ECX2-LMV

SMD MultiVolt™ LVDS, low jitter Crystal Oscillator

The ECX2-LMV is SMD LVDS Oscillator with MultiVolt™ capability of 2.375 ~ 3.63 V. Lowest in-class RMS jitter (12 KHz to 20 MHz) sub 50 fs at 156.250 MHz.

Request a Sample

ECX2-LMV LVDS XO

Features

- Ultra-low jitter: sub 50 fs at 156.25 MHz
- RoHS Compliant
- Tight Stability
- Wide Supply Voltage
- Compatible with +2.5V or +3.3V Power Supply
- Low Power consumption

Applications

- Networking &communications
- Optical Transceivers
- Fibre Channel
- Ethernet/Gbe/SyncE
- PON
- Test and measurement

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECX2-LMV			UNITS
		MIN	TYP	MAX	
Frequency Range		100.000		320.000	MHz
* Frequency Stability	-40 ~ +85°C (CN Opt)			±25	ppm
Supply Voltage		2.375		3.63	V
Input Current	Pin 1 Open or ViH			24	mA
Stand-by Current	Pin 1 ViL			30	µA
Symmetry	@ crossing point		45/55		%
Rise & Fall time	20% Vdd – 80% Vdd			0.3	nS
"0" Level	VOL	0.9	+1.10		V
"1" Level	VOH		+1.43	+1.6	V
Output Load	LVDS			100	Ω
Differential Output Voltage		247	330	454	mV
Differential Output error				50	mV
Output offset voltage		1.125	1.25	1.375	V
Output offset error				50	mV
Start Up Time				10	mS
Disable delay time				200	ns
Enable delay time				2	ms
Aging	1st year			±5	ppm
RMS Jitter (12 kHz to 20 MHz Band)	@ 156.25 MHz 3.3V		46.8	60	fs
Operating Temp*	(N Opt)	-40		+85	°C
Storage Temp		-55		+125	°C

PART NUMBERING GUIDE: Example ECX2-LMV-3CN-156.250-TR

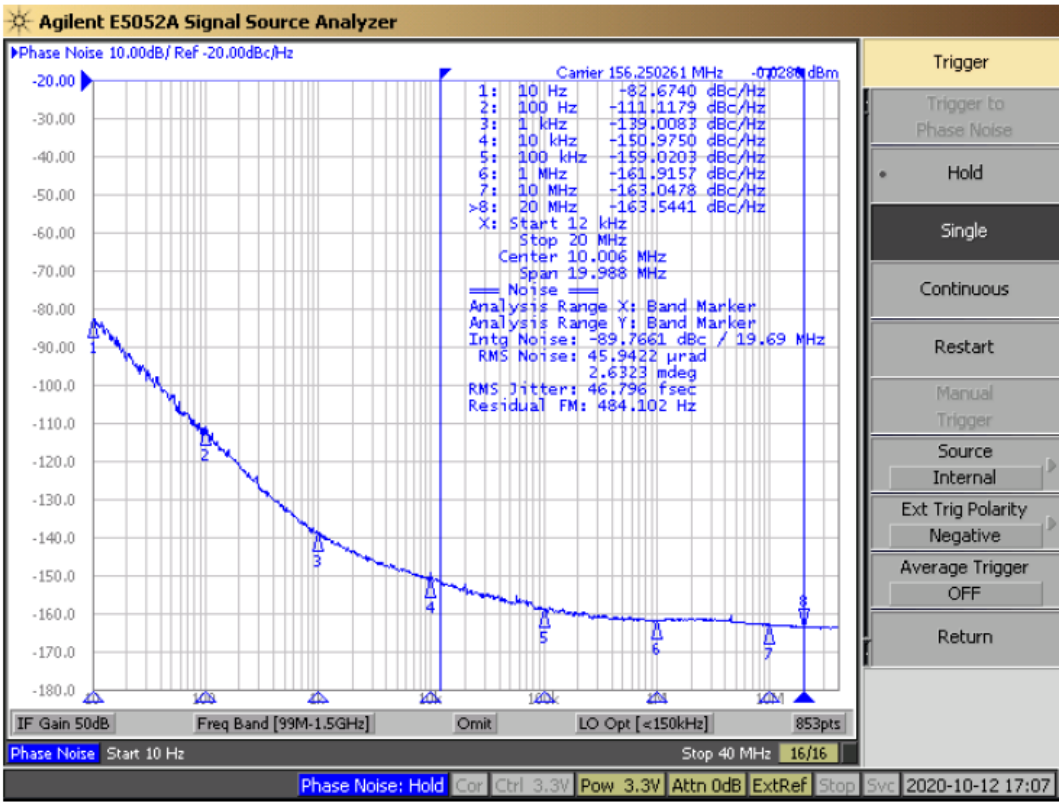
SERIES	-	Package Size (mm)	Stability	Temp Range	-	Frequency	-	PACKAGING
ECX2-LMV LVDS, Ultra Low Jitter MultiVolt™ Oscillator		2 = 2.5 x 2.0 3 = 3.2 x 2.5 5 = 5 x 3.2 7 = 7 x 5	A= ±100 ppm B = ±50 ppm C= ±25 ppm ** D= ±20 ppm	M = -20 ~ +70°C N = -40 ~ +85°C		156.250 MHz		-TR = Tape & Reel

* Frequency Stability includes initial tolerance, temperature, supply voltage and load change reflow frequency shift.

** Contact ECS for availability over -40 ~ +85°C.

Rev. 2023

Typical Phase noise/Jitter



	Frequency (offset)	100.000	125.000	156.250	200.000	285.714	312.500
SSB Phase Noise Data (dBc/Hz typical)	10 Hz	-89.3	-76.7	-82.6	-74.0	-52.57	-45.2
	100 Hz	-118.2	-106.7	-111.1	-103.8	-84.2	-80.2
	1 KHz	-140.3	-135.6	-139.0	-130.7	-118.6	-112.7
	10 KHz	-154.2	-153.5	-150.9	-150.0	-146.4	-142.5
	100 KHz	-160.0	-159.7	-159.0	-158.4	-156.1	-153.8
	1 MHz	-162.6	-162.6	-161.9	-162.6	-160.5	-158.3
	10 MHz	-163.0	-163.0	-163.0	-163.9	-161.9	-159.4
	20 MHz	-163.2	-163.3	-163.5	-164.0	-162.3	-159.7
RMS Phase Jitter 12 KHz ~ 20 MHz		70.9 fs	56.9 fs	46.8 fs	33 fs	29.1 fs	35.2 fs

Table 1) *Typical Phase Noise/Jitter*

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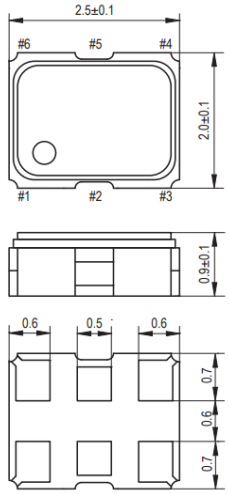
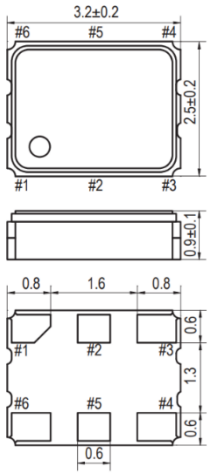
DIMENSIONS (mm)

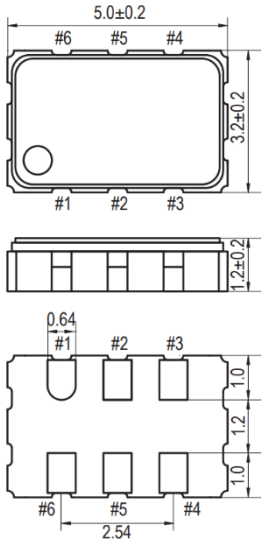
2 = 2.5 x 2.0 Pkg



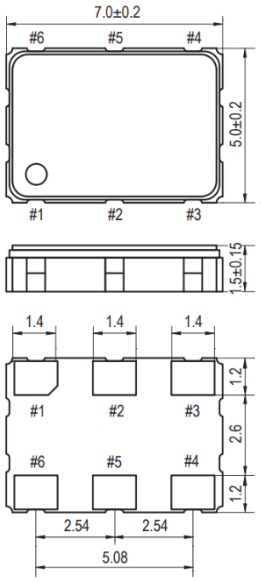
3 = 3.2 x 2.5 Pkg



5 = 5 x 3.2 Pkg



7 = 7 x 5 Pkg



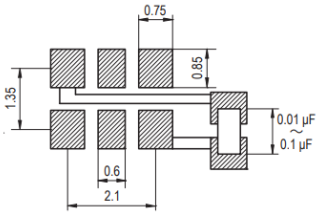


Figure 1) *Top, Side, Bottom & Land*

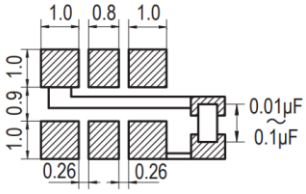


Figure 2) *Top, Side, Bottom & Land*

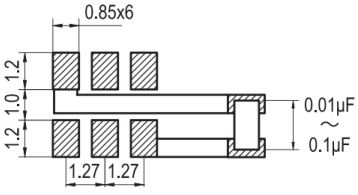


Figure 3) *Top, Side, Bottom & Land*

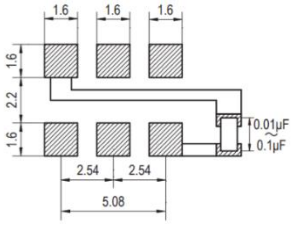


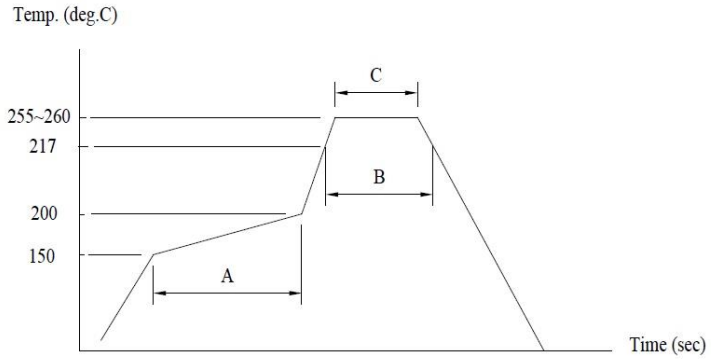
Figure 4) *Top, Side, Bottom & Land*

PIN	CONNECTIONS	
1	"L"	OPEN or "H"
2	NC	
3	Gnd	
4	Z	OUTPUT
5	Z	C-OUTPUT
6	VDD	

Z : High Impedance

SOLDER PROFILE
Peak solder Temp +260°C ±5°C 10 ±5 Sec Max.
2 Cycles Max.
MSL 1, Lead Finish Au

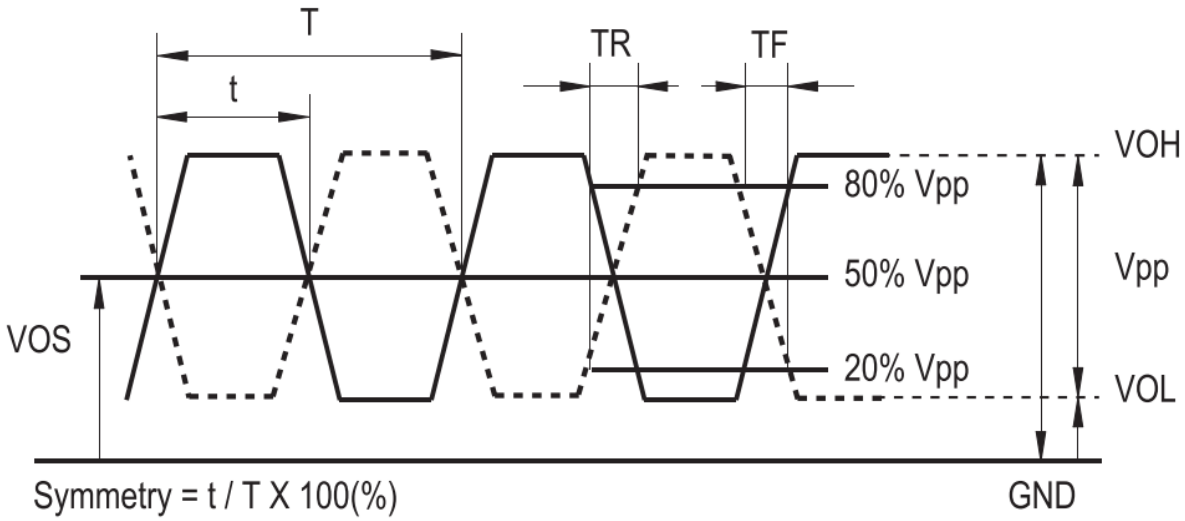
Develop Frequencies
100.000 MHz
125.000 MHz
156.250 MHz
200.000 MHz
285.714 MHz
312.500 MHz



(A)→Preheating area : 150~200°C, 60~120sec.
(B)→Heating area : 217°C, 60~150sec.
(C)→Peak temperature : 255~260°C, 30sec. Max.
Ramp-up rate (217→260°C) : 3°C/sec. Max.
Ramp-down rate (260→217°C) : 6°C/sec. Max.
Time 25°C→260°C : 480sec. Max.
*Referance JEDEC J-STD-020

Figure 4) *Suggested Reflow Profile*

OUTPUT WAVEFORM



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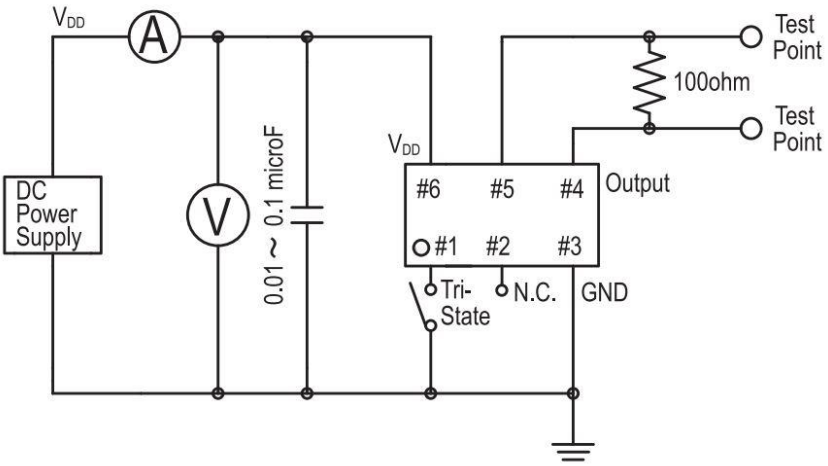
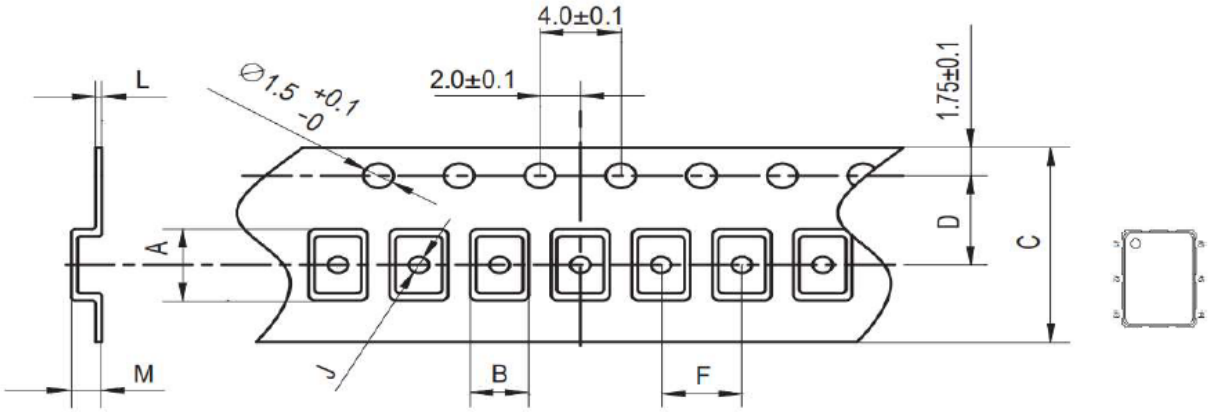
TEST CICRUIT



POCKET TAPE DIMENSIONS (mm)



Pkg	A	B	C	D	F	J	L	M	Reel Dia
2.5 x 2.0	2.7	2.3	8.0	3.5	4.0	1.1	0.25	1.1	180 mm
3.2 x 2.5	3.5	2.8	8.0	3.5	4.0	1.0	0.25	1.4	180 mm
5 x 3.2	5.4	3.5	12.0	5.5	8.0	1.5	0.30	1.4	180 mm
7 x 5	7.4	5.4	16.0	7.5	8.0	1.5	0.30	1.9	180 mm