



**THE DATASHEET OF  
ASEMB-25.000MHZ-LY-T**



### Description

The Abracon ASEMB series is a programmable MEMS oscillator, offered in various supply voltages. This series features low power consumption, a wide frequency range, excellent phase noise, tight stabilities, and short lead times for industrial, consumer, and other applications. The ASEMB series comes in a 3.2 x 2.5 mm compact package with a CMOS output.



### Features

- Low Power Consumption
- Exceptional Stability +/- 10ppm Over Temp. at -40 to +105°C
- Compact QFN Plastic Packaging
- [REACH/RoHS II Compliant | MSL Level 1](#)

### Typical Applications

- CCD Clock for VTR Camera
- Equipment Connected to PCs
- Low Profile Equipment
- Computers and Peripherals
- Portable Electronics
- Consumer Electronics
- Vibrant, Shock-Prone & Humid Environments for Industrial Equipment

### Key Electrical Specifications

Parameters	Min.	Typ.	Max.	Units	Notes
Frequency Range:	1.0		150	MHz	
Operating Temperature:	0		+70	°C	See options
Storage Temperature:	-55		+150	°C	
Overall Frequency Stability: <a href="#">[Note 1]</a>	-50		+50	ppm	See options
Supply Voltage (Vdd)	+1.8 ~ +3.3			V	
Output Load:			15, 25, or 40	pF	See options
	10			kΩ	
Symmetry:	45		55	%	@1/2Vdd
Startup Time:		1.5	3.0	ms	
Disable Time:		20	100	ns	
Disable Stand-by Current:			15	uA	
Tri-state Function (Stand-by):	"1" (VIH≥0.75*Vdd) or Open: Oscillation			V	
	"0" (VIL<0.25*Vdd) : Hi Z				
Aging:	-5.0		+5.0	ppm	First year @25°C

\*Note 1: Includes post reflow frequency accuracy, temperature stability, load pulling and power supply variation.

**Key Electrical Specifications – Vdd = 1.8V+/-0.15V**

Parameters		Min.	Typ.	Max.	Units	Notes
Supply Current (no load):	1.0 to 39.9999MHz		5	15	mA	CL=0pF RL=∞ T=25°C (Standard CL: 15pF)
	40.0 to 79.9999MHz		6	15	mA	
	80.0 to 124.9999MHz		7	15	mA	
	125.0 to 150MHz		8	15	mA	
	1.0 to 39.9999MHz		6	15	mA	CL=0pF RL=∞ T=25°C (CL option: 25pF)
	40.0 to 79.9999MHz		7	15	mA	
	80.0 to 124.9999MHz		8	15	mA	
	125.0 to 150MHz		9	15	mA	
	1.0 to 39.9999MHz		7	15	mA	CL=0pF RL=∞ T=25°C (CL option: 40pF)
	40.0 to 79.9999MHz		8	15	mA	
	80.0 to 124.9999MHz		9	15	mA	
	125.0 to 150MHz		10	15	mA	
Output Voltage:	VOH	0.8*Vdd			V	CL=15, 25, 40pF
	VOL			0.2*Vdd	V	
Rise Time: Fall Time:	Tr		1.8	3.0	ns	CL=15pF; T=25°C 20%/80%*VDD
	Tf		1.0	3.0	ns	
	Tr		1.5	3.0	ns	CL=25pF; T=25°C 20%/80%*VDD
	Tf		1.2	3.0	ns	
	Tr		1.4	3.0	ns	CL=40pF; T=25°C 20%/80%*VDD
	Tf		1.1	3.0	ns	
Cycle to Cycle Jitter:			60		ps	F=100MHz
Period Jitter RMS:			10		ps	F=100MHz

**Key Electrical Specifications – Vdd = 2.5V+/-0.2V**

Parameters		Min.	Typ.	Max.	Units	Notes
Supply Current (no load):	1.0 to 39.9999MHz		6	15	mA	CL=0pF RL=∞ T=25°C (Standard CL: 15pF)
	40.0 to 79.9999MHz		7	15	mA	
	80.0 to 124.9999MHz		8	15	mA	
	125.0 to 150MHz		9	15	mA	
	1.0 to 39.9999MHz		7	15	mA	CL=0pF RL=∞ T=25°C (CL option: 25pF)
	40.0 to 79.9999MHz		8	15	mA	
	80.0 to 124.9999MHz		9	15	mA	
	125.0 to 150MHz		10	15	mA	
	1.0 to 39.9999MHz		8	16	mA	CL=0pF RL=∞ T=25°C (CL option: 40pF)
	40.0 to 79.9999MHz		9	16	mA	
	80.0 to 124.9999MHz		10	16	mA	
	125.0 to 150MHz		11	16	mA	
Output Voltage:	VOH	0.8*Vdd			V	CL=15, 25pF
	VOL			0.2*Vdd	V	
	VOH	0.9*Vdd			V	CL=40pF
	VOL			0.1*Vdd	V	
Rise Time: Fall Time:	Tr		1.0	2.0	ns	CL=15pF; T=25°C 20%/80%*VDD
	Tf		0.9	2.0	ns	
	Tr		1.1	2.0	ns	CL=25pF; T=25°C 20%/80%*VDD
	Tf		0.9	2.0	ns	
	Tr		1.0	2.0	ns	CL=40pF; T=25°C 20%/80%*VDD
	Tf		0.9	2.0	ns	
Cycle to Cycle Jitter:			50		ps	F=100MHz
Period Jitter RMS:			5		ps	F=100MHz

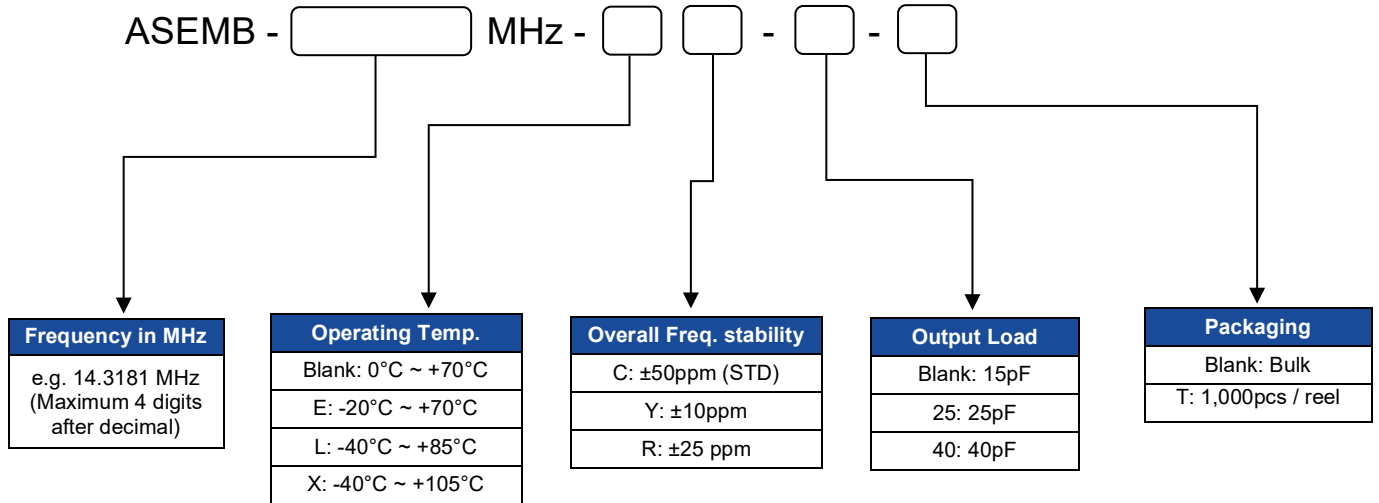
**Key Electrical Specifications – Vdd = 3.3V+/-0.3V**

Parameters		Min.	Typ.	Max.	Units	Notes
Supply Current (no load):	1.0 to 39.9999MHz		7	15	mA	CL=0pF RL=∞ T=25°C (Standard CL: 15pF)
	40.0 to 79.9999MHz		8	15	mA	
	80.0 to 124.9999MHz		9	15	mA	
	125.0 to 150MHz		10	15	mA	
	1.0 to 39.9999MHz		8	16	mA	CL=0pF RL=∞ T=25°C (CL option: 25pF)
	40.0 to 79.9999MHz		9	16	mA	
	80.0 to 124.9999MHz		10	16	mA	
	125.0 to 150MHz		11	16	mA	
	1.0 to 39.9999MHz		8	16	mA	CL=0pF RL=∞ T=25°C (CL option: 40pF)
	40.0 to 79.9999MHz		9	16	mA	
	80.0 to 124.9999MHz		10	16	mA	
	125.0 to 150MHz		11	16	mA	
Output Voltage:	VOH	0.8*Vdd			V	CL=15pF
	VOL			0.2*Vdd	V	
	VOH	0.9*Vdd			V	CL=25, 40pF
	VOL			0.1*Vdd	V	
Rise Time: Fall Time:	Tr		1.0	2.0	ns	CL=15pF; T=25°C 20%/80%*VDD
	Tf		0.9	2.0	ns	
	Tr		1.0	2.0	ns	CL=25pF; T=25°C 20%/80%*VDD
	Tf		0.9	2.0	ns	
	Tr		0.8	2.0	ns	CL=40pF; T=25°C 20%/80%*VDD
	Tf		0.8	2.0	ns	
Cycle to Cycle Jitter:			50		ps	F=100MHz
Period Jitter RMS:			5		ps	F=100MHz

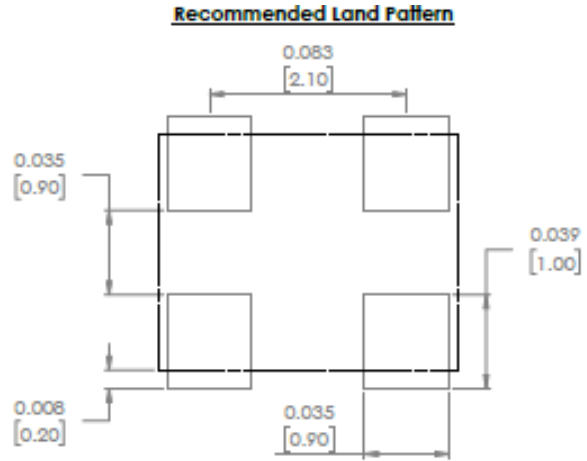
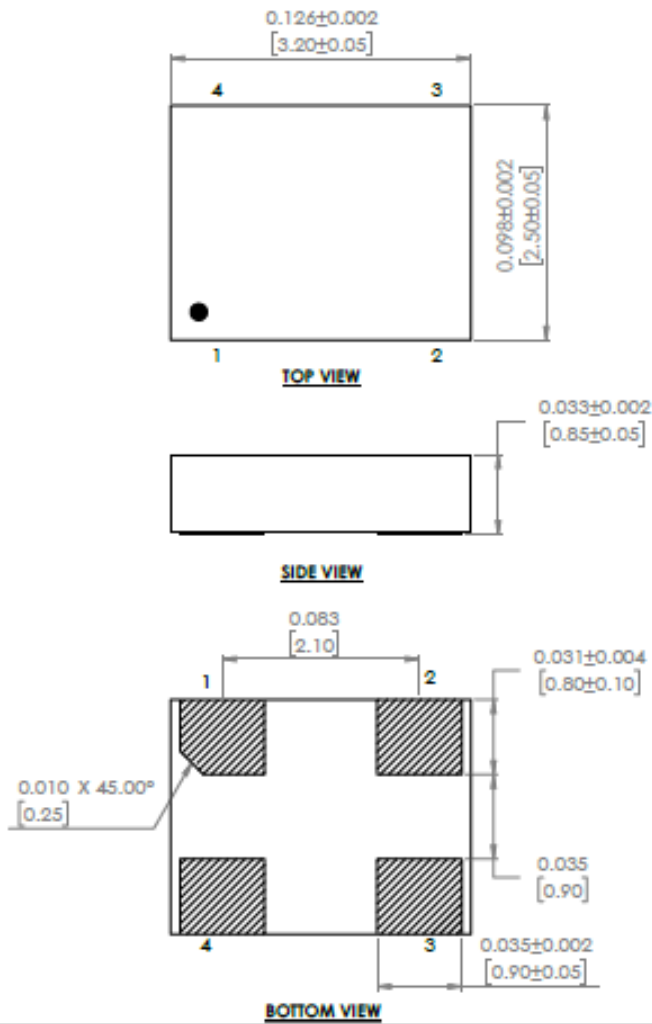
**Absolute Maximum Ratings**

Item	Min.	Max.	Units
Supply voltage	-0.3	+4.0	V
Input voltage	-0.3	Vdd+0.3	V
Junction Temp.		+150	°C
Storage Temp.	-55	+150	°C
Soldering Temp.		+260	°C
ESD HBM MM CDM		4,000 200 1,500	V

**Options and Part Identification**



**Mechanical Dimensions**

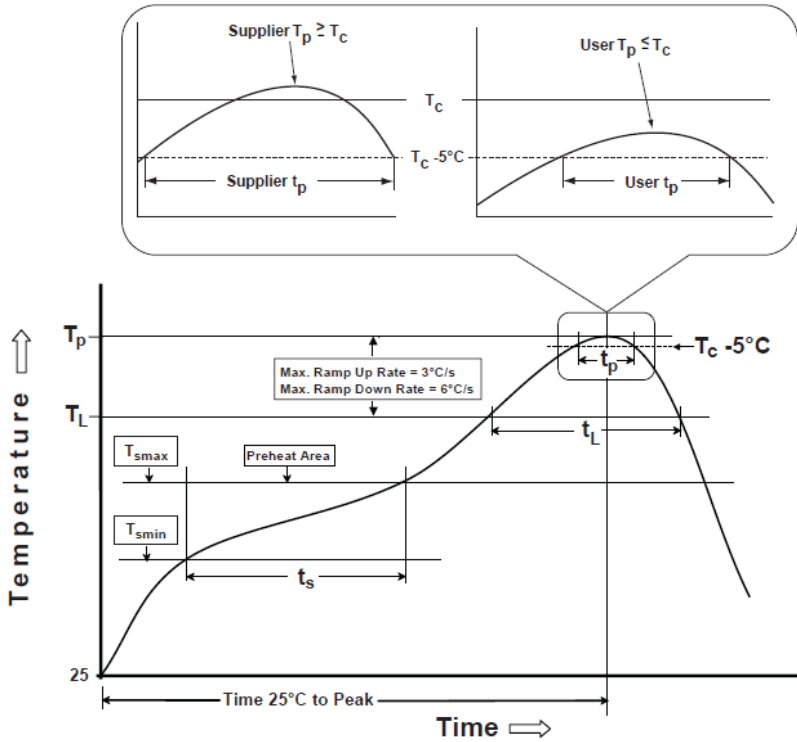


Pin#	Function
1	Standby
2	GND
3	Output
4	Vdd

Note: Recommend using 0.01uf bypass capacitor between PIN 2 and 4.

Dimensions: Inches[mm]

**Reflow Profile [JEDEC J-STD-020]**



**Table 1**

SnPb Eutectic Process Classification Temperatures ( $T_c$ )		
Package Thickness	Volume $mm^3$ <350	Volume $mm^3$ $\geq$ 350
<2.5 mm	235 °C	220 °C
$\geq$ 2.5 mm	220 °C	220 °C

**Table 2**

Pb-Free Process Classification Temperatures ( $T_c$ )			
Package Thickness	Volume $mm^3$ <350	Volume $mm^3$ 350-2000	Volume $mm^3$ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

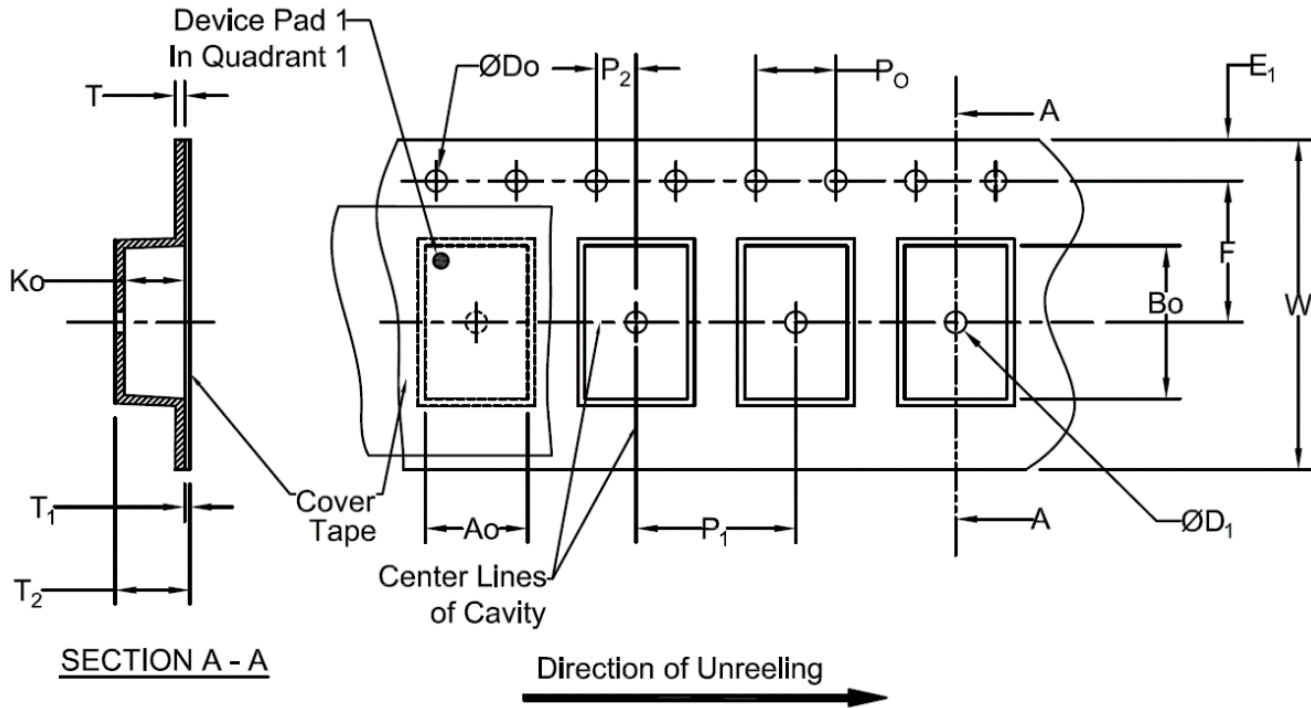
Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum ( $T_{smin}$ )	100°C	150°C
Temperature maximum ( $T_{smax}$ )	150°C	200°C
Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate ( $T_{smax}$ to $T_p$ )	3°C/sec. max	3°C/sec. max
Liquidous temperature ( $T_L$ )	183°C	217°C
Time at liquidous ( $t_L$ )	60 - 150 sec.	60 - 150 sec.
Peak package body temperature ( $T_p$ )*	<b>see Table 1</b>	<b>see Table 2</b>
Time ( $t_p$ )** within 5°C of the specified classification temperature ( $T_c$ )	20 sec.	30 sec.
Ramp-down rate ( $T_p$ to $T_{smax}$ )	6°C/sec. max	6°C/sec. max
Time 25°C to peak temperature	6 min. max	8 min. max
Reflow cycles	2 max	2 max

\*Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

\*\*Tolerance for time at peak profile temperature ( $t_p$ ) is defined as supplier minimum and a user maximum.

**Packaging**

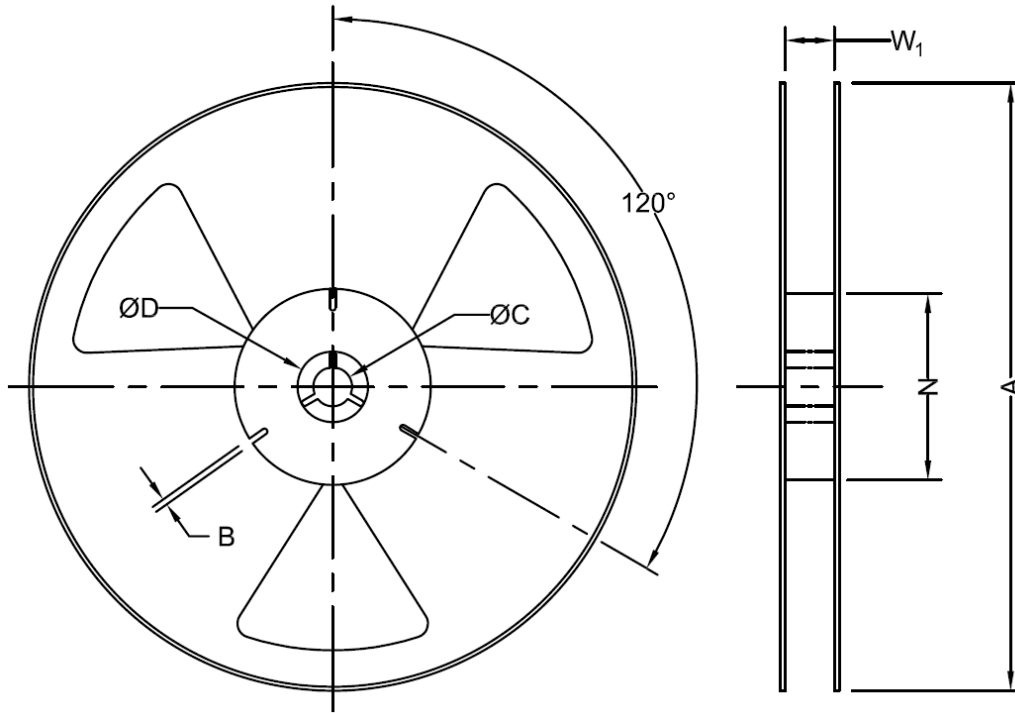
T: 1,000pcs/reel (D=180mm)



Tape Specifications (mm)							
Width	Ao	Bo	Do	D <sub>1</sub> (Min)	E <sub>1</sub>	F	Ko
12mm	*	*	1.5+0.1/-0.0	1.0	1.75±0.1	5.5±0.05	*
Width	P1	P2	P0	T (Max)	T1 (Max)	T2 (Max)	W (Max)
12mm	4.0±0.1	2.0±0.05	4.0±0.1	0.6	0.1	6.5	12.3

**\*Note: Compliant to EIA-481**

Dimensions: mm



Reel Specifications (mm)							
Width	Qty/Reel	A (Nom)	B (Min)	C (Min)	D (Min)	N (Min)	*W <sub>1</sub>
12mm	1000	178	1.5	13.0+0.5/-0.2	20.2	50	12.4+2.0/-0.0
<b>*Note: Measured at Hub</b>							

Dimensions: mm

## Looking for pricing, stock, or lifecycle information?

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- ⊖ [View ASEMB-25.000MHZ-LY-T on WIN SOURCE](#)
- ⊖ [Abracon LLC Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management