

Product Features

- 3.3v/5.0v operating voltage
- Uses an inexpensive external crystal
- On-chip VCXO with pull range of 240ppm
- VCXO tuning voltage from 0 to 3.3V
- 10mA output driver at CMOS levels
- Available in SOIC package

General Description

The PT7V2727/3727 are low-cost, high-performance 3.3V/5.0v VCXO, designed to replace expensive VCXO modules. The on-chip voltage causes clocks to vary by ± 120 ppm. They use an inexpensive external pullable crystal at 27MHz to produce the same output frequency.

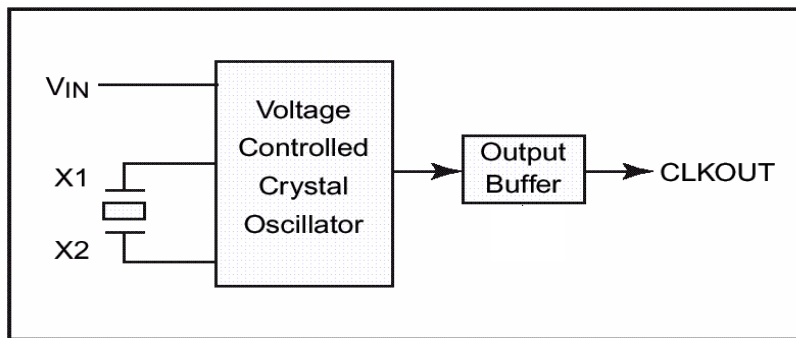
Applications

- Set-Top Box
- xDSL

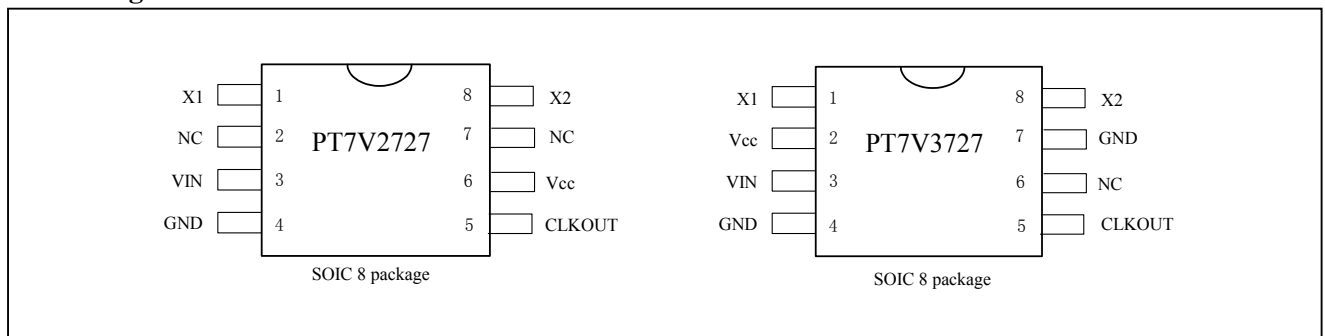
Ordering Information

Ordering code	Package type	Operating Range
PT7V2727W	8-Pin SOIC	Industrial
PT7V3727W	8-Pin SOIC	Industrial

Logic Block Diagram



Pin Configuration



Pin Description

Pin Number		Pin Name	Type	Description
2727	3727			
1, 8	1, 8	X1, X2	I	Crystal Connection, Connect to a pullable 27MHz crystal
2, 7	6	NC		No Connect, Can be float or connected to V _{CC} or GND
3	3	V _{IN}	I	Voltage Input to VCXO
4	4, 7	GND	PWR	Ground
5	5	CLKOUT	O	Clock Output
6	2	V _{CC}	PWR	Power Supply +3.3v/5.0v

Maximum Ratings

(Above which the useful life may be impaired. For user guidelines, not tested.)

Storage Temperature.....	-55°C to 125°C
Ambient Temperature.....	-40°C to 85°C
Supply Voltage V_{CC}	-0.5V to 7V
Input Voltage.....	-0.5V to $V_{CC}+0.5V$
Output Current	10mA
Soldering Lead Temperature(10s).....	260°C

Note:

Stresses greater than those listed under MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

DC Electrical Characteristics

(Unless otherwise specified, $V_{CC} = 3.3V$, $f_0 = 27MHz$, $V_{IN} = 1.65V$, Load = 15pF, $T_A = 25^\circ C$)

Sym.	Parameter	Test Condition	Pin	Min.	Typ.	Max.	Unit
V_{CC}	Supply Voltage		V_{CC}	3.153	3.3	3.465	V
I_{CC}	Supply Current	OE = 3.3V, $C_L = 15pF$	V_{CC}		5		mA
I_{OH}	High-level output voltage	$V_{OH} = V_{CC}-0.5V$	CLKOUT		-11	-4	mA
I_{OL}	Low-level output voltage	$V_{OL} = 0.5V$	CLKOUT	4	12		
R_S^*	Negative Resistance	$V_{IN} = 0V$	X1, X2		-150		Ω
f	Input Frequency		X1, X2	20	27	30	MHz
C_L	Output Capacitance		CLKOUT		15	30	pF

* Note: only reference for design.

AC Electrical Characteristics

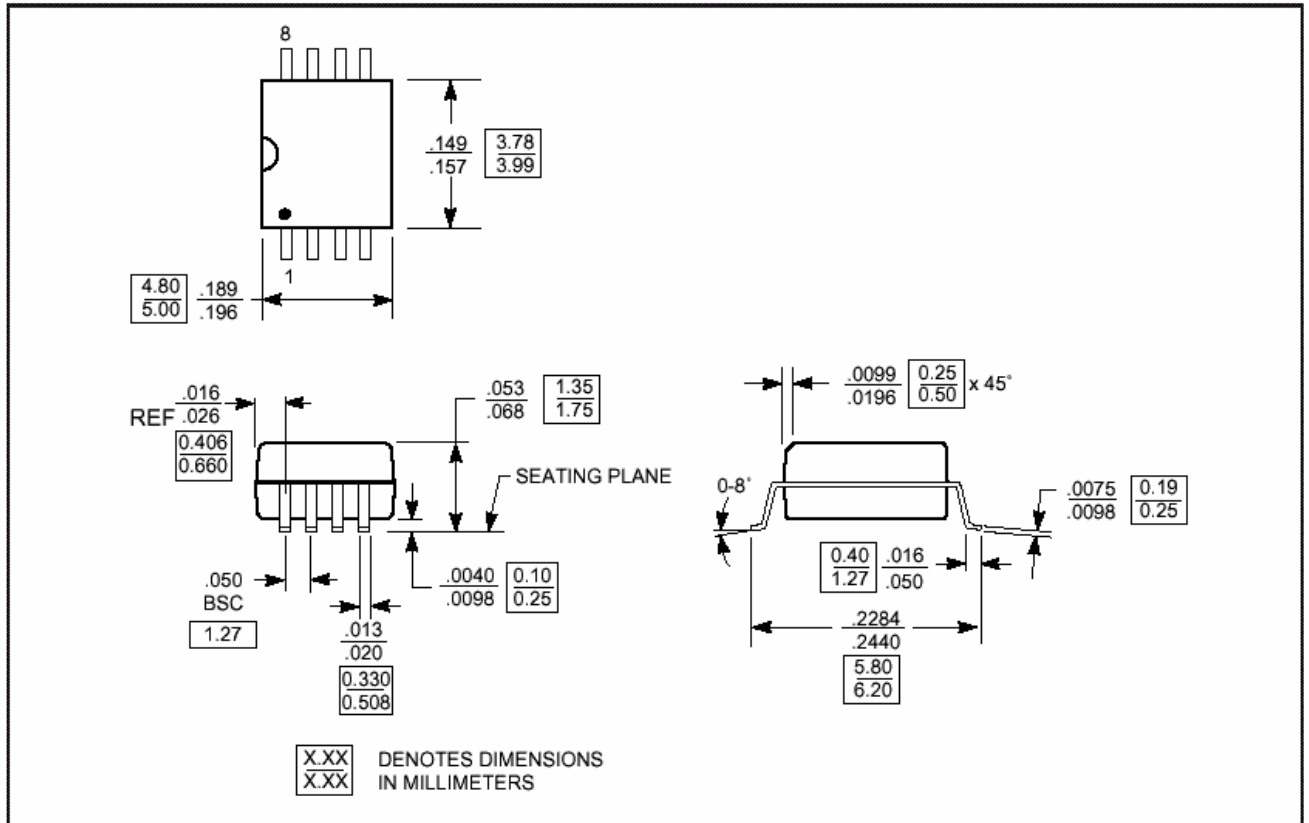
(Unless otherwise specified, $f_0 = 27MHz$, Load = 15pF, $T_A = 25^\circ C$)

Sym.	Parameter	Test Condition	Pin	Min.	Typ.	Max.	Unit
t_r / t_f	Rise / Fall time	$0.1V_{CC}$ to $0.9V_{CC}$	CLKOUT		1.5	6	ns
Duty	Output clock duty cycle	At $V_{CC}/2$	CLKOUT	45	50	55	%
Δf	Output frequency pull range	V_{IN} from 0V to V_{CC}			± 120		ppm
t_j	Cycle to cycle jitter				50		ps
	Linearity	V_{IN} from 0.1 to $0.9V_{CC}$			± 10		%
	Oscillator start time	Trigger at $0.9V_{CC}$			1.5	10	ms

Recommended Crystal Specifications

Description	Crystal
Mode of Oscillation	Fundamental
Frequency Range	27.000MHz
Frequency Tolerance	±30ppm
Temperature plus Aging Stability	±50ppm
Operating Temperature	-20°C to + 70°C
C0/C1	240(max.)
Load Capacitance(C _L)	18pF
Equivalent Series Resistance(ESR)	35ohms(max.)

Plastic 8-pin SOIC (W) Package



Notes

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