

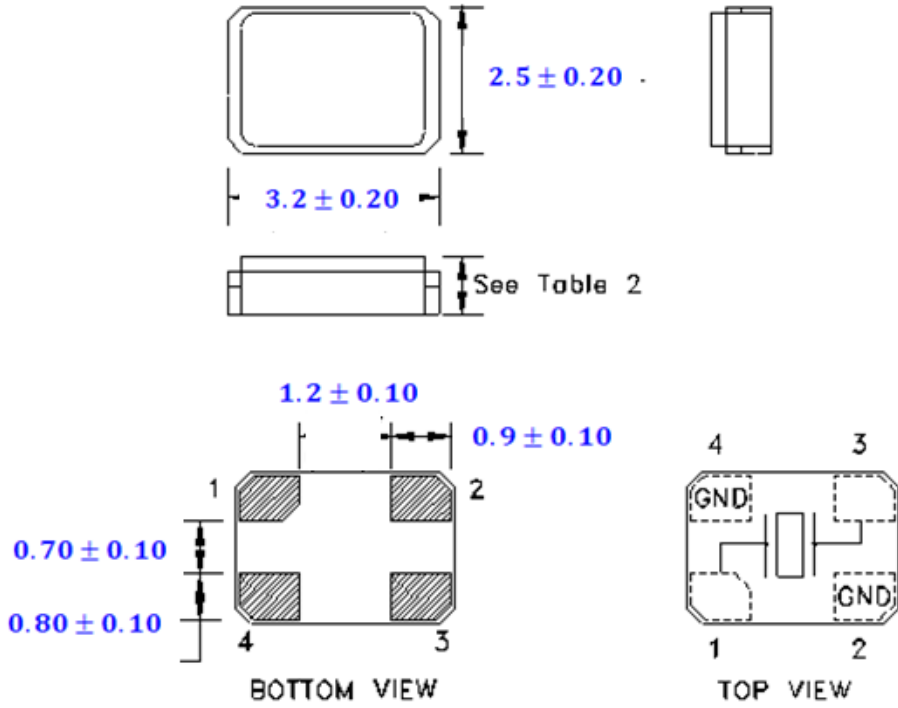
Features

- SMD Quartz Crystal Resonator
- Tolerance: ± 10 ppm Available
- Operating Temperature -10°C to +60°C to -40°C to +125°C

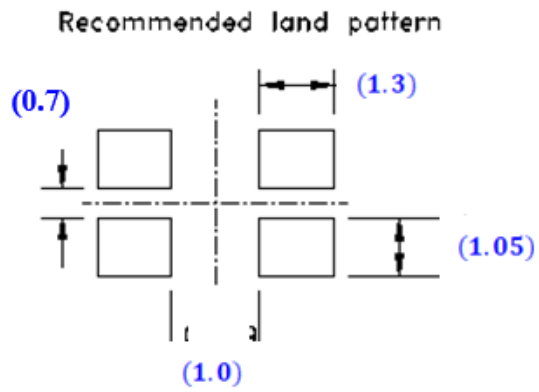
STANDARD SPECIFICATIONS	
PARAMETERS	MAX (Unless otherwise noted)
Frequency Range	8.000 to 125.000 MHz
Operation Mode 8MHz -54MHz 64MHz - 125MHz (Contact Abracon for available frequencies)	Fundamental 3rd Overtone (Standard Frequencies: 64, 66, 66.6666, 75, 80, 98.304, 100, 125MHz)
Operating Temperature	-10°C to +60°C, see options
Storage Temperature	-55°C to +125°C
Frequency Tolerance @ 25°C	± 50 PPM, see options
Frequency Stability over the Operating Temperature (ref. to +25°C)	± 50 PPM, see options
Equivalent Series Resistance (ESR)	See Table below
Shunt Capacitance (C0)	3.0 pF
Load Capacitance (CL)	18 pF, see options
Drive Level	10 μ W Typ 100 μ W
Aging (@ 25°C, First Year)	± 2 ppm
Insulation Resistance@ 100Vdc ± 15 V	500 MOhms
Seal Method	Seam
RoHS Compliant	Yes
Pb Free	Yes
MSL	NA

TABLE 1- Standard ESR			
Frequency (MHz)	ESR(Ω) max	Frequency (MHz)	ESR(Ω) max
8.000-9.999 (Fund)	400	30.000 - 39.999 (Fund)	40
10.000 -11.999 (Fund)	200	40.000 - 54.000 (Fund)	35
12.000 -15.999 (Fund)	120	64.000 - 80.000 (3rd OT)	120
16.000 -19.999 (Fund)	70	98.304 - 125.000 (3rd OT)	80
20.000 - 29.999 (Fund)	50		

DIMENSIONS / MECHANICAL SPECIFICATIONS



Height (mm)	
ABM8	0.80 max
ABM81	0.65+/-0.05
ABM82	0.60+/-0.10



Note:

Due to material availability, the chamfer could be located on pin #1, 3, or 4. Be advised that the chamfer location has no impact on the electrical performance of the device.

Dimensions: mm

Part Numbering Guide

Available Options & Part Identification for SMD Crystal ELM8								
Sample PN: <u>ELM8-20.000MHz-10-D4Y-T</u>								
ELM8		-20.000MHz	-10		-D	4	Y	-T
<u>AEL Model</u>	<u>Height</u> Blank: 0.9mm max 1: 0.65mm max	<u>Frequency</u>	<u>Load Capacitance (pF)</u> Please specify CL (min 6pF) in pF or S for series 10 = 10pF	<u>ESR</u> Custom ESR if other than Standard i.e. R40	<u>Operating Temperature Range</u> Blank: -10 ~ +60°C E: 0 ~ +70°C B: -20 ~ +70°C C: -30 ~ +70°C N: -30 ~ +85°C D: -40 ~ +85°C J: -40 ~ +105°C (**) K: -40 ~ +125°C (**)	<u>Frequency Tolerance</u> Blank: ±50ppm 1: ±10ppm 7: ±15ppm 2: ±20ppm 3: ±25ppm 4: ±30ppm	<u>Frequency Stability</u> Blank: ±50ppm U: ±10ppm (*) G: ±15ppm X: ±20ppm W: ±25ppm Y: ±30ppm H: ±35ppm Q: ±100ppm	<u>Values Added Options</u> Blank: Bulk T: 1,000 pcs T2: 250 pcs T3: 3,000 pcs

*Option E, B, and -10 ~ +60 °C only

**Frequency stability ±50ppm and ±100ppm

Reflow Profile [JDEC J-STD-020]

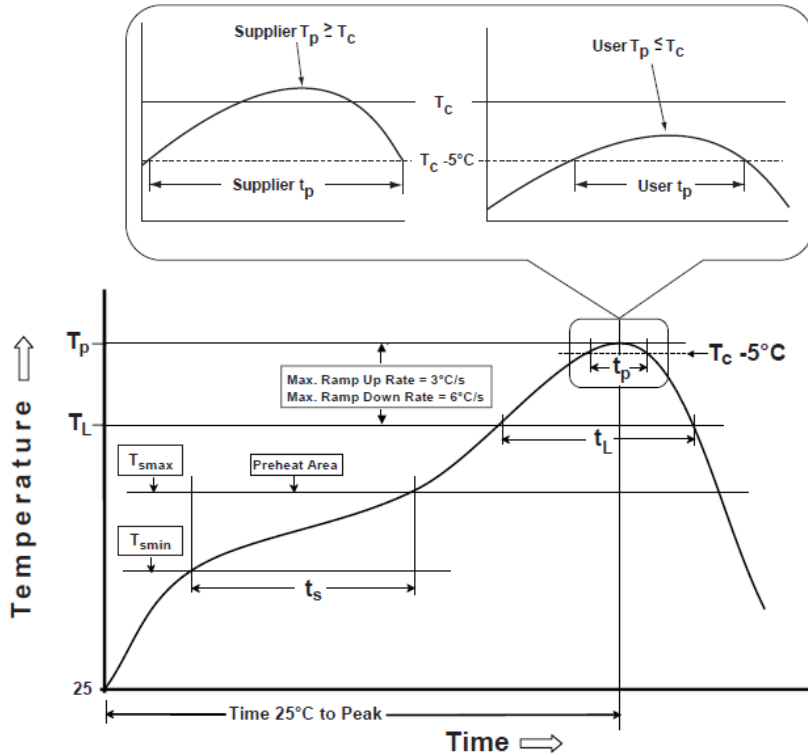


Table 1

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

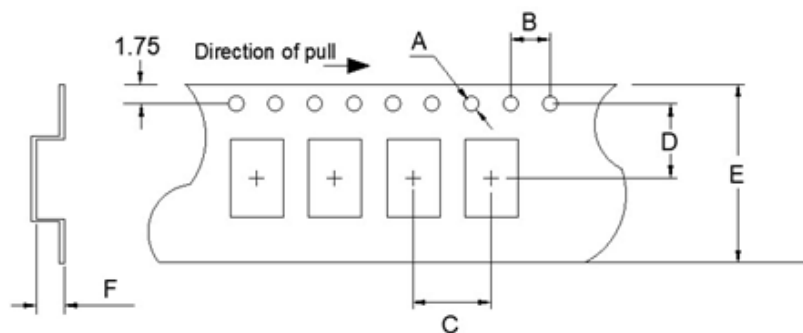
Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum (T_{smin})	100°C	150°C
Temperature maximum (T_{smax})	150°C	200°C
Time (T_{smin} to T_{smax}) (t_s)	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate (T_{smax} to T_p)	3°C/sec. max	3°C/sec. max
Liquidous temperature (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

*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.

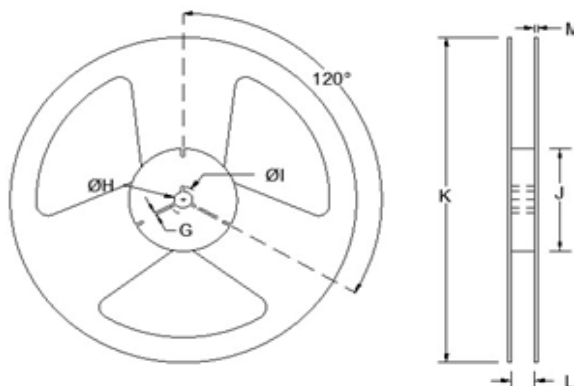
TAPE SPECIFICATIONS (mm)

A	B	C	D	E	F	REEL QTY
∅1.5	4.0	4.0	3.5	8.0	1.5	250 pcs/reel 1,000 pcs/reel 3,000 pcs/reel



REEL SPECIFICATIONS (mm)

G	H	I	J	K	L	M
2.5	∅13	∅21	∅60	∅180	9.0	2.0



Option "-T": Tape and reel (1,000pcs/reel): ABM8, ABM82
Tape and reel (3,000pcs/reel): ABM81
Option "-T2": Tape and reel (250pcs/reel): ABM8
Option "-T3": Tape and reel (3,000pcs/reel): ABM8, ABM82 only