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The ECS-3225MV is a miniature SMD HCMOS Oscillator with MultiVolt™ capability of 1.62 ~ 3.63 V. The 3.2 x 2.5 x 1.2 mm ceramic package is ideal for LoRa WAN, Low Power/Portable, Industrial, and IoT applications.

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS



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

### DIMENSIONS (mm)

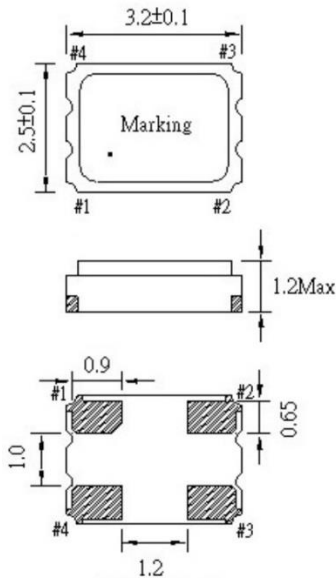


Figure 1) Top, Side, and Bottom views

PARAMETERS	CONDITIONS	ECS-3225MV			UNITS
		MIN	TYP	MAX	
Frequency Range		6.000		50.000	MHz
* Frequency Stability	-40 ~ +85°C (BN Opt)			±50	ppm
Supply Voltage		1.62		3.63	V
Output Load	CMOS			15	pF
Output voltage Level	VOL: 0.2 Vdd max. / VOH: 0.8 Vdd min. V DC				
Rise & Fall time	20% Vdd – 80% Vdd			7	nS
Start Up Time				10	mS
Phase Jitter	12 kHz to 20 MHz			1	pS
Duty Cycle	@ ½ Vdd		45/55		%
Input Current (No Load)	1.000 ~ 9.999 MHz			3	mA
	10.00 ~ 39.999 MHz			4	mA
	40.00 ~ 50.000 MHz			5	mA
Aging	Per year			±3	ppm
Standby Current				10	µA
Operating Temp*		-40		+85	°C
Storage Temp		-55		+125	°C

PAD CONNECTIONS	
1	Tri-state
2	Gnd
3	Output
4	Vdd

Tri State Function	
Pin 1	Output
0.7 * Vdd Min or NC	Active
0.3 * Vdd Max.	High Impedance

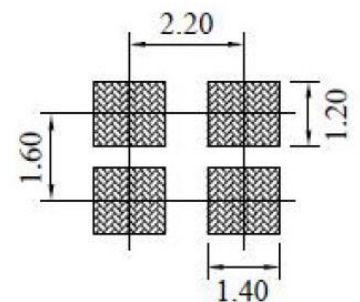


Figure 2) Suggested Land Pattern

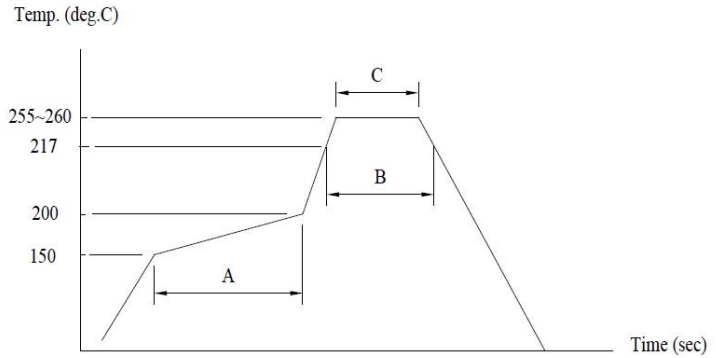
## PART NUMBERING GUIDE: Example ECS-3225MV-250-BN-TR

ECS	SERIES	FREQUENCY ABBREVIATION	* STABILITY	TEMP RANGE -	PACKAGING
ECS	3225MV 3.2 x 2.5 mm MultiVolt™ Oscillator	250 = 25.000 MHz See Developed Frequencies Pg. 2	A = ±100 ppm B = ±50 ppm C = ±25 ppm	M = -20 ~ +70°C N = -40 ~ +85°C	-TR = Tape & Reel 1K/Reel

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

## DEVELOPED FREQUENCIES

FREQUENCY MHz	CODE
16.000	160
20.000	200
24.000	240
25.000	250
32.000	320
48.000	480
50.000	500



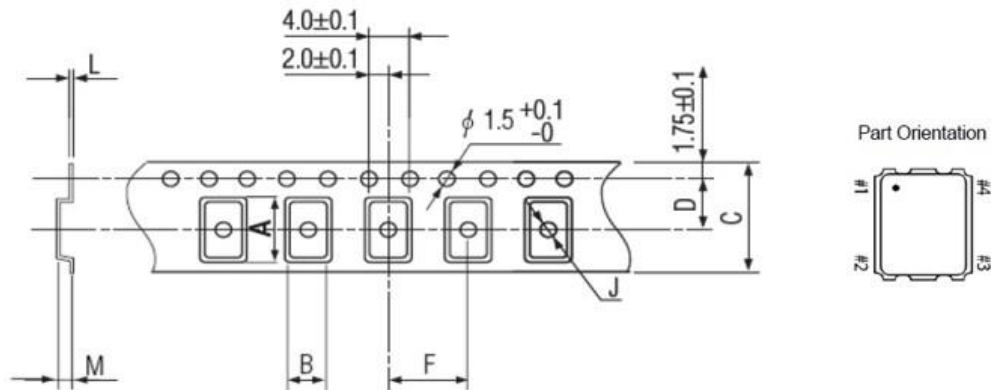
(A)→Preheating area : 150~200°C, 60~120sec.  
 (B)→Heating area : 217°C, 60~150sec.  
 (C)→Peak temperature : 255~260°C, 30sec. Max.  
 Ramp-up rate (217→260°C) : 3°C/sec. Max.  
 Ramp-down rate (260→217°C) : 6°C/sec. Max.  
 Time 25°C→260°C : 480sec. Max.  
 \*Reference JEDEC J-STD-020

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)



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
3.4	2.7	8.0	3.5	4.0	1.0	0.25	1.4	178	1000pcs

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