

The ECS-327TXO is a low power CMOS SMD TCXO. The 3.28 x 2.5 x 1.3 mm ceramic package is ideal for LoRa WAN and accurate RTC applications.

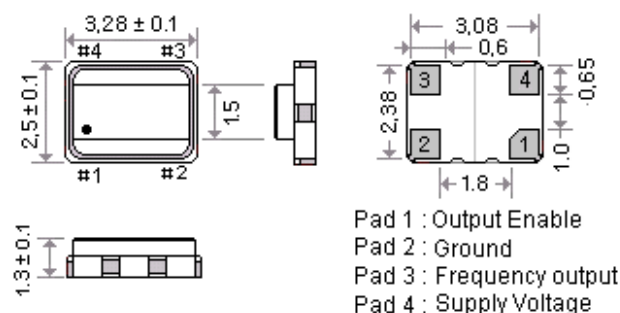
ECS-327TXO 32.768 KHz SMD TCXO

ECS-327TXO SMD CMOS TCXO



- Low Profile
- 3.28 x 2.5 mm Footprint
- Extended Temp Range
- RoHS Compliant

DIMENSIONS (mm)



Use Bypass Cap of 0.1 μ F between Vdd & Gnd

Figure 1) Top, Side, and Bottom views

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECS-327TXO			UNITS
		MIN	TYP	MAX	
Frequency			32.768		KHz
Frequency Tolerance	@25°C $\pm$ 3°C			$\pm$ 1.5	ppm
Frequency Stability over Temp	-40 ~ +85°C			$\pm$ 5	ppm
Stability vs. Aging	First Year at +25°C			$\pm$ 3	ppm
Stability vs. VDD Change	$\pm$ 5% VDD Change			$\pm$ 0.2	ppm
Stability vs. Load Change	$\pm$ 10% Load Change			$\pm$ 0.2	ppm
Stability vs. Reflow	After 24 Hours			$\pm$ 1.0	ppm
Output	CMOS		15		pF
Output Voltage Level	VOH: VDD-0.4V min. (IOH 0.1 mA) VOL: 0.4V max. (IOL -0.1 mA)				
Start-Up time (see Note 1)			1	3	sec
Rise & Fall time	20% – 80%			100	ns
Duty Cycle	@ 1/2 VDD			40/60	%
Operating Temp		-40		+85	°C
Storage Temp		-55		+105	°C

Power Supply Current (Typical)

1.8V $\pm$ 5%	2.5V $\pm$ 5%	3.0V $\pm$ 5%	3.3V $\pm$ 5%
1.0 μ A	1.05 μ A	1.25 μ A	1.37 μ A

PAD CONNECTIONS

1	Output Enable
2	Gnd
3	Output
4	Supply Voltage

Enable Function

Pin 1	Output
Vih=0.8* VDD	Enabled
Vil=0.2*Low	Disabled

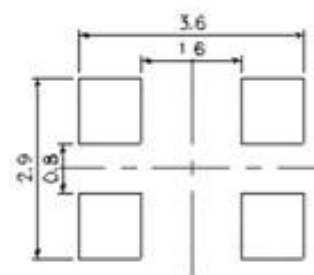


Figure 2) Suggested Land

PART NUMBERING GUIDE: Example ECS-327TXO-33-TR

ECS	SERIES	Voltage	PACKAGING
ECS	327TXO 32.768 KHz TCXO	18 = +1.8V 25 = +2.5V 30 = +3.0V 33 = +3.3V	TR = Tape & Reel 1K/Reel



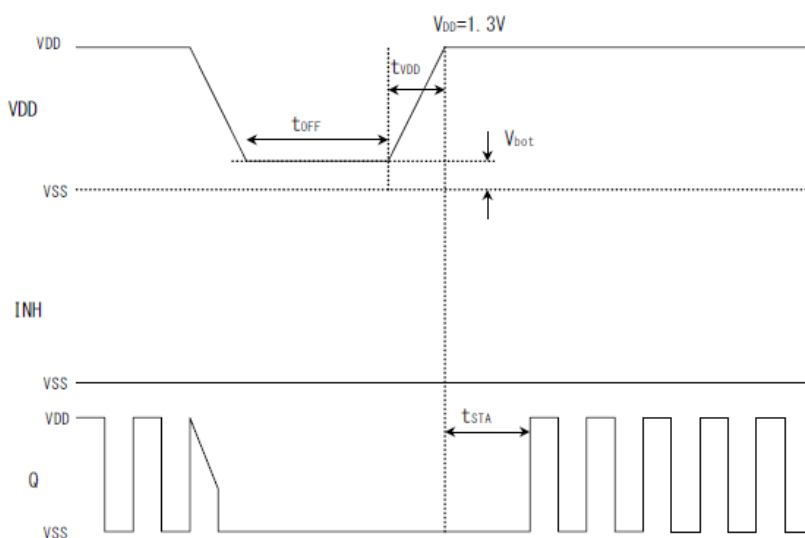
ECS-327TXO

32.768 KHz

SMD TCXO



Note 1: Effective 12/22 Start up the power supply under the recommended conditions of t_{VDD} , t_{OFF} , V_{bot} in order to operate it certainly.



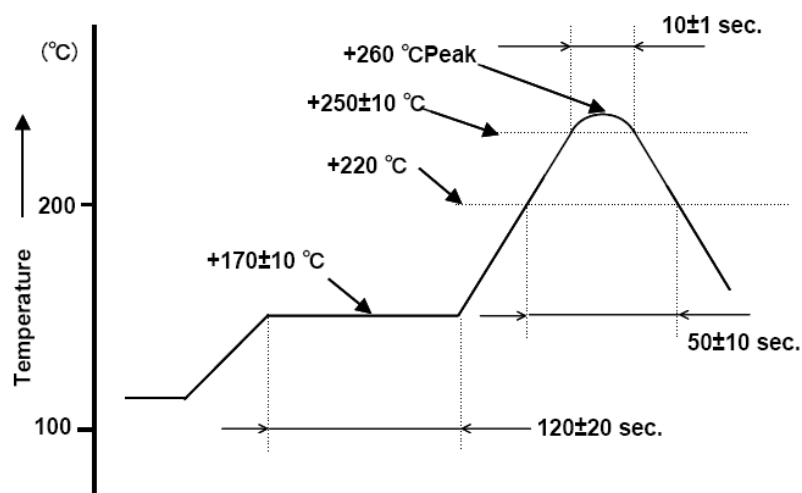
t_{VDD}	t_{OFF}	V_{bot}
under 10ms/V	over 0.5ms	0V

Timing Error over time (± 5 ppm over $-40 \sim +85^{\circ}\text{C}$)

± 0.432 sec/day

± 12.960 sec/month

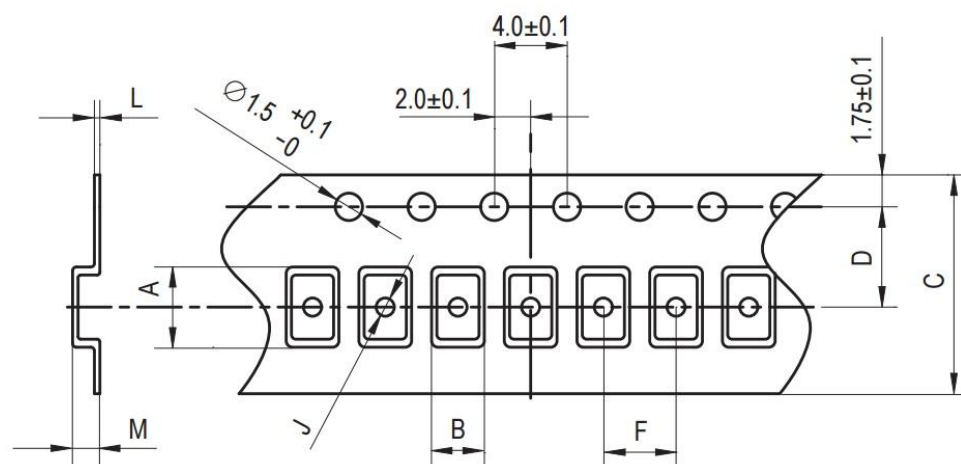
± 2.628 min/year



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

Figure 1) Suggested Reflow Profile

POCKET TAPE DIMENSIONS (mm)



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
3.5	2.8	8.0	3.5	4.0	1.0	0.25	1.4	180	1000pcs