



**THE DATASHEET OF
ECS-1612MV-240-CN-TR**



The ECS-1612MV is a miniature SMD HCMOS Oscillator with MultiVolt™ capability of 1.6 ~ 3.6 V. The 1.6 x 1.2 x 0.7 mm ceramic package is ideal for LoRa WAN, Low Power/Portable, Industrial, and IoT applications.

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OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS



- 1.6 x 1.2 mm Footprint
- Extended Temp Range
- RoHS Compliant
- Wide Supply Voltage
- Low Jitter
- Compatible with 1.8V, 2.5V or 3.3V Power Supply

PARAMETERS	CONDITIONS	ECS-1612MV			UNITS
		MIN	TYP	MAX	
Frequency Range		3.000		80.000	MHz
* Frequency Stability	-40 ~ +85°C (CN Opt)			±25	ppm
Supply Voltage		1.6		3.63	V
Output Load	CMOS			15	pF
Output voltage Level	VOL: 0.4 Max. / VOH: Vdd-0.4 Min. V DC				
Rise & Fall time	10% Vdd – 90% Vdd			4.5	ns
Start Up Time	VDD 1.8V			5	mS
Phase Jitter	12 kHz to 5 MHz			1	pS
Duty Cycle	@ ½ Vdd			45/55	%
Standby Current				10	µA
Operating Temp*	N Option	-40		+85	°C
Storage Temp		-40		+105	°C

DIMENSIONS (mm)

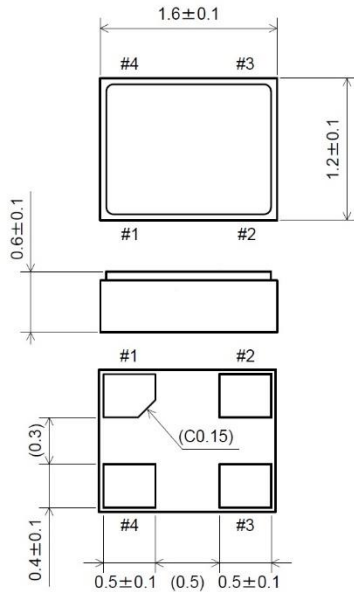


Figure 1) Top, Side, and Bottom views

CURRENT CONSUMPTION mA

FREQ.	~ 20 MHz	~ 50 MHz	~ 80 MHz
+1.8V	2 Typ. / 2.5 Max.	2.5 Typ. / 3 Max.	3 Typ. / 4 Max.
+2.5V	2 Typ. / 3 Max.	2.5 Typ. / 4 Max.	3 Typ. / 5 Max.
+3.3V	3 Typ. / 4 Max.	4 Typ. / 5 Max.	5 Typ. / 7 Max.

PAD CONNECTIONS

1	Stand-by
2	Gnd
3	Output
4	Vdd

Tri State Function

Pin 1	Output
Open	Active
0.7 * Vdd Min	Active
0.3 * Vdd Max.	High-Z

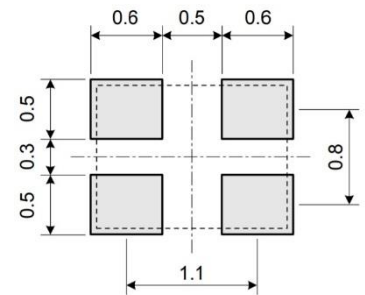


Figure 2) Suggested Land Pattern

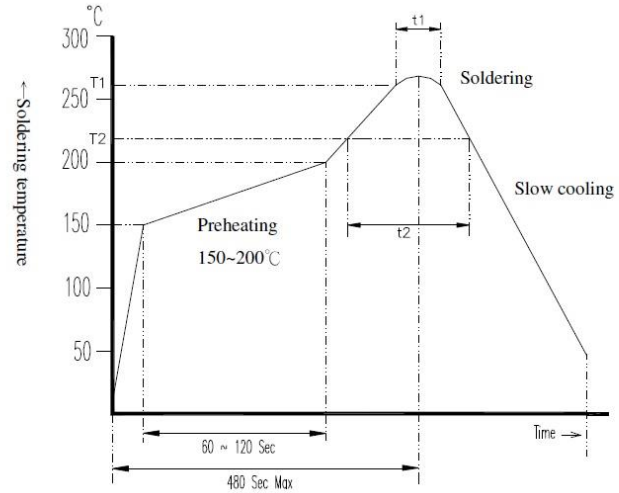
PART NUMBERING GUIDE: Example ECS-1612MV-250-CN-TR

ECS	SERIES	FREQUENCY ABBREVIATION	* STABILITY	TEMP RANGE -	PACKAGING
ECS	1612MV 1.6 x 1.2 mm MultiVolt™ Oscillator	250 = 25.000 MHz See Developed Frequencies Pg.2	A = ±100 ppm B = ±50 ppm G = ±30 ppm C = ±25 ppm D = ±20 ppm	M = -20 ~ +70°C N = -40 ~ +85°C	-TR = Tape & Reel 3K/Reel

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

DEVELOPED FREQUENCIES

CODE	FREQUENCY MHz
80	8.000
120	12.000
122.8	12.288
192	19.200
240	24.000
250	25.000
260	26.000
270	27.000
500	50.000

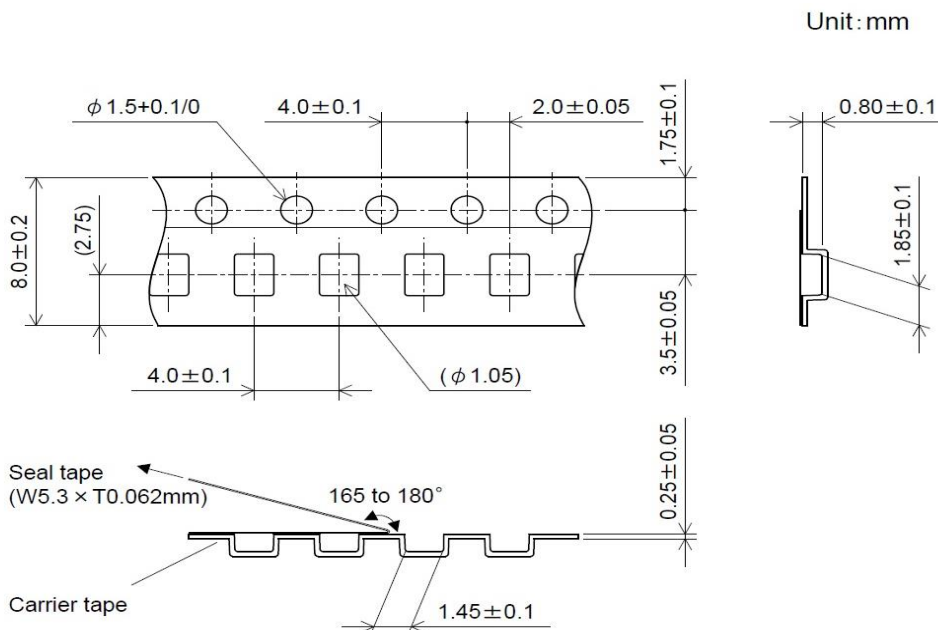


Application / Temperature Time	T1 / t1	T2 / t2
Lead Free	260 ± 5°C / 10 ± 5 Sec Max.	217°C Min / 60 ~ 150 Sec
Non-Lead Free	260 ± 5°C / 10 ± 5 Sec Max.	183°C Min / 60 ~ 150 Sec

Figure 3) Suggested Reflow Profile

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

POCKET TAPE DIMENSIONS (mm)



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