



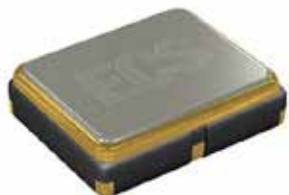
# ECS-2520SMV

SMD Multi Volt™ Crystal Oscillator  
Tight Stability



The ECS-2520SMV is a miniature SMD HCMOS Oscillator with Multi Volt™ capability of 1.62 ~ 3.63 V with a tight stability of  $\pm 5$  or  $\pm 10$  ppm. The 2.5 x 2.0 x 1.0 mm ceramic package is ideal for Low Power/Portable, Industrial and IOT. applications.

## ECS-2520SMV SMD XO



- 2.5 x 2.0 mm Footprint
- Extended Temp Range
- RoHS Compliant
- Wide Supply Voltage
- Tight Stability
- Compatible with 1.8V, 2.5V or 3.3V Power Supply

## DIMENSIONS (mm)

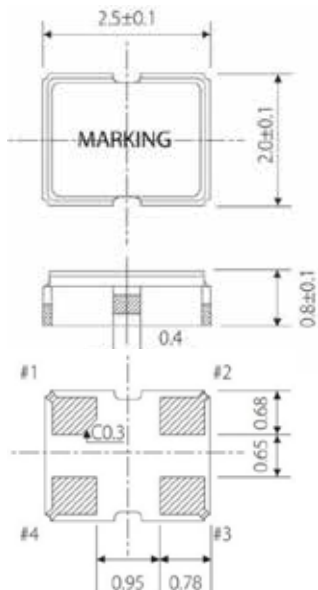


Figure 1) Top, Side, and Bottom views

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECS-2520SMV			UNITS
		MIN	TYP	MAX	
Frequency Range		8.000		60.000	MHz
* Frequency Stability	-40 ~ +105°C (FP Opt)			$\pm 10$	ppm
Supply Voltage		1.62		3.63	V
Output Load	CMOS			15	pF
Output voltage Level	VOL: 0.2 V <sub>dd</sub> max./VOH:0.8V <sub>dd</sub> min.V DC				
Rise & Fall time	20%V <sub>dd</sub> – 80%V <sub>dd</sub>			3	nS
Start Up Time				10	mS
Phase Jitter	12 KHz to 20 MHz			1	pS
Duty Cycle	@ 1/2 V <sub>dd</sub>		45/55		%
Input Current (No Load)			6	10	mA
Standby Current				10	$\mu$ A
Operating Temp*	P Option	-40		+105	°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 * V <sub>dd</sub> Min OR NC	Active
0.3 * V <sub>dd</sub> Max.	High Impedance

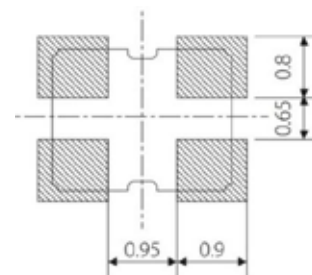


Figure 2) Suggested Land Pattern

## PART NUMBERING GUIDE: Example ECS-2520SMV-250-FP-TR

ECS	-	SERIES	FREQUENCY ABBREVIATION	-	* STABILITY	TEMP RANGE -	PACKAGING
		2520SMV 2.5 x 2.0 mm Multi Volt Oscillator Tight Stability	250 = 25.000 MHz See Developed Frequencies Pg.2		F = $\pm 10$ ppm G = $\pm 5$ ppm	N = -40 ~ +85°C P = -40 ~ +105°C	-TR = Tape & Reel 1K/Reel

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

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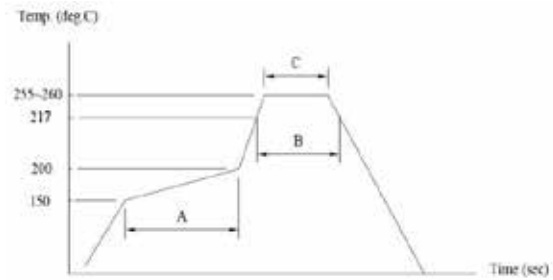
# ECS-2520SMV SMD Multi Volt™ Crystal Oscillator



## DEVELOPED FREQUENCIES

FREQUENCY MHz	CODE
8.000	80
10.000	100
11.0592	110.5
12.000	120
16.000	160
19.200	192
20.000	200
24.000	240
24.576	245.7
25.000	250
26.000	260
27.000	270
30.000	300
32.000	320
33.000	330
33.333	333.3
48.000	480
50.000	500

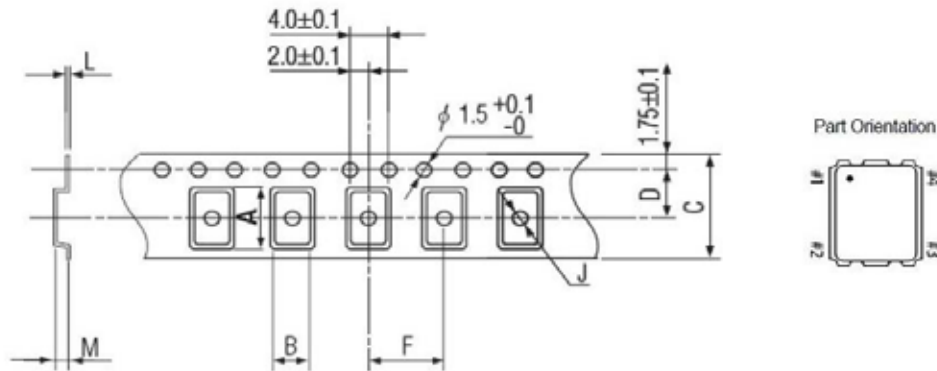
SOLDER PROFILE
Peak solder Temp +260°C ±5°C 10 ±5 Sec Max.
2 Cycles Max.
MSL 1, Lead Finish Au



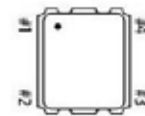
(A)→Preheating area : 150-200°C, 60-120sec.  
 (B)→Heating area : 217°C, 60-150sec.  
 (C)→Peak temperature : 255-260°C, 30sec. Max.  
 Ramp-up rate (217→260°C) : 3°C/sec. Max.  
 Ramp-down rate (260→217°C) : 6°C/sec. Max.  
 Time 25°C→260°C : 480sec. Max.  
 \*Reference JEDEC J-STD-020

Figure 1) Suggested Reflow Profile

## POCKET TAPE DIMENSIONS (mm)



Part Orientation



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
2.8	2.3	8.0	3.5	4.0	1.0	0.25	1.1	180	1000pcs