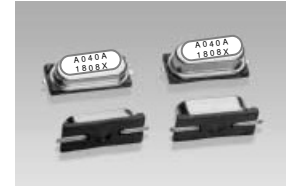


**SMD CRYSTAL UNITS (Rohs Compliant / Lead Free)**  
**HC-49S-SMD Crystal (APS-SMD Series)**



**- SPECIFICATIONS**

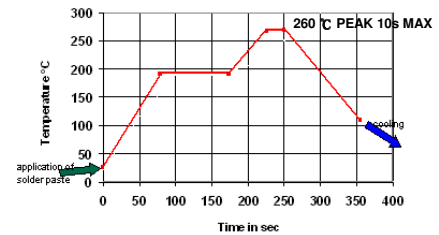
<b>FREQUENCY RANGE</b>		3.20MHz TO 66.000 MHz
<b>MODE OF OSCILLATION</b>	<b>FUNDAMENTAL</b>	3.20MHz TO 40.0MHz
	<b>THIRD OVERTONE</b>	30.0MHz TO 66.0MHz
<b>FREQUENCY TOLERANCE AT 25°C</b>		±30PPM STANDARD
		<±30PPM ARE AVAILABLE
<b>FREQUENCY STABILITY OVER TEMPERATURE RANGE</b>		±30PPM STANDARD
		<±30PPM ARE AVAILABLE
<b>OPERATING TEMPERATURE RANGE</b>		-20°C TO +70°C STANDARD
		-40°C TO +85°C EXTENDED
<b>STORAGE TEMPERATURE RANGE</b>		-55°C TO +125°C
<b>SHUNT CAPACITANCE</b>		7pF MAXIMUM
<b>LOAD CAPACITANCE</b>		10pF TO SERIES OR SPECIFIED
<b>EQUIVALENT SERIES RESISTANCE (ESR)</b>		SEE TABLE
<b>DRIVE LEVEL</b>		100 TO 500µW
<b>AGING PER YEAR</b>		±5PPM MAXIMUM STANDARD
		<±5PPM ON REQUEST



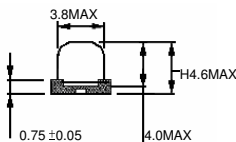
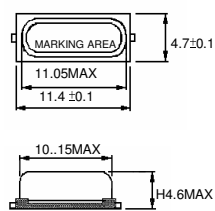
**- Equivalent Series Resistance (ESR) and Mode Of Vibration (Mode)**

Frequency Range (MHz)	ESR max.	Mode	Frequency Range (MHz)	ESR max.	Mode
3.200 to 4.499	150	Fundamental/AT	9.000 to 9.999	60	Fundamental/AT
4.500 to 5.999	120	Fundamental/AT	10.000 to 12.999	50	Fundamental/AT
6.000 to 6.999	100	Fundamental/AT	13.000 to 30.000	40	Fundamental/AT
7.000 to 7.999	90	Fundamental/AT	27.000 to 40.000	40	Fundamental/BT
8.000 to 8.999	80	Fundamental/AT	30.000 to 66.000	80	Third Overtone

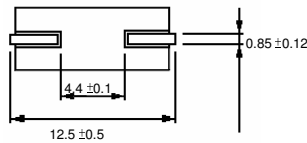
**- SOLDER REFLOW PROFILE**



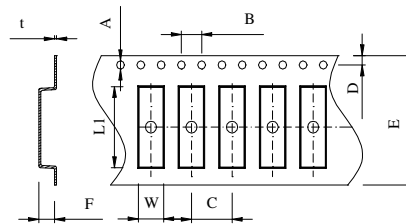
**- OUTLINE DIMENSIONS**



Unit: mm



**- CARRIER TAPE DIMENSIONS (1,000 pcs/reel)**



HEIGHT "H" (MAXIMUM)	
STANDARD	4.6MM
L32	3.2MM
L3	3.0MM
L28	2.8MM

A	B	C	D	E	F
1.5±0.1	4.0±0.1	12.0±0.1	1.75±0.1	24.0±0.3	4.8±0.1
L1	W	t			
13.3±0.1	5.1±0.1	0.4±0.05			

ORDERING CODE SYSTEM (VERSION 1.2 UPDATED MAY 2008)					EXAMPLE:
SERIES	FREQUENCY	LOAD CAPACITANCE	TEMPERATURE RANGE	TOLERANCE/ STABILITY	APS-SMD-4-20X-2020
APS-SMD	IN MHZ	10pF TO SERIES OR SPECIFIED	X: EXT.TEMP.-40 TO +85°C BLANK: STANDARD	2020: PPM/PPM BLANK: STANDARD	

NON STANDARD FREQUENCIES AND SPECIFICATIONS ARE AVAILABLE ON REQUEST

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Specifications are subject to change without notice