TX4915 Low Power ASK Transmitter IC

Description

The TX4915 is a low power ASK transmitter IC intended for applications in the North American and European VHF/UHF bands. The integrated voltage-controlled oscillator (VCO), phase/frequency detector, prescaler, and reference oscillator require only the addition of an external crystal to provide a complete phase-locked loop (PLL). In addition to the standard power-down mode, the chip also includes an automatic lock-detect feature that disables the transmitter output when the PLL is out-of-lock.

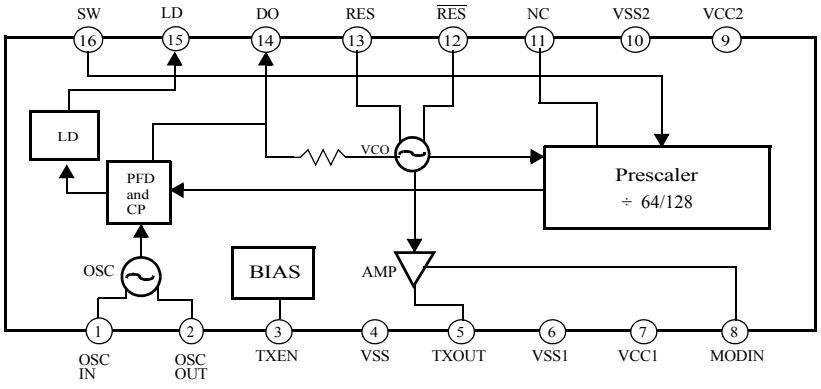
Features

- Output frequency range: 300 – 960 MHz
- Supply voltage range: 2.2 – 3.6 V
- Low current consumption with power down capability
- On-chip VCO with integrated PLL (÷ 64/128) dual modulus prescaler
- Out-of-lock inhibit circuit
- SSOP-16 package (0.64 mm pitch)

Applications

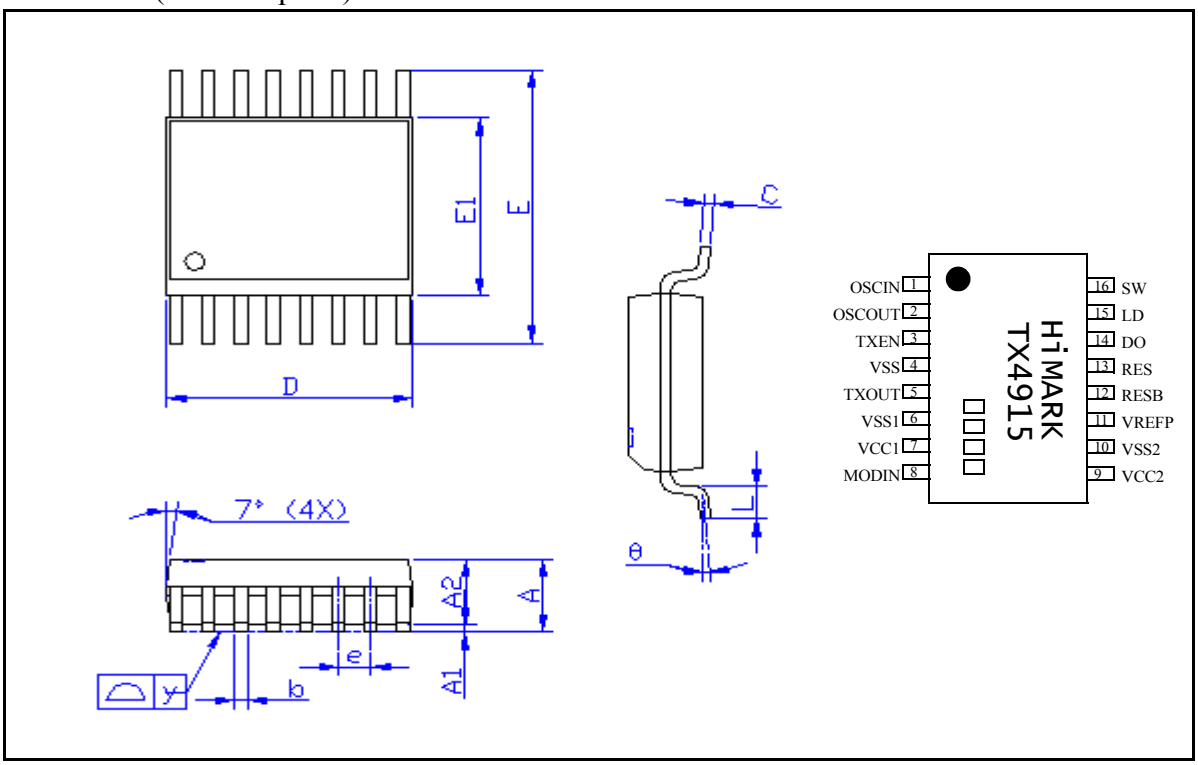
- Wireless mouse
- Car alarm and home security systems
- Remote control systems

Block Diagram



Package and Pin Assignment

SSOP-16 (0.64mm pitch)



Symbol	Dimensions in mm			Dimensions in inches		
	min.	nom.	max.	min.	nom.	max.
A	1.35	1.60	1.75	0.053	0.064	0.069
A1	0.10	—	0.25	0.004	—	0.010
A2	—	1.45	—	—	0.057	—
b	0.20	0.25	0.30	0.008	0.010	0.012
C	0.19	—	0.25	0.007	—	0.010
D	4.80	—	5.00	0.189	—	0.197
E	5.80	—	6.20	0.228	—	0.244
E1	3.80	—	4.00	0.150	—	0.157
e	—	0.64	—	—	0.025	—
L	0.40	—	1.27	0.016	—	0.050
y	—	—	0.10	—	—	0.004
θ	0°	—	8°	0°	—	8°

Pin Descriptions

Number	Name	Description
1	OSCIN	This pin is connected directly to the base of the reference oscillator transistor. The reference oscillator uses a modified Colpitts configuration.
2	OSCOUT	This pin is connected directly to the emitter of the reference oscillator transistor.
3	TXEN	Transmitter enable control (TXEN = low = power down mode; TXEN = high = normal operation mode).
4	VSS	Ground connection for the transmit output amplifier.
5	TXOUT	Transmitter output. This pin is an open collector output and requires a pull-up inductor for bias/matching and a tapped capacitor network for matching.
6	VSS1	Ground connection for the transmit driver amplifier.
7	VCC1	Nominal supply voltage for the transmit driver amplifier.
8	MODIN	ASK modulation input. An external resistor, R_{MODIN}, connected from the MODIN pin to supply voltage is used to bias the transmit amplifier chain.
9	VCC2	Nominal supply voltage for the VCO and PLL circuitry.
10	VSS2	Ground connection for the PLL circuitry.
11	NC	No connection.
12	$\overline{\text{RES}}$	Differential open collector VCO outputs.
13	RES	
14	DO	Output of the charge pump. An R-C network from this pin to ground is used to establish the PLL bandwidth. The DO pin is internally connected to the tuning voltage input of the VCO thru a 4 KΩ series resistor.
15	LD	Lock detector output. This pin is used to set the threshold of the lock detect circuitry which enables or disables the transmit amplifier. A shunt capacitor should be used to set an R-C time constant with the on-chip series 1 KΩ resistor. The time constant should be set to approximately 15 times the reference period.
16	SW	Prescaler modulus control input (SW = high = ÷ 64; SW = low = ÷ 128).