

Description

With the improved CMOS low jitter design, Abracon ASELJ series offers low RMS phase jitter capable of reaching a phase noise floor of -171 dBc/Hz. This series feature three supply voltage options of 1.8V, 2.5V, and 3.3V. In addition, the ASELJ series comes in a frequency range of 0.625 MHz to 50 MHz with an overall frequency stability of ± 25 ppm over an operating temperature range of -40°C to 85°C.



Features

- Low Jitter CMOS (54 fs @ 49.152MHz)
- Fixed supply voltage options (1.8V, 2.5V, 3.3V)
- Hermetically seam-sealed ceramic package
- Tight frequency stability options available
- Low current consumption
- REACH/RoHS II Compliant | MSL Level 1
- ESD Sensitive

Typical Applications

- Wireless communication
- Test and measurement equipment
- Audio applications

Electrical Specifications

Parameters	Min.	Typ.	Max.	Unit	Notes
Frequency Range	0.625		50	MHz	
Operating Temperature Range	-40		+85	°C	See options
Storage Temperature Range	-55		+150	°C	
Overall Frequency Stability [Note 1]	-25		+25	ppm	See options
Aging	-3.0		+3.0		First year @+25°C±2°C
Supply Voltage (Vdd)	+3.135	+3.3	+3.465	V	Option E
	+2.375	+2.5	+2.625		Option C
	+1.71	+1.8	+1.89		Option D
Supply Current (Idd)		5	10	mA	@ Vdd=3.3V
		3	7		@Vdd=2.5V
		2	5		@Vdd=1.8V
Start-up Time		0.4	1.0	ms	
Rise and Fall Time(Tr/Tf) @10%Vdd-90%Vdd,15pF load		1.0	3.0	ns	@ Vdd=3.3V
		1.0	4.0		@Vdd=2.5V
		2.0	5.0		@Vdd=1.8V
Output Load			15	pF	
Output Voltage (VOH)	0.9*Vdd			V	
Output Voltage (VOL)			0.1*Vdd		
Output Enable & Disable Control	0.7*Vdd			V	Output Enable or No Connect
			0.3*Vdd		Output Disabled (High Impedance)
Output Enable Time			1.0	ms	
Output Disabled Time			200	ns	
Stand-by Current			20	µA	
RMS Phase Jitter (12kHz to 20MHz)	Please see table 1 below				

*Note 1: Overall frequency stability includes initial frequency tolerance @25°C± 3°C and stability over the operating temperature range.

Electrical Specifications Cont.

Table 1 [Note 2,3,4]

Frequency (MHz)	Supply Voltage (1.8V)		Supply Voltage (3.3V)	
	RMS Jitter			
	Typical (fs)	Max (fs)	Typical (fs)	Max (fs)
12.288	393	410	117	140
24.576	132	150	55	75
49.152	155	175	54	75

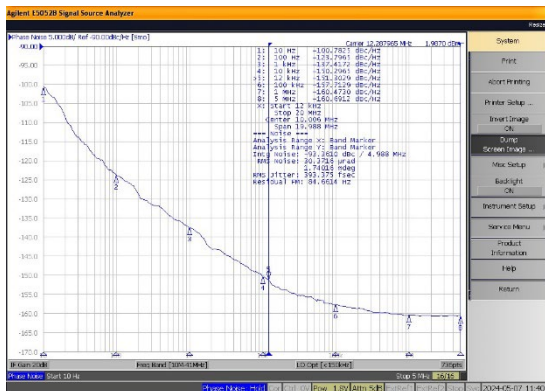
*Note 2: Guaranteed by characterization; RMS Phase Jitter specifications are inclusive of any spurs.

*Note 3: Phase jitter measured with Keysight E5052B Signal Source Analyzer.

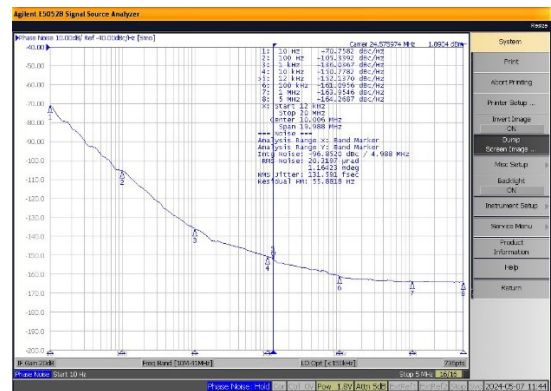
*Note 4: RMS Jitter bandwidth (10 MHz to 41 MHz) = 12kHz to 5MHz, and (42MHz > 50MHz) = 12kHz to 20MHz.

Phase Noise Plots [Note 2,3,4]

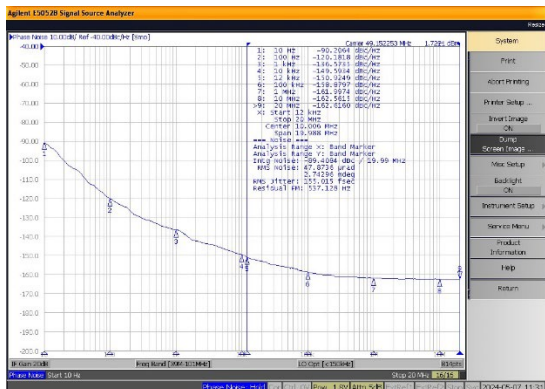
Frequency: 12.288MHz, VDD: 1.8V



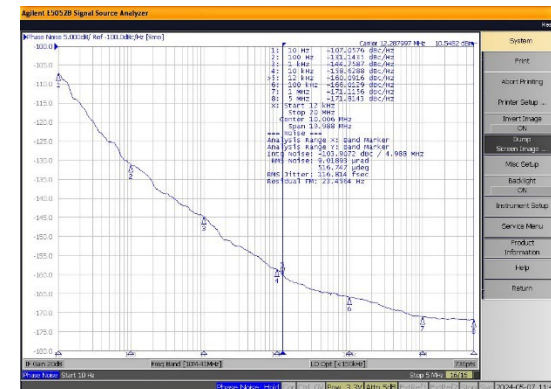
Frequency: 24.576 MHz, VDD: 1.8V



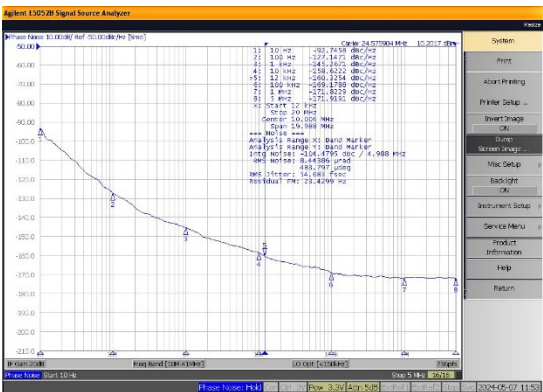
Frequency: 49.152MHz, VDD: 1.8V



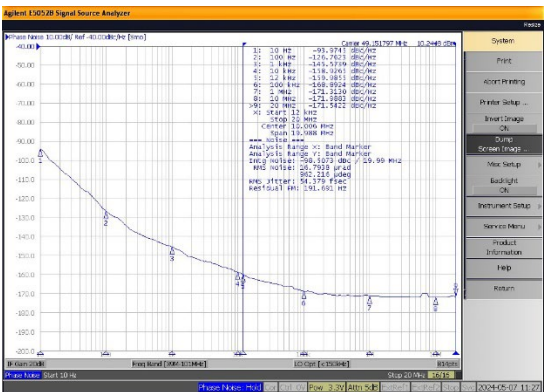
Frequency: 12.288MHz, VDD: 3.3V



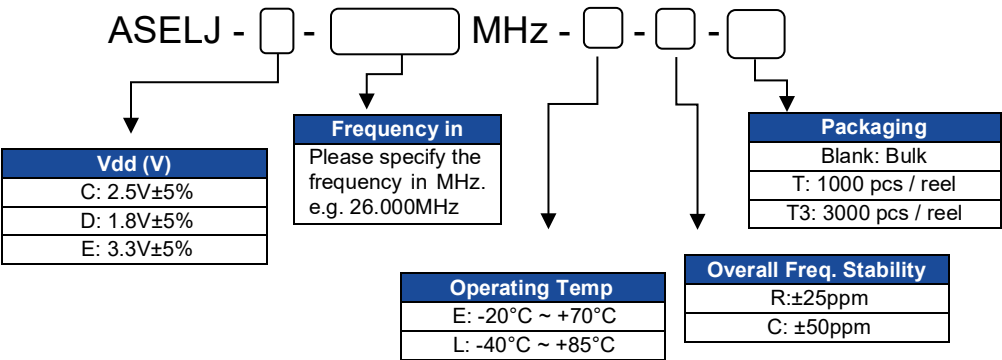
Frequency: 24.576 MHz, VDD: 3.3V



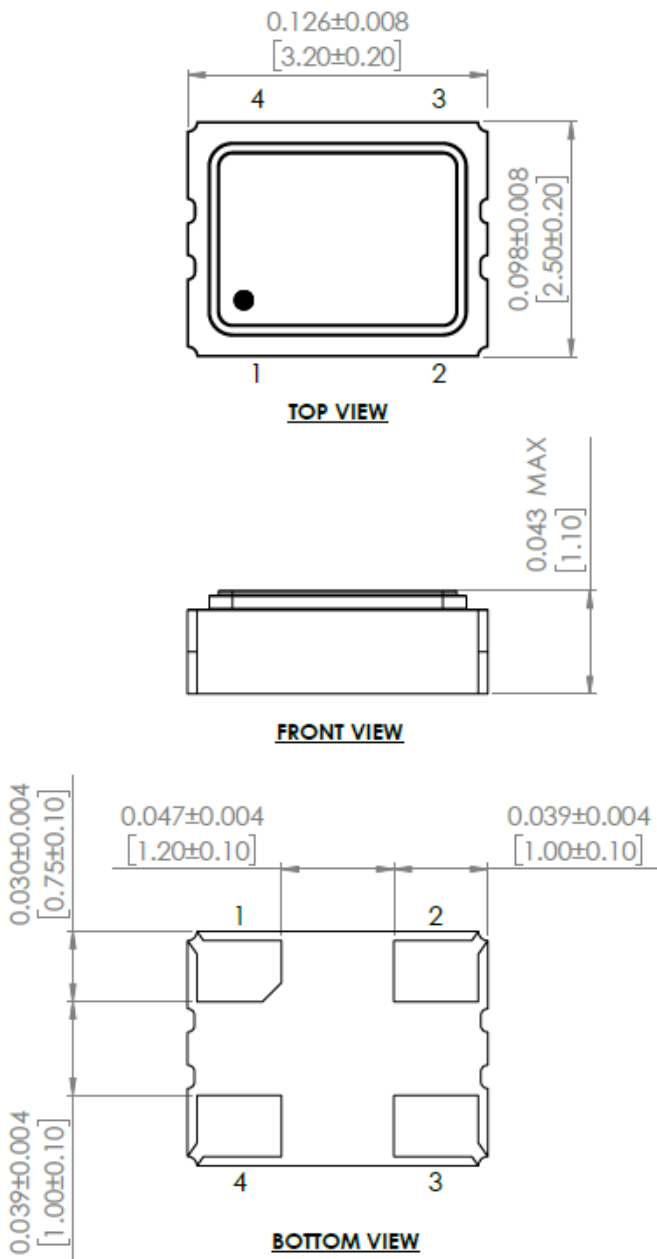
Frequency: 49.152MHz, VDD: 3.3V



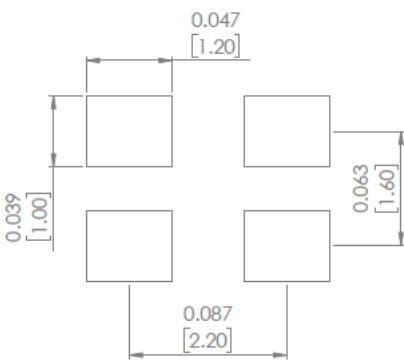
Part Identification



Mechanical Dimensions



RECOMMENDED LAND PATTERN



Pin #	Function
1	OE
2	GND
3	Output
4	Vdd

Dimensions: Inches [mm]

Reflow Profile [JEDEC J-STD-020]

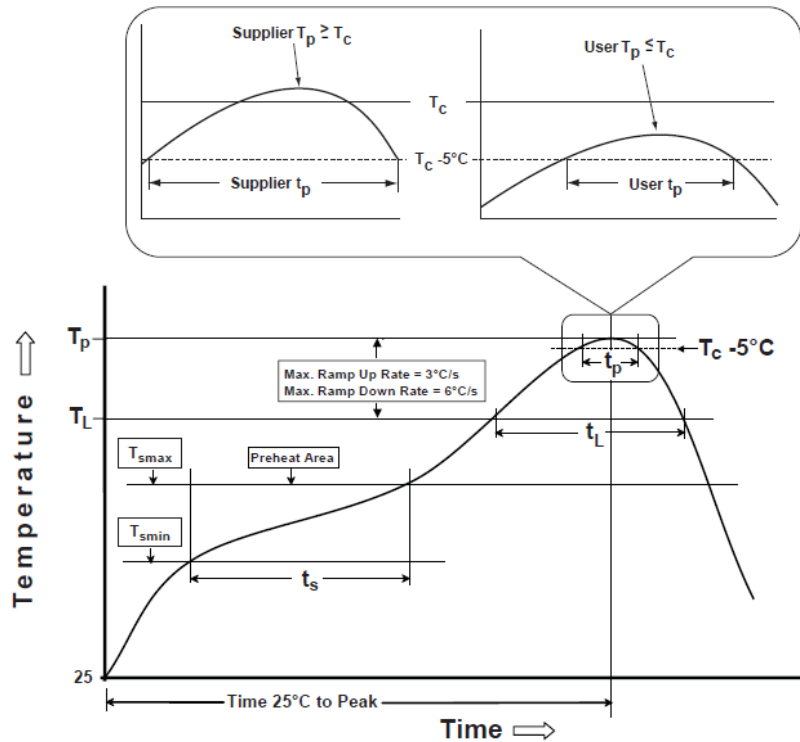


Table 1

SnPb Eutectic Process
Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2

Pb-Free Process
Classification Temperatures (T_c)

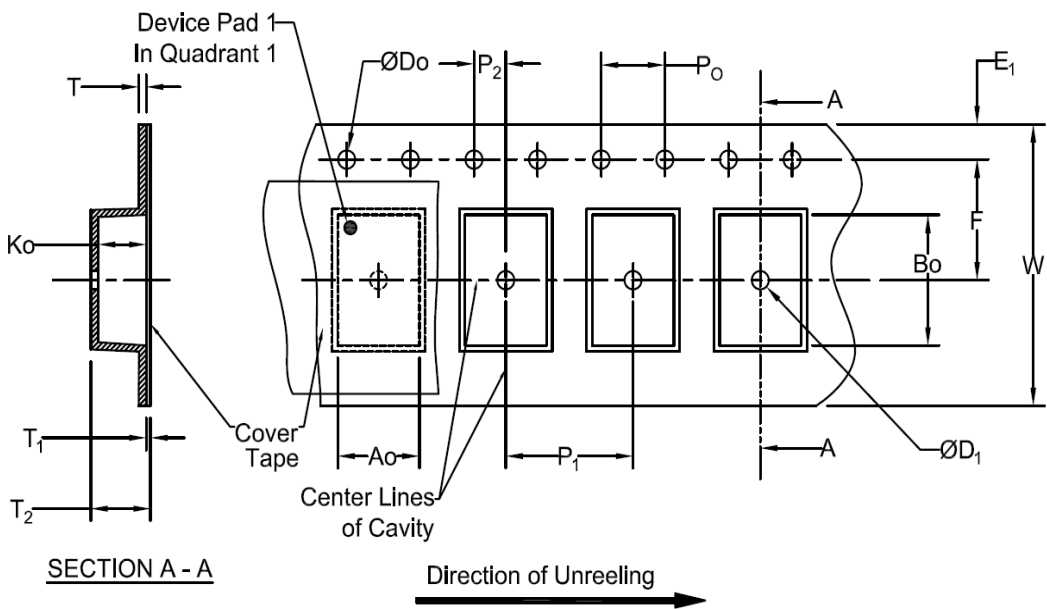
Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

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)*	see Table 1	see Table 2
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

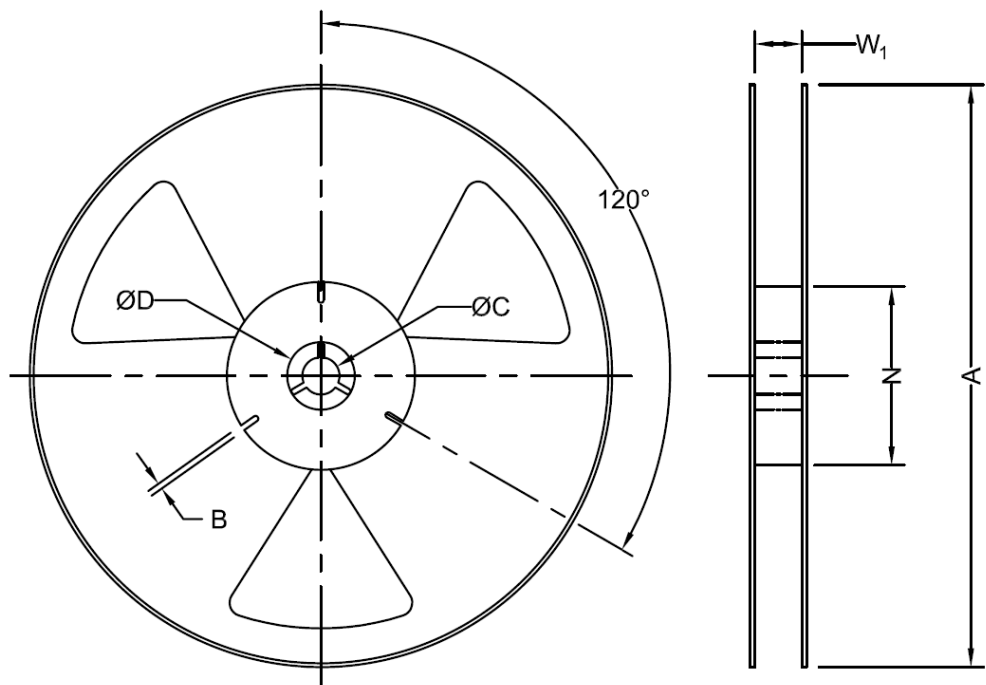
T: 1,000pcs/reel
T3: 3,000pcs/reel



Tape Specifications (mm)							
Width	A_0	B_0	D_0	D_1 (Min)	E_1	F	K_0
8mm	*	*	$1.5+0.1/-0.0$	1.0	1.75 ± 0.1	3.5 ± 0.05	*
Width	P_1	P_2	P_0	T (Max)	T_1 (Max)	T_2 (Max)	W (Max)
8mm	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.1	0.6	0.1	2.5	8.3

*Note: Compliant to EIA-481

Dimensions: mm



Reel Specifications (mm)							
Width	Qty/Reel	A (Nom)	B (Min)	C (Min)	D (Min)	N (Min)	*W ₁
8mm	1000	178	1.5	13.0+0.5/-0.2	20.2	50	8.4+1.5/-0.0
	3000	178	1.5	13.0+0.5/-0.2	20.2	50	8.4+1.5/-0.0

*Note: Measured at Hub

Dimensions: mm