

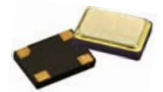
9xxLP Series

Clock Oscillator, HCMOS Output, Ultra Low Phase Jitter and Phase noise



Package Size vs ACT Series	
2.5 x 2.0 x 0.9 mm	925LP series
3.2 x 2.5 x 1.0 mm	932LP series
5.0 x 3.2 x 1.2 mm	950LP series
7.0 x 5.0 x 1.4 mm	970LP series

- REACH and RoHS compliant
- Typical ultra low phase jitter 48 fsec vs standard clock oscillator phase jitter 159 fsec
- Applications: High end audio devices, Networking



Parameters	Specification		Remarks
Frequency Range	F _{nom}	20.0MHz ~ 50.0MHz	
Supply Voltage	V _{cc}	Table 1	
Frequency Stability	F _{stb}	±25.0ppm, ±50.0ppm, ±100.0ppm	
Operating Temperature Range (°C)	T _{opr}	-10°C ~ +70°C, -20°C ~ +70°C, -40°C ~ +85°C	
Storage Temperature (°C)	T _{stg}	-55°C ~ +150°C	
Supply Voltage vs Frequency Sensitivity		±1.0ppm max	
Output waveform		HCMOS	
Output Load		15pF	
Current Consumption		Table 1	
Current with Output Disable		Table 1	
Output Voltage High	V _{oh}	Table 1	
Output Voltage Low	V _{ol}	Table 1	
Rise Time/Fall Time	T _r ,T _f	Table 1	Measured between 10% to 90% of waveform
Duty Cycle		45%/55%, 40%/60%	
Start-up Time	T _{str}	0.8m sec typ. ; 5.0m sec max	
Aging	F _{age}	±3.0 ppm per year (max)	
Moisture Sensitive Level	MSL	1	
ESD Sensitive Device		Yes	
Tristate Function (pad 1)		>70% of V _{cc} to pad 1: enable oscillator output	
		<30% of V _{cc} to pad 1: Disable oscillator output (high impedance)	
		No connection to Pad 1 : enable oscillator output	
RMS Phase Jitter		48 fsec typical; 300 fsec max	

Table 1			
Supply Voltage	1.8V ± 5%	2.5V ± 10%	3.3V ± 10%
Current Consumption	3.0mA typ. ; 5.0mA max	5.0mA typ. ; 7.0mA max	7.0mA typ. ; 10.0mA max
Current With Output Disable	3.0µA typ. ; 25.0µA max	5.0µA typ. ; 30.0µA max	9.0µA typ. ; 35.0µA max
Output Logic High '1'	1.62V min	2.25V min	2.97V min
Output Logic Low '0'	0.18V max	0.25V max	0.33V max
Rise time (Tr), Fall time (Tf) (Measured between 10% to 90% of V _{cc})	5.0ns typ. ; 10.0ns max	2.0ns typ. ; 5.0ns max	1.5ns typ. ; 5.0ns max

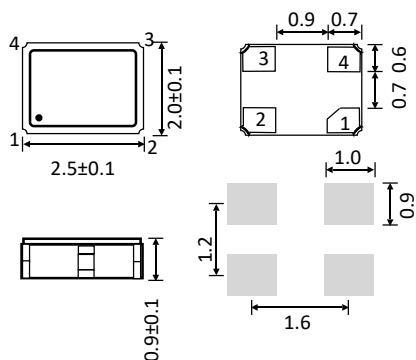
Table 2 [Phase Noise, dBc/Hz typical]							
SSB Phase Noise	10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	5 MHz
[25MHz, 3.3V]	-68	-102	-139	-157	-170	-166	-168
[49.152MHz, 3.3V]	-91	-126	-141	-153	-166	-171	-172

9xxLP Series

Clock Oscillator, HCMOS Output, Ultra Low Phase Jitter and Phase noise

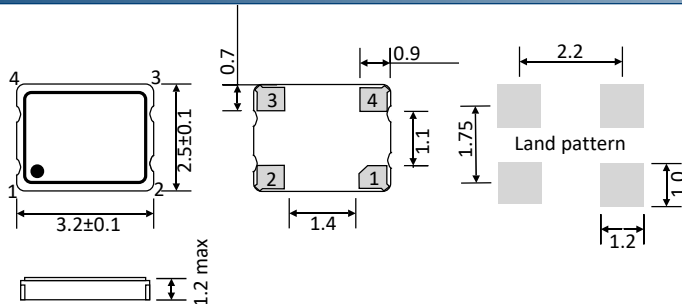


925LP series - Dimensions(Unit:mm)



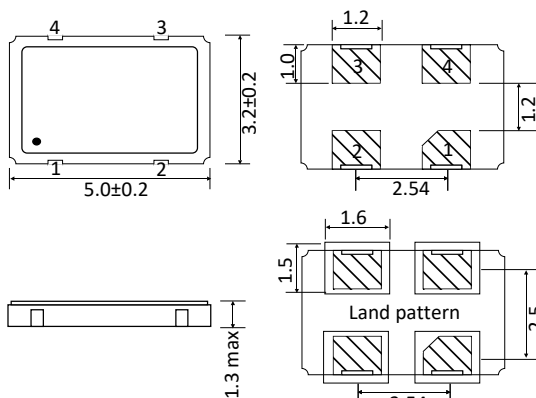
- Pad 1 : Tri-state
- Pad 2 : Ground
- Pad 3 : Output
- Pad 4 : Supply voltage

932LP series - Dimensions(Unit:mm)



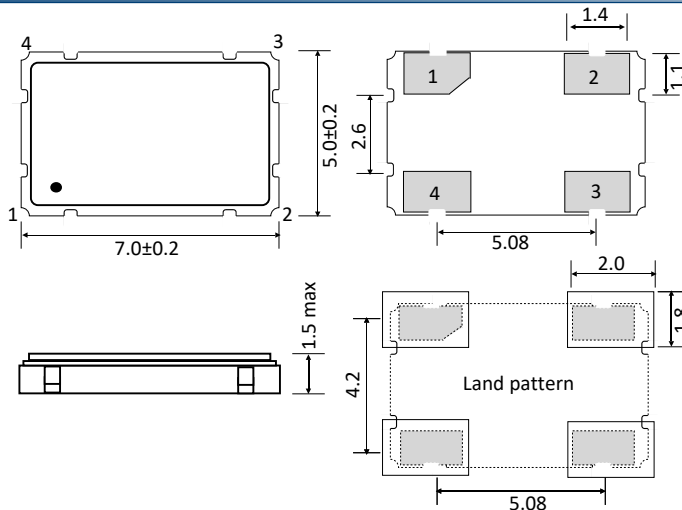
- Pad 1 : Tri-state
- Pad 2 : Ground
- Pad 3 : Output
- Pad 4 : Supply voltage

950LP series - Dimensions(Unit:mm)



- Pad 1 : Tri-state
- Pad 2 : Ground
- Pad 3 : Output
- Pad 4 : Supply voltage

970LP series - Dimensions(Unit:mm)



- Pad 1 : Tri-state
- Pad 2 : Ground
- Pad 3 : Output
- Pad 4 : Supply voltage

9xxLP Series

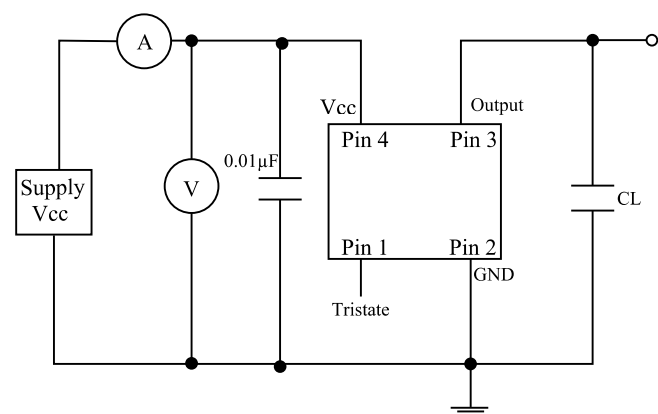
Clock Oscillator, HCMOS Output, Ultra Low Phase Jitter and Phase noise



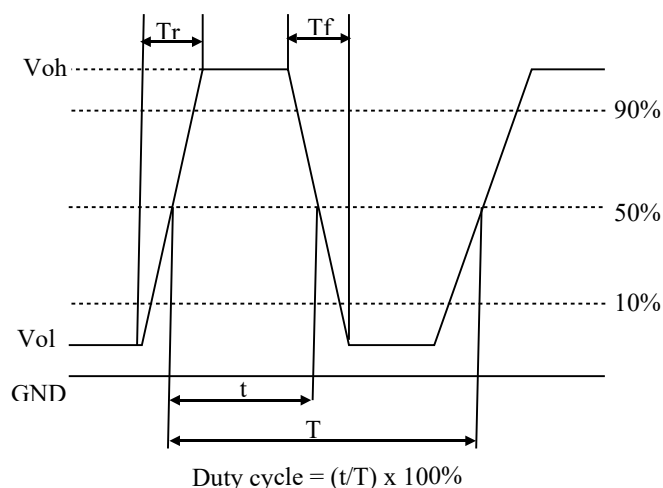
Part number generation									
925LP	2600	B	B	I	S	E	P	L	-PF
ACT series Code	Frequency (MHz)	Frequency stability (\pm ppm)	Supply voltage (V)	Operating temp. range ($^{\circ}$ C)	Duty Cycle (%/%)	Output wave	Tristate	Tape & Reel	RoHS Code
925LP 932LP 950LP 970LP	< 100MHz First 4 digit of frequency > 100MHz First 5 digit of frequency Ex. 26.00MHz = 2600 8.00MHz = 0800 14.7456MHz = 1474	25 = C 50 = B 100 = A	1.8 = D 2.5 = C 3.3 = B	-10 ~ +70 = C -20 ~ +70 = B -40 ~ +85 = I	40/60 = S 45/55 = H	HCMOS 15pF = E	Tristate = P No Tristate = N	Loose = L 1000 = C 3000 = D	-PF

Note: It is important to suffix the above part number with full frequency required to give a completed part number as illustrated below.
Full Example part number : **925LP2600BBISEPL-PF [26MHz]**, **925LP1474BBISEPL-PF [14.7456MHz]**

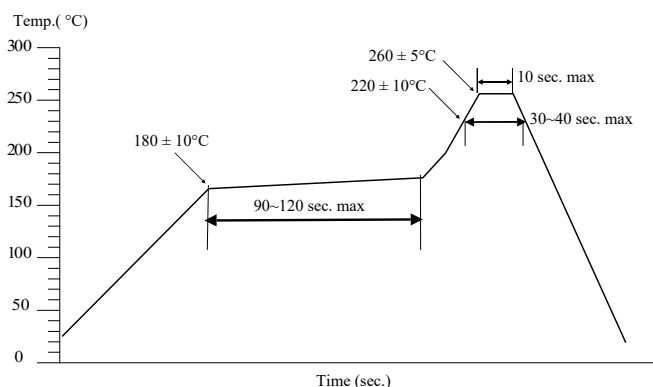
Test circuit



Waveform



Solder reflow profile



Drawing control: (Internal use only)
Commodity code: 854370 90 45
Issue number : N1
Date : 01/05/2021
Internal reference : M6