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## CYF119B Datasheet

### 200MHz to 450MHz Transmitter

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#### GENERAL DESCRIPTION:

The CYF119B is a high performance ASK/OOK transmitter for the Remote Keyless Entry (RKE) systems. It consists of a power amplifier, phase-locked loop with internal voltage controlled oscillator and low voltage detection circuit.

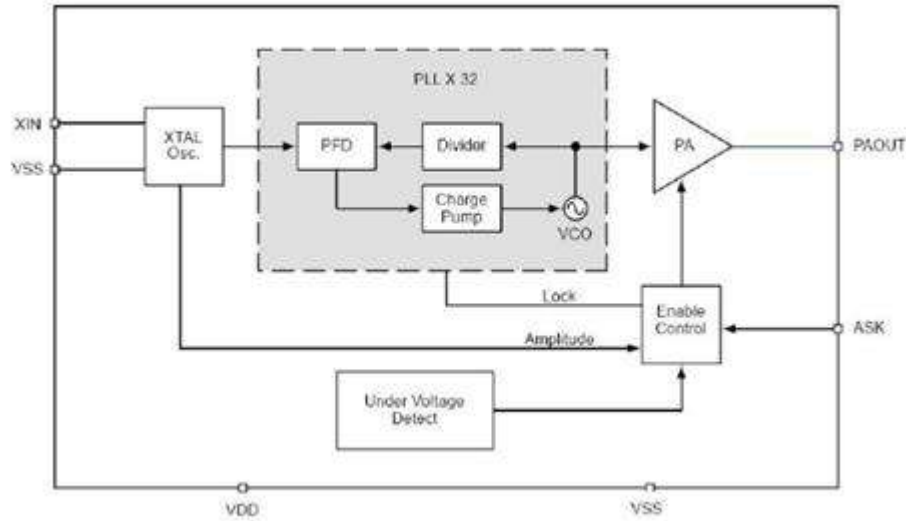
#### FEATURES:

- Highly integrated OOK/ASK transmitter;
- Max. output power: 3V / +13 dBm /12.5mA;
- Automatic standby function, when ASK has no signal input for more than 50ms, the circuit enters an automatic standby state, and the current consumption is less than 1uA;
- Low supply voltage, 2.2V to 3.6V operation range;
- Low external component cost;
- PLL-based transmitter with frequency range from 200MHz to 450MHz;
- On-chip one-shot circuit;
- 60 dB RF on-off ratio for OOK/ASK modulation;
- SOT23-6 package

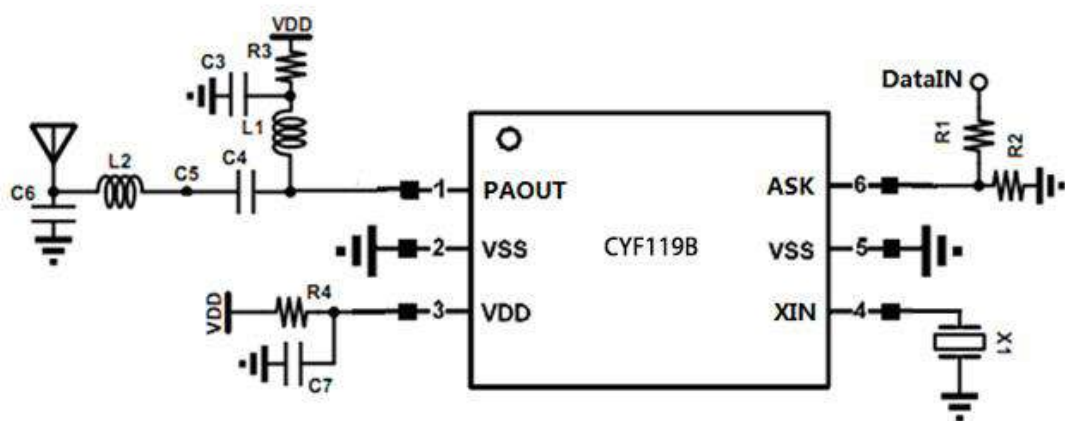
#### APPLICATIONS:

- Keyless entry systems
- Remote control systems
- Garage door openers
- Alarm systems
- Security systems
- Wireless sensors

**BLOCK DIAGRAM:**



**APPLICATION CIRCUIT:**



**BILL OF MATERIALS:**

Components	Value		Unit
	315MHz	433.92MHz	
X1	9.84375M	13.56M	Hz
R1	1K		Ohm
R2	100K		Ohm
*R3	0		Ohm

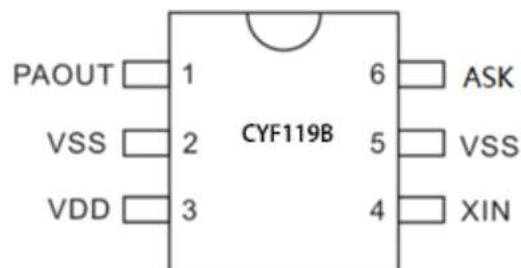
## CYF119B

R4	0		Ohm
C3, C7	100n		F
C4	220p		F
C6	5.6p	1.8p	F
L1	180n	180n	H
L2	56n	18n	H

### Notes:

1. R3 can choose 0~100 ohm resistance to adjust the output power. When R3 chooses 0 ohm resistance, don't use wire or solder to connect directly instead.
2. The value of L2/C4/C6 is affected by PCB layout.

### PIN CONFIGURATION:



### PIN DESCRIPTION:

Pin Name	I/O	Description	Pin NO.
PAOUT	O	Power output	1
VSS	G	Ground	2
VDD	P	Power supply	3
XIN	O	Crystal oscillator output	4
VSS	G	Ground	5
ASK	I	Power input	6

**ABSOLUTE MAX. RATINGS**

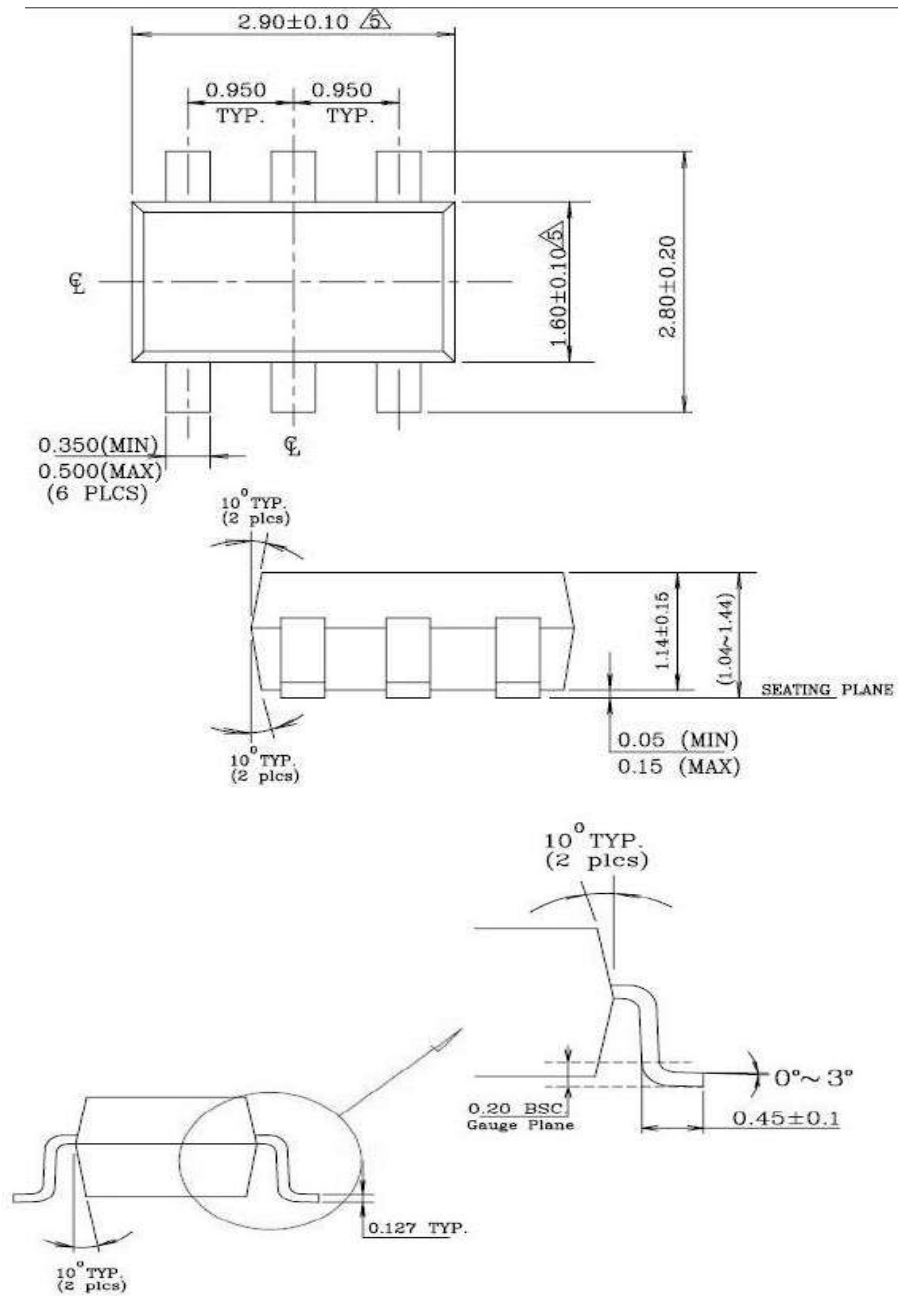
Parameter	Symbol	Min.	Max.	Unit
Voltage supply	V <sub>DD</sub>	-0.3	3.6	V
I/O voltage	-	-0.3	3.6	V
Working temp.	T <sub>A</sub>	-20	+70	°C
Storage temp.	T <sub>STG</sub>	-55	+125	°C

**ELECTRICAL CHARACTERISTICS**Condition: V<sub>DD</sub> = 3.0V, V<sub>SS</sub> = 0V, T<sub>A</sub> = +27°C;

Parameters	Symbol	Condition	Min.	Typ.	Max.	Unit
<b>General Characteristics</b>						
Voltage	V <sub>DD</sub>	-	2.2	3.0	3.6	V
Working Current <sup>(Note)</sup>	I <sub>DD</sub>	P <sub>OUT</sub> = 13dBm, f <sub>RF</sub> = 315MHz		12.5		mA
		P <sub>OUT</sub> = 13dBm, f <sub>RF</sub> = 434MHz		12.5		mA
Standby Current	I <sub>standby</sub>	ASK=Low; T <sub>DELAY</sub> > 50ms			1	uA
<b>RF</b>						
Frequency	f <sub>RF</sub>		200		450	MHz
Amplifier Output Power <sup>(Note)</sup>	P <sub>out</sub>	f <sub>RF</sub> = 315MHz		12	13	dBm
		f <sub>RF</sub> = 434MHz		12	13	dBm
RF Power ON/OFF Ratio	P <sub>EXT</sub>			60		dB
Phase Noise	P <sub>NOISE</sub>	315MHz, 10KHz offset		-85		dBc/Hz
Harmonics <sup>(Note)</sup>	P <sub>HARM</sub>	2x/3x f <sub>RF</sub>		-40		dBc
Crystal Spur	P <sub>SPUR</sub>	f <sub>RF</sub> = 315MHz		-50		dBc
		f <sub>RF</sub> = 434MHz		-50		dBc
<b>Data Input and One-Shot</b>						
Data Rate	D <sub>RATE</sub>	OOK/ASK	0.5	2	50	Kbps
Crystal Start-up Time	T <sub>ON</sub>	Cl not connected		0.5		ms
One-Shot Delay Time	T <sub>DELAY</sub>	f <sub>RF</sub> = 434MHz		50		ms

Note: Affected by amplifier output matching

**PACKAGE INFORMATION:**  
**6 Pins, SOT23-6**



For more information and assistance, please contact us as follows:

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