

# SP2LV LVDS SURFACE MOUNT VOLTAGE CONTROLLED CRYSTAL CLOCK OSCILLATOR

## FEATURES

- SMD package with metal lid
- Reduced jitter design without PLL and multiplier circuit
- Superior Phase Noise
- Wide pulling range available
- Applications: SONET, xDSL, SDH, Set-top box, ...

14.3 x 8.7 x 5.5 mm



Item	Specification		
Frequency Range	0.75 MHz ~ 800 MHz		
Standard Frequencies	76.8 - 77.760 - 81.920 - 100 - 122.880 - 125 - 150 - 155.520 - 156.250 MHz 184.320 - 245.760 - 250 - 300 - 311.040 - 312.50 - 320 - 340 - 400 - 491.520 - 622.080 MHz		
Output Logic	LVDS		
Overall Frequency Stability *	± 20 ppm ~ ± 100 ppm (see options)		
Operating Temperature Range	0 ~ +70 °C commercial application (see options) -40 ~ +85 °C industrial application (see options)		
Supply Voltage Vdd	+3.3 V ±5%		
Control Voltage Range	0.0 V to 3.3 V		
Supply Current Idd	70 mA max. ~ 90 mA max.		
Output Voltage HIGH VOH	1.43 V typ. ; 1.6 V max		
Output Voltage LOW VOL	1.1 V typ. ; 0.9 V min.		
Output Load	50 ohm from each output		
Symmetry	45 / 55 %		
Rise Time / Fall Time Fr / Ff	0.3 ns typ. ; 1.0 ns max.		
Tri-state Function	<b>E1 - E2</b> (See options)	pin #1 or pin #2 = high or open pin #1 or pin #2 = low	pin #4 - pin#5 ==> oscillation pin #4 - pin#5 ==> high impedance
	<b>E3 - E4</b> (See options)	pin #1 or pin #2 = low or open pin #1 or pin #2 = high	pin #4 - pin#5 ==> oscillation pin #4 - pin#5 ==> high impedance
Start-up Time	3 ms typ. ; 10 ms max.		
Integrated Phase Jitter (12 kHz to 20 MHz band)	1 ps max.		
Phase Noise (typical)	<b>Offset</b>	<b>Frequency 122.880 MHz</b>	<b>Frequency 622.080 MHz</b>
	10 Hz	-73 dBc / Hz	-64 dBc / Hz
	100 Hz	-100 dBc / Hz	-100 dBc / Hz
	1 kHz	-125 dBc / Hz	-132 dBc / Hz
	10kHz	-145 dBc / Hz	-138 dBc / Hz
	100 kHz	-150 dBc / Hz	-140 dBc / Hz
Frequency Pulling Range	±50 ppm min. ; ±100 ppm min. ; ±150 ppm min. ; ±200 ppm min. (See options)		
Linearity	6% typical ; 10% max.		
Slope Polarity	Positive (Increasing control voltage always increases output frequency)		
Modulation Bandwidth	10 kHz min. (-3 dB)		
Input Impedance	1 MΩ min.		
Packing Unit	800pcs / reel		
Soldering Condition	260 °C , 10 sec x2 max		
	<b>Customer specifications on request</b>		

(\*) Includes initial tolerance @+25 °C, stability over operating temperature, stability vs. load change, stability vs. supply change and one year aging

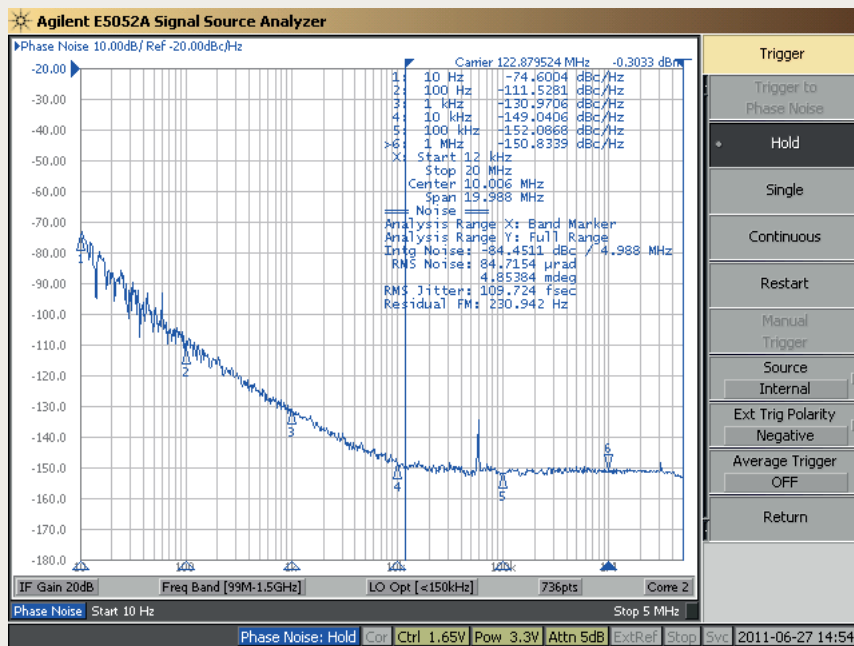
# OPTIONS & ORDERING INFORMATION

## SP2LV

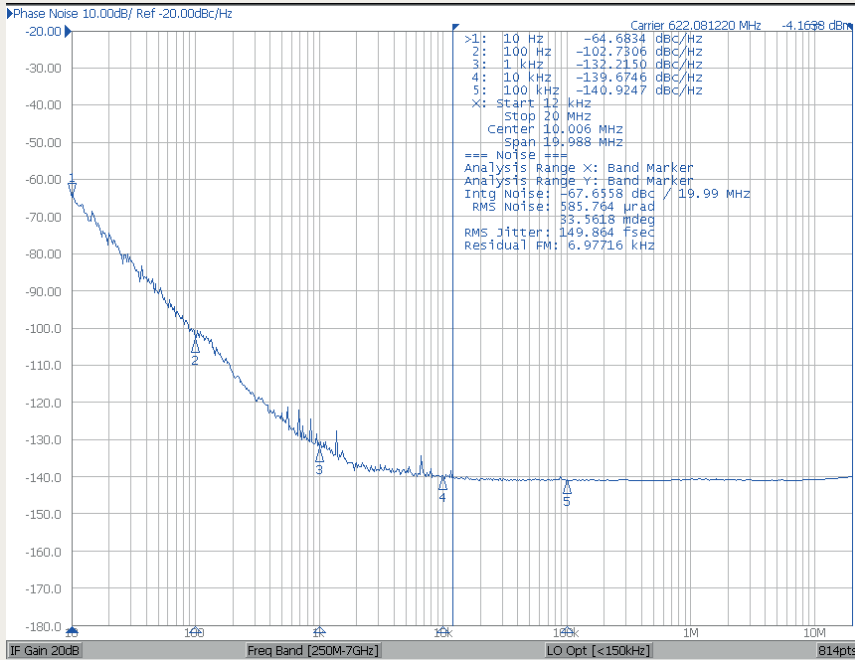
Supply Voltage	Operating Temp. *	Overall Stability *	Tri-state Function	Package type	Pulling *	Frequency in MHz
33 = +3.3 V	C = 0° / +50°C	20 = ±20 ppm	E1 = Tri-state, Enable High, pin #1	6P = 6-pad version	50 = ±50 ppm min.	Please specify the frequency in MHz
	D = -10° / +60°C	25 = ±25 ppm	E2 = Tri-state, Enable High, pin #2		100 = ±100 ppm min.	
	E = 0° / +70°C	30 = ±30 ppm	E3 = Tri-state, Enable Low, pin #1		150 = ±150 ppm min.	
	F = -20° / +70°C	50 = ±50 ppm	E4 = Tri-state, Enable Low, pin #2		200 = ±200 ppm min.	
	G = -30° / +75°C	100 = ±100 ppm			250 = ±250 ppm min.	
	H = -30° / +85°C					
	K = -40° / +85°C					

(\*) Note : Not all combinations are possible, please consult us.

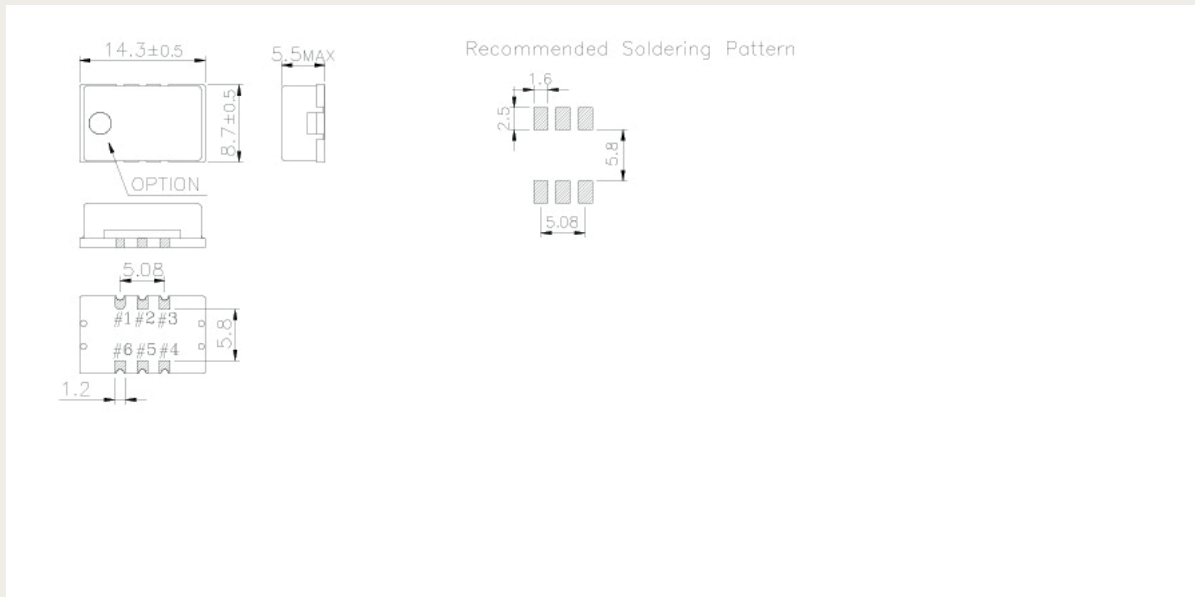
## PHASE NOISE (122.880 MHz)



# PHASE NOISE (622.080 MHZ)



# OUTLINE DIMENSIONS



Pin Connections	#1 : E/D or Control Voltage	#2 : E/D or Control Voltage	#3 : GND
	#4 : Output	#5 : Complementary Output	#6 : Vdd