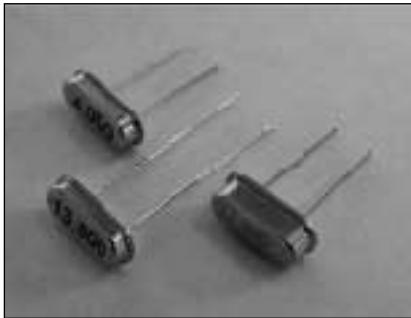


# HC -49US THRU HOLE

Type: 92, 93, 9S, 94, 95



## APPLICATION:

- . Computers, Modems, and Networking
- . Telecommunication
- . Industrial
- . Consumer Electronics

## FEATURES:

- . High Reliability
- . Tight Stability & Extended Temperature Available

## OPTIONS:

- . Height of Lead Type: 2.15, 2.5, 3.5, 4, and 5mm MAX
- . Paper Tape & Reel Packing/ Ammo Packing
- . Bent Lead and Formed Lead
- . Tailor Made Spec. or Designer Spec Welcome
- . Center Third Lead On Base
- . Insulator For Both 2 Leads and 3 Leads
- . Laser Marking or Ink Marking

## STANDARD SPECIFICATION

Frequency Range	3.01MHz~100.000MHz (Consult Factory For Specific Available Frequencies)		
Oscillation Modes	AT Cut Fundamental 3.01MHz~40MHz	BT Cut Fundamental 27MHz~50MHz	AT Cut 3 <sup>rd</sup> Overtone 26MHz~100 MHz
Equivalent Series Resistance ESR/Rs (Measured at Series Resonance)	3.01 ~ 4.000MHz: 300~150 Ohm 4.01 ~ 5.500 MHz: 130~80 Ohm 5.51 ~ 8.000 MHz: 60~50 Ohm 8.01 ~ 40.000MHz: 40~30 Ohm	40 Ohm	100 Ohm
Frequency Tolerance at 25°C	±30PPM is standard, but tight tolerances also available for certain frequencies		
Frequency Stability Over Operating Temperature Range	±50PPM is standard, but tight tolerances also available for certain operating temperature range.		
Operating Temperature Range	-10~+60°C is standard, but can be extended to -55~+125°C		
Load Capacitance	8pF ~ ∞ pF (∞ pF mean series Resonance). To be specified by customer		
Drive Level	50μW is standard, 0.001μW to 1000 μW also available		
Ageing	±5PPM per year is standard, but ±1 PPM also available		
Shunt Capacitance	7pF Maximum		
Pullability	May be specified by customer in terms of frequency shift required over a certain range of load capacitance, (e.g. +100PPM from CL= 12pF to CL=18pF)		

\* Specification subject to change without prior notice.

\* Packing information refer to page 40  
\* Marking Information refer to page 38  
\* Additional option refer to page 36-37

## ORDERING INFORMATION

Type	Frequency	Tolerance at 25°C	Load Capacitance	Mode	T.C. Range	T.C. Tolerance																												
92 = 2.15mm 93 = 2.50mm 9S = 3.50mm 94 = 4.00mm 95 = 5.00mm	A=±5 L=±70 B=±10 M=±2.5 C=±15 N=±150 D=±20 P=±35 E=±30 Q=±60 F=±50 R=±80 G=±100 S= see serial H=±25 I=±200 J=±45 2=±2 ppm K=±40 3=±3 ppm 4=±4 ppm	Load Capacitance 32=32pF 10=10pF 08=8pF CS=Series	F=Fund B=BT Cut 3=3 <sup>rd</sup> Overtone	1=-20°C To 60°C A=-40°C To 85°C 2=0°C To 70°C B=-20°C To 50°C 3=-20°C To 70°C C=40°C To 90°C 4=-10°C To 70°C D=0°C To 40°C 5=-10°C To 60°C E=0°C To 60°C 6=0°C To 50°C F=-30°C To 70°C 7=-25°C To 70°C G=-55°C To 85°C 8=0°C To 80°C H=-55°C To 105°C 9=-20°C To 85°C J=-40°C To 40°C K=-40°C To 105°C L=40°C To 125°C M=-55°C To 125°C S= see serial no. for detail	Please Refer to tolerance at 25°C table																													
<p>Frequency</p> <p>First digit shows frequency range</p> <table border="1"> <thead> <tr> <th>1<sup>st</sup> digit</th> <th>Range</th> <th>Format</th> <th>Example</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>1MHz to 9.999999MHz</td> <td>Lxxxxxxx</td> <td>1.288000MHz = L1 288000</td> </tr> <tr> <td>M</td> <td>10MHz to 99.999999MHz</td> <td>Mxx xxxxx</td> <td>3.579545MHz = L3 579545</td> </tr> <tr> <td></td> <td>100MHz to 999.999999MHz</td> <td>xxx. xxxxx</td> <td>14.31818MHz = M14 31818</td> </tr> <tr> <td></td> <td></td> <td></td> <td>68.86000MHz = M68 86000</td> </tr> <tr> <td></td> <td></td> <td></td> <td>100.00000MHz = 100 00000</td> </tr> <tr> <td></td> <td></td> <td></td> <td>450.12300MHz = 450 12300</td> </tr> </tbody> </table>							1 <sup>st</sup> digit	Range	Format	Example	L	1MHz to 9.999999MHz	Lxxxxxxx	1.288000MHz = L1 288000	M	10MHz to 99.999999MHz	Mxx xxxxx	3.579545MHz = L3 579545		100MHz to 999.999999MHz	xxx. xxxxx	14.31818MHz = M14 31818				68.86000MHz = M68 86000				100.00000MHz = 100 00000				450.12300MHz = 450 12300
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Item	Dimension
A	10.16 MAX
B	3.81 MAX
C	X'tals Type
92	2.15 MAX
93	2.50 MAX
9S	3.50 MAX
94	4.00 MAX
95	5.00 MAX
D	13.2 ± 0.5
E	4.88 ± 0.2
F	0.45 ± 0.05
G	11.05 MAX
H	4.70 MAX

