

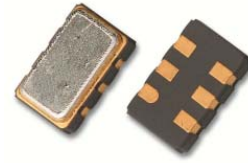
TP7 Series

7.0*5.0mm SMD PECL/LVDS Crystal Oscillator



FEATURE

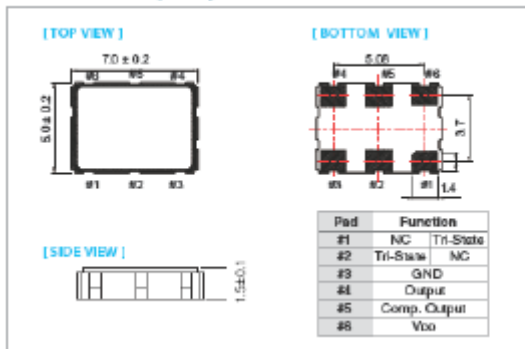
- Typical 7.0*5.0*1.5mm hermetically sealed ceramic package.
- Very low jitter performance: typical 0.3Ps RMS from 12k-20MHz.
- Fundamental/3rd overtone crystal design.
- Output frequency up to 320MHz
- Tri-state enable/disable



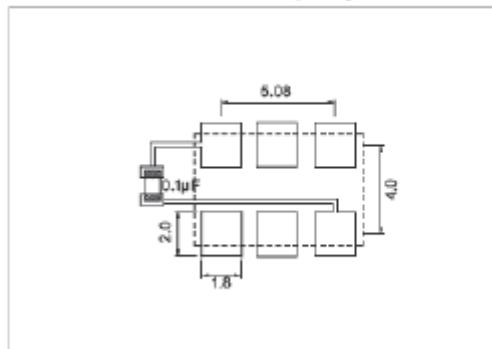
TYPICAL APPLICATION

- 10G-BIT, Ethernet, Fiber Channel, Storage Area Network, SONET
- Enterprise Servers, Reference clocks for ADC and DAC
- Telecom

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



ELECTRICAL SPECIFICATION

Parameter		PECL				LVDS				Unit
		3.3V		2.5V		3.3V		2.5V		
Parameter		Min	Max	Min.	Max.	Min.	Max.	Min.	Max.	
Supply Voltage Variation (VDD) 5%		3.135	3.465	2.375	2.625	3.135	3.465	2.375	2.625	V
Frequency Range		19.44	320	19.44	320	19.44	320	19.44	320	MHz
Standard Frequency		77.76, 106.25, 125, 155.52, 156.25, 187.5, 212.5, 312.5								
Supply Current	80 MHz \leq F ₀ < 160 MHz	-	75	-	75	-	50	-	50	mA
	160 MHz \leq F ₀ < 250 MHz	-	100	-	100	-	50	-	50	
	250 MHz \leq F ₀ \leq 320 MHz	-	100	-	100	-	65	-	65	
Output Level (Logic "1") Output High (Logic "0") Output Low	Output High	2.275	-	1.475	-	-	1.6	-	1.6	V
	Output Low	-	1.68	-	1.095	0.9	-	0.9	-	
Transition Time: Rise/Fall Time+			1.0	-	1.0	-	1.0		1.0	nSec
Start Time		-	3	-	3	-	3		3	mSec
Tri-State (Input to Pin 2 or Pin 1)										
Enable (High voltage or floating)		0.7V _{DD}	-	0.7V _{DD}	-	0.7V _{DD}	-	0.7V _{DD}	-	V

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Disable(Low voltage or GND)	-	0.3 Vdc	-	0.3 Vdc	-	0.3 Vdc	-	0.3 Vdc	
RMS Phase Jitter (Integrated 12KHz~20MHz)									
F0<80MHz	-	1.4	-	1.4	-	1.4	-	1.4	
80MHz ≤ F0 < 125MHz	-	0.9	-	0.9	-	0.9	-	0.9	pSec
125MHz ≤ F0 < 150MHz	-	0.7	-	0.7	-	0.7	-	0.7	
150MHz ≤ F0 < 200MHz	-	0.5	-	0.5	-	0.5	-	0.5	
200MHz ≤ F0	-	0.3	-	0.3	-	0.3	-	0.3	
Phase Noise									
100 Hz	-	-70	-	-70	-	-70	-	-70	dBc/Hz
1 KHz	-	-100	-	-100	-	-100	-	-100	
10 KHz	-	-125	-	-125	-	-125	-	-125	
Aging(@25°C 1st year)	-	±3	-	±3	-	±3	-	±3	ppm
Storage Temp.Range	-55	125	-55	125	-55	125	-55	125	°C

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.

+ Transition times are measured between 20% and 80% of VDD.

Packing: Tape & Reel, 1000/3000pcs per Reel.

FREQ. STABILITY vs. TEMP. RANGE

Temp. (°C)	ppm	±25	±50
-10 ~ +60		△	○
-20 ~ +70		△	○
-40 ~ +85		×	○

* ○: Available △: Conditional X: Not available

* Inclusive of calibration @ 25 °C, operating temperature range, input voltage variation, load variation, aging (1st year), shock, and vibration