

TCXO	32.768 KHz	- 40 to 85 °C selection			CMOS	SMD	15 pF	1.8 V	2.5 V	3.0 V
ME32T	nA Current	± 2.0 ppm	± 2.5 ppm	± 5 ppm				3.3 V	5.0 V	
		0 to 50 °C	-20 to 70 °C	-40 to 85 °C						

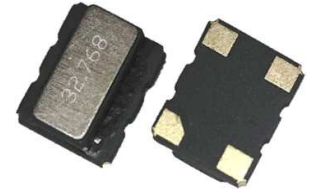
Features

- ME32_ is a 32.768 KHz CMOS output TCXO with a maximum frequency stability of ± 5 ppm (±2.62 minutes / year) over -40 to +85°C, much better timekeeping accuracy than the competition.
- A proprietary temp. compensation technique is applied to the built-in 32.768 KHz tuning fork crystal and temp. sensor .
- A 1.5 uA typical current consumption makes it ideal for battery-operated devices.
- 3.28 x 2.5 x 1.3 mm ceramic SMD package, ideal for new miniaturizing applications.



Applications:

- Frequency reference for real time clocks (RTCs)
- Portable instruments
- Timing synchronization for networks, servers, hubs, routers and switches
- If ±1.0 ~ ±2.5 ppm frequency stability is required , please use Mercury M572T series (mA current consumption) .
- If temperature compensation is not required , please use " HG57 " series (nA current consumption) or " HA " series (mA current consumption)
- Smart metering, data loggers
- GPS receivers. Telematics.



General specifications of all available packages , at Ta=+25°C , CL=15pF

Output Wave Form		Square wave [LVCMOS]				
Nominal Frequency		32.768 KHz				
Standard Supply Voltages (Custom V _{DD} is also available)	V _{DD}	1.8 ± 5 %	2.5 ± 5 %	3.0 ± 5 %	3.3 ± 5 %	5.0 ± 10 %
	Voltage code	18	25	3	33	5
Power Supply Current (I _{CC})		0.79 uA	1.05 uA	1.25 uA	1.37 uA	2.05 uA
Initial Calibration Tolerance		± 1.5 ppm (max.) at T _{amb} = +25° C ± 3° C				
Frequency Stability over Temperature (max.)		± 2 ppm (0°C to +50°C) , ± 2.5 ppm (-20°C to +70°C) , ± 5 ppm (-40°C to +85°C)				
Timing error over time [± 5 ppm (-40°C to +85°C)]		± 0.432 sec/day ; ± 12.960 sec/month ; ± 2.628 minutes / year , w.r.t fo at +25°C.				
Frequency Stability	vs Aging	± 3.0 ppm / year (max.) first year at +25° C				
	vs V _{DD} Tolerance Change	± 0.2 ppm (max.) for a ± 5 % input voltage change				
	vs Load Change	± 0.2 ppm (max.) for a ± 10 % loading condition change				
	vs Reflow	± 1.0 ppm (max.) 1 reflow and measured 24 hours afterwards				
	vs all range of V _{DD} (Δf / V)	± 1.0 ppm / volt (max.) V _{DD} = 1.7 V to 5.5 V .				
Output Logic / Output Load		CMOS / 15 pF				
Supply Voltage Variation (ΔV _{DD})		0.25 V (max.) Condition : ΔV / Δt = 1 V / us				
Output Voltage Level	V _{OH}	V _{DD} - 0.4 V (min.) ; I _{OH} = - 0.1 mA , all V _{DD} range				
Output Voltage Level	V _{OL}	0.4 V (max.) ; I _{OL} = - 0.1 mA , all V _{DD} range				
Start - up Time		1 sec. (max.) at +25°C ; 3 sec. (max.) over -40°C to +85°C				
Rise Time and Fall Time		100 nano. sec. max. Measured at 20% ↔ 80% of the waveform , 15 pF load.				
Duty Cycle (Symmetry)		50% ±10% typical (Measured at 50% of V _{DD} Over -40°C to +85°C.)				
Pad 1 OE Thresholds		V _{Ih} = 0.8 * V _{DD} , V _{Iil} = 0.2 * V _{DD}				

Block Diagram	Package Dimensions and Suggested Land Pattern
	<p>Pad 1 : Output Enable Pad 2 : Ground Pad 3 : Frequency output Pad 4 : Supply Voltage</p>

Part Number Format and Example

	[1]	[2]	-	[3]	-	[4]	/	[5]
	ME32T	Supply Voltage		32.768 K		Frequency Stability		Operating Temp. Range
Examples	(1) ME32T	5	-	32.768 K	-	5.0	/	-40+85
	(2) ME32T	33	-	32.768 K	-	2.5	/	-20+70

(1) : ME32T5 - 32.768K - 5.0 / -40+85

[ME32T type , CMOS , 5.0V , 32.768 KHz , ± 5.0 ppm from -40°C to 85°C]

(2) : ME32T33 - 32.768K - 2.5 / -20+70

[ME32T type , CMOS , 3.3V , 32.768 KHz , ± 2.5 ppm from -20°C to 70°C]

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