

# Ultra-low ESR HC49/US (AT49)SMD MICROPROCESSOR CRYSTAL

**ABLS-LR**



**RoHS**  
Compliant



11.5 x 4.8 x 4.2 mm

**Moisture Sensitivity Level (MSL) – This product is Hermetically Sealed and not Moisture Sensitive - MSL = N/A: Not Applicable**

## FEATURES:

- Ultra low ESR as low as 20 ohms for 4MHz, 85% lower than typical SMD Low Profile HC49S Crystals
- Low negative resistance(-R) IC design can ensure high oscillation margin
- Tight stability and automotive grade temperature available
- Hermetically resistance weld sealed

## APPLICATIONS:

- Low negative resistance u-controller design for low frequency
- Wide range of automotive applications
- Industrial applications

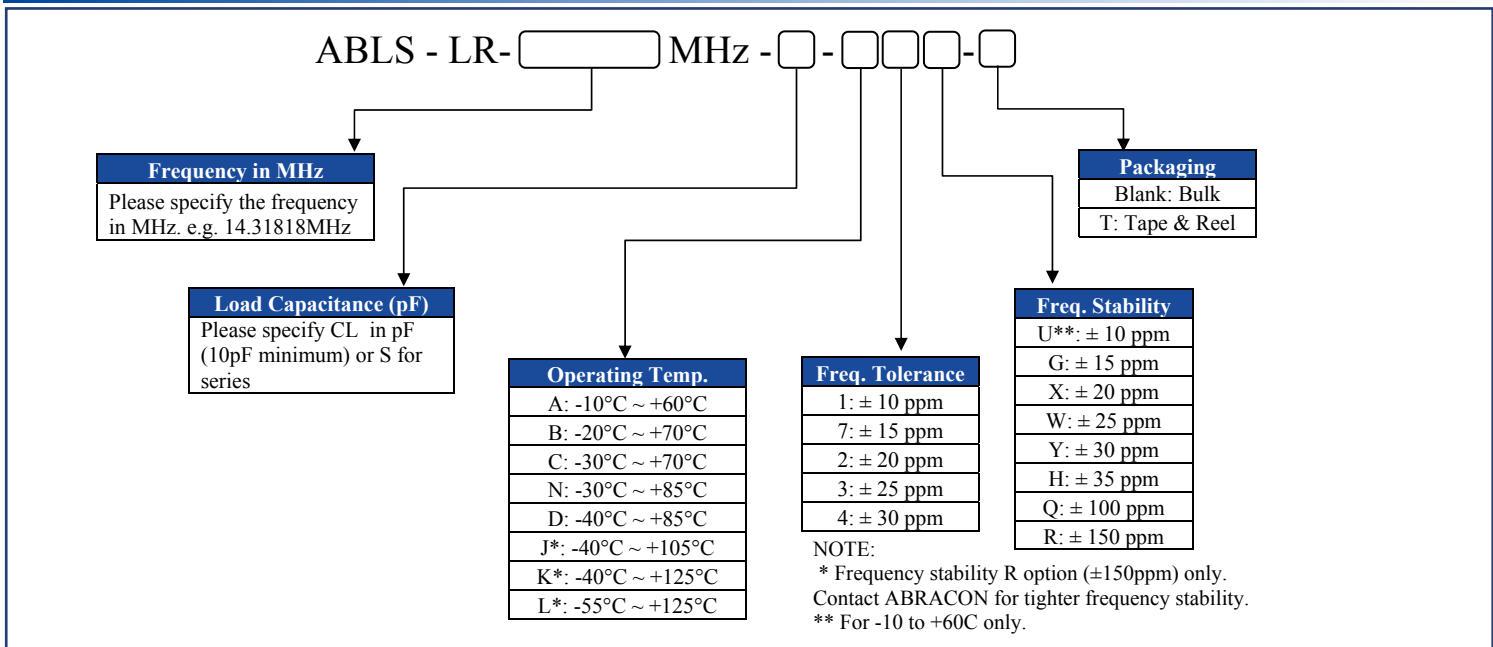
## STANDARD SPECIFICATIONS:

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Range	3		36	MHz	
Operation Mode	Fundamental				
Operating Temperature	0		+70	°C	See options
Storage Temperature	-55		+125	°C	
Frequency Tolerance @+25°C	-50		+50	ppm	See options
Frequency Stability over the Operating Temperature ( ref. to +25°C)	3.0~3.579545MHz	-100	+100	ppm	Standard only
	3.579545~36MHz	-50	+50		See options
Equivalent series resistance (R1)	See table 1 below			Ω	
Shunt capacitance (C0)			7	pF	
Load capacitance (CL)	18			pF	See options
Drive Level		100	1000	μW	
Aging	-5		+5	ppm	@25°C±3°C First year
Insulation Resistance	500			MΩ	@ 100Vdc ± 15V
Spurious Response			-3	dB	
Drive level dependency (DLD)	Minimum 7 points tested: from 1μW to 500μW. Change in frequency (Maximum - Minimum) over DLD range < ±10ppm Change in ESR (Maximum - Minimum) over DLD range < 25% of Max ESR value. Maximum ESR over DLD range < Max ESR value.				

TABLE 1: ESR

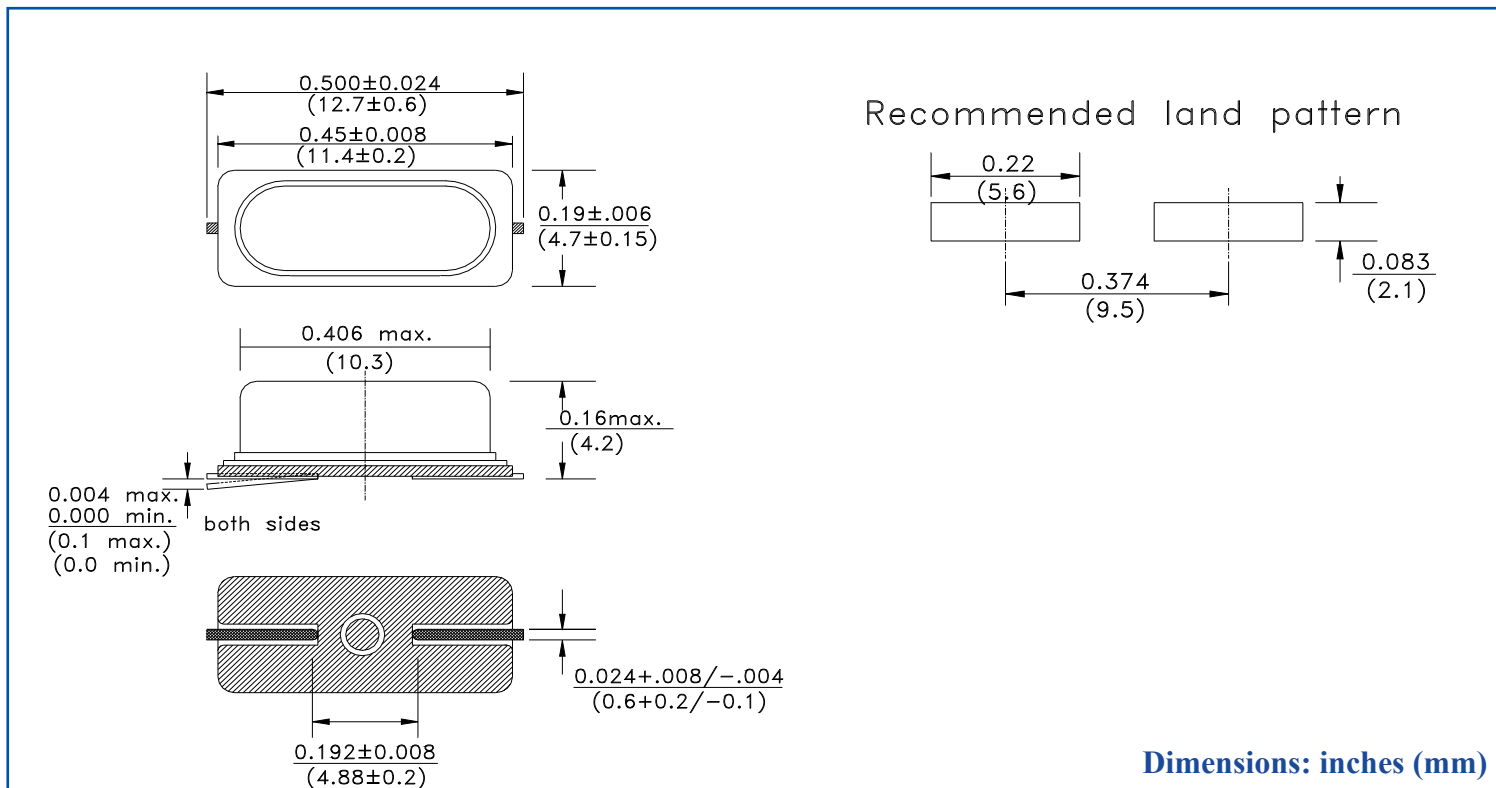
FREQUENCY (MHz)	ESR (Ω) Max.
3.000000	100
3.072000	100
3.276800	75
3.500000 ~ 4.000000MHz	40
4.000001 ~ 4.500000MHz	30
4.500001 ~ 5.999999MHz	25
6.000000 ~ 7.499999MHz	20
7.500000 ~ 12.999999MHz	15
13.000000 ~ 36.000000MHz	10

## OPTIONS & PART IDENTIFICATION: (Left blank if standard)

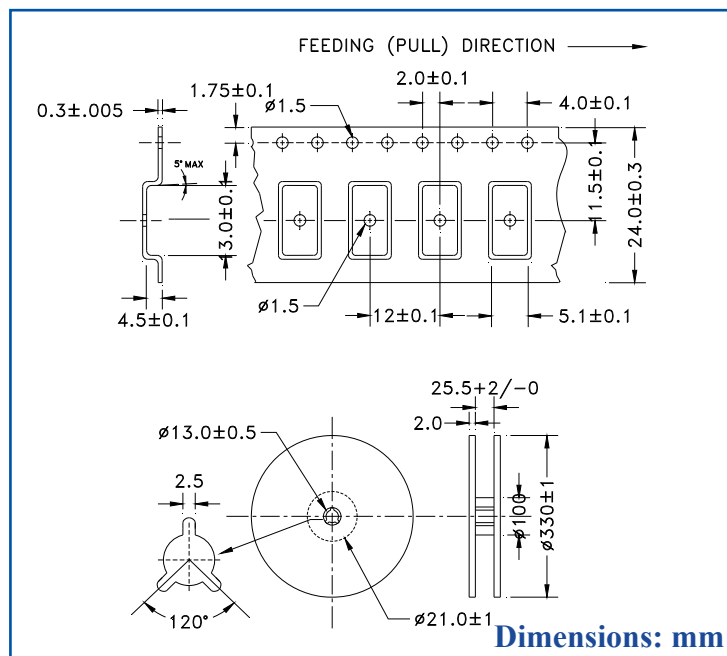




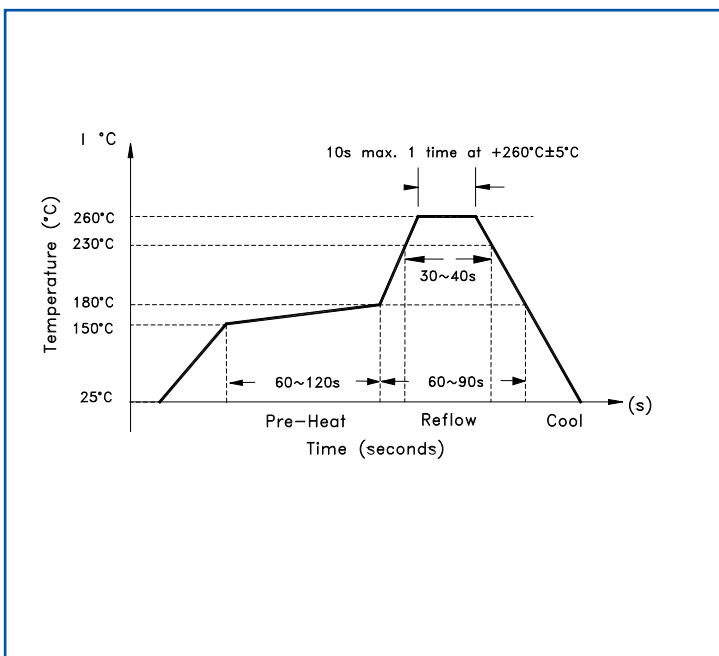
## ➤ OUTLINE DRAWING:



## ➤ TAPE & REEL: T = tape and reel (1000pcs/reel)



## ➤ REFLOW PROFILE:



**ATTENTION:** Abracon Corporation's products are COTS – Commercial-Off-The-Shelf products; suitable for Commercial, Industrial and, where designated, Automotive Applications. Abracon's products are not specifically designed for Military, Aviation, Aerospace, Life-dependant Medical applications or any application requiring high reliability where component failure could result in loss of life and/or property. For applications requiring high reliability and/or presenting an extreme operating environment, written consent and authorization from Abracon Corporation is required. Please contact Abracon Corporation for more information.