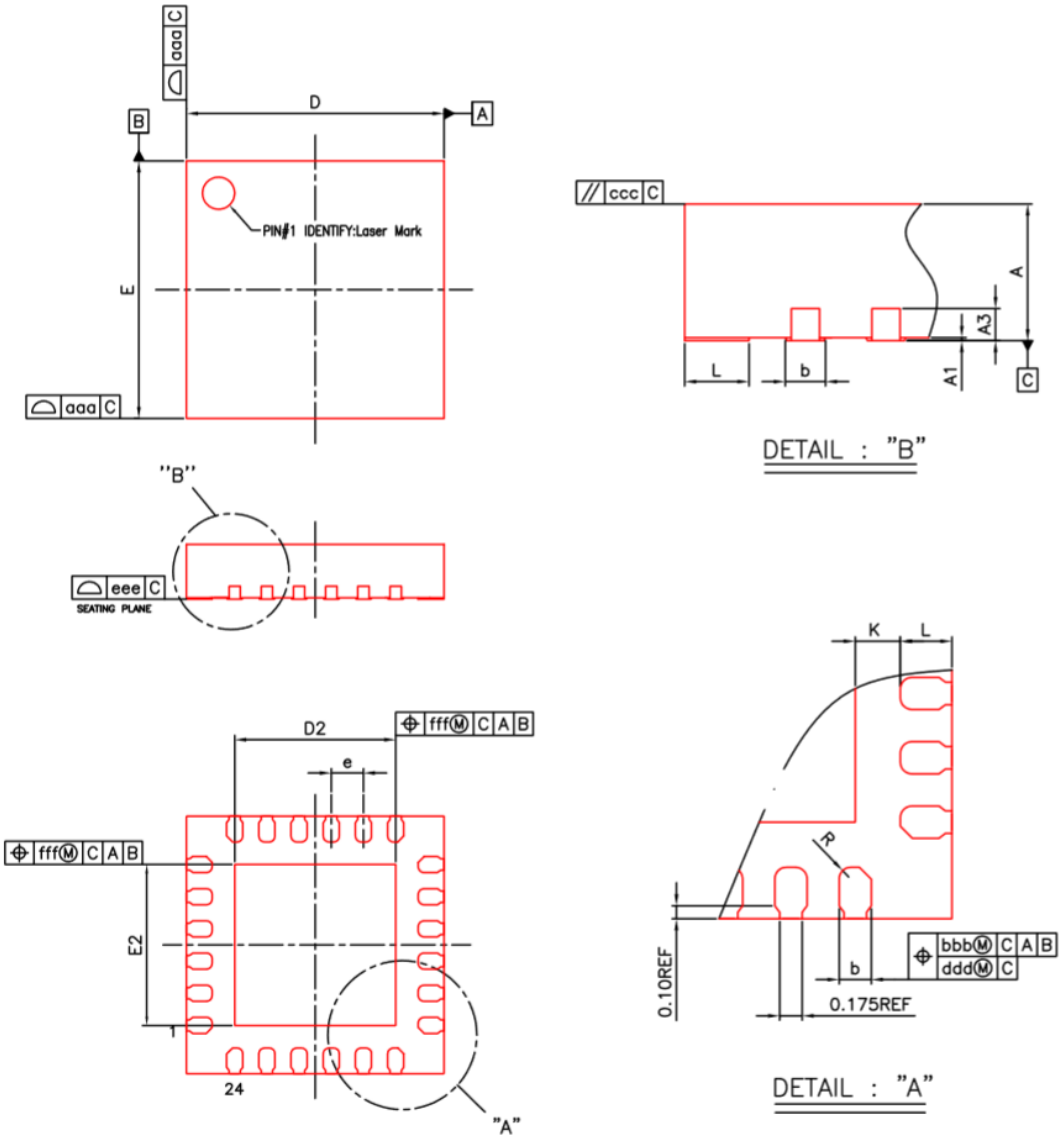
5 System Diagram



6 Pin assignment

PIN Number	PIN Name	Function
1	OPOUT1	First stage OP IF output
2	MIXERN	Raw IF Signal output N
3	MIXERP	Raw IF Signal output P
5	FDBK	OP Feedback Loop
6	OPOUT2	Second stage OP IF output
9	TX	RF Signal OUT
13	VDDESD	1.2V ESD protect voltage
14	VDDPA	1.2V supply for power amplifier
15	VDD_T	1.2V supply for transmitter
16	PW_ADJ	RF power adjustment voltage
17	VDD_R	1.2V supply for receiver
18	VDD_B	1.2V supply for baseband
21	RX	RF Signal IN
4,7,8,10,11,12, 19,20,22,23,24	NC	Not connected
25	VSS	Ground

7 Package information



Symbol	Dimension in mm			Dimension in inch		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.85	0.90	0.031	0.033	0.035
A1	0.00	0.02	0.05	0.000	0.001	0.002
A3		0.20 REF			0.008 REF	
b	0.18	0.25	0.30	0.007	0.010	0.012
D/E		4.00 BSC			0.157 BSC	
D2/E2	2.35	2.50	2.65	0.093	0.098	0.104
e		0.50 BSC			0.020 BSC	
L	0.30	0.40	0.50	0.012	0.016	0.020
K	0.20	---	---	0.008	---	---
R	0.09	---	---	0.004	---	---
aaa	---	---	0.15	---	---	0.006
bbb	---	---	0.10	---	---	0.004
ccc	---	---	0.10	---	---	0.004
ddd	---	---	0.05	---	---	0.002
eee	---	---	0.08	---	---	0.003
fff	---	---	0.10	---	---	0.004

8 Reference Design