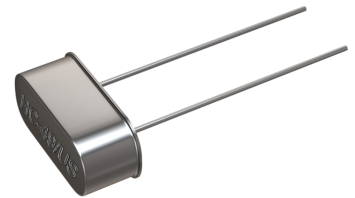


# THT QUARTZ CRYSTAL

## SERIES HC-49/US

### FEATURES

- + High reliability for low cost
- + Low profile—3.5 and 2.5 mm max. package height
- + Extended temperature range to -40/+125°C
- + Excellent clock signal generator for CPU 's
- + Qualified for automotive applications



### GENERAL DATA

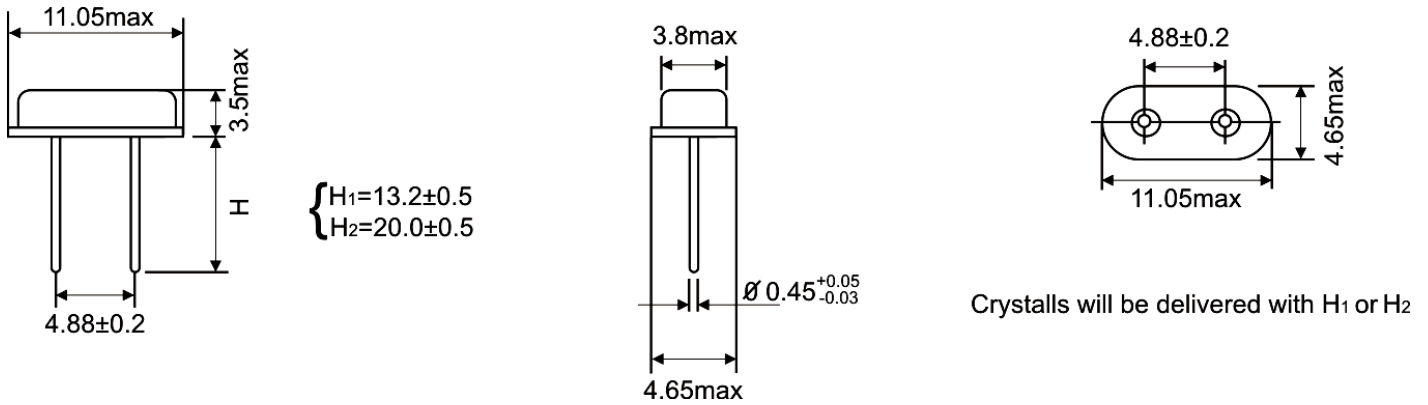
PB FREE / ROHS COMPLIANT

PARAMETERS	PRODUCT FEATURES AND CONDITIONS
SMD-CRYSTAL SERIES	HC-49/US
NUMBER OF LEADS	HC-49/US = 2 (standard) HC-49/3US = 3 (middle pin for grounding)
OPTIONS FOR HOUSING	Insulator = for 2 leads and 3 leads housing Cutted leads = only for 2 leads housing
FREQUENCY RANGE	3.48755 ~ 36.0 MHz AT-Fundamental 24.0 ~ 44.0 MHz BT-Fundamental 24.576 ~ 75.0 MHz 3rd Overtone
FREQUENCY TOLERANCES AT 25°C	±5 ppm ~ ±50 ppm
LOAD CAPACITANCE (C <sub>L</sub> )	6 pF ~ 50 pF or Series
WORKING TEMPERATURE RANGES	0/+50°C ~ -40/+125°C
SHUNT CAPACITANCE (C <sub>0</sub> )	7 pF max.
DRIVE LEVEL	100 µW typical (0.01 mW ~ 1 mW possible on request)
AGING	±3 ~ ±5 ppm per year standard (±2 ppm available as option)
INSULATION RESISTANCE	>500 MΩ DC/100V ±10%
STORAGE TEMPERATURE	-55°/+125°C
DELIVERY FORM	Standard = Bults for 2 leads and 3 leads housing Option = Paper Tape on Reel only for 2 leads housing
<a href="#">SELECT YOUR REQUIRED CRYSTAL (PRODUCT CONFIGURATOR)</a>	<a href="#">REQUEST CRYSTAL SAMPLES (SAMPLE CONFIGURATOR)</a>

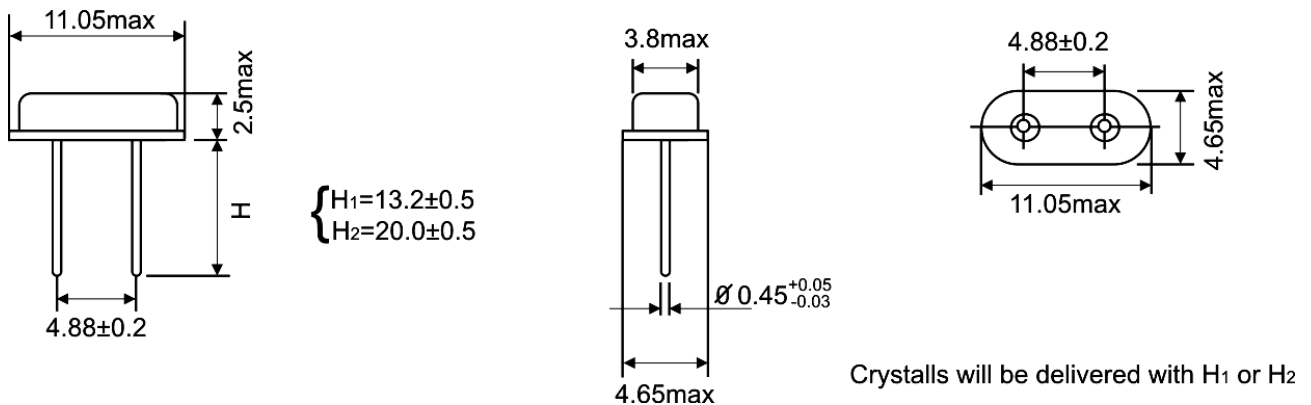
### FREQUENCY STABILITY VS. TEMPERATURE

	±3ppm	±5ppm	±10ppm	±15ppm	±20ppm	±30ppm	±50ppm
0°/+50°C	+	+	+	+	+	+	+
-10°/+60°C		+	+	+	+	+	+
0°/+70°C			+	+	+	+	+
-20°/+70°C			+	+	+	+	+
-40°/+85°C				+	+	+	+
-40°/+105°C						+	+
-55°/+125°C							+

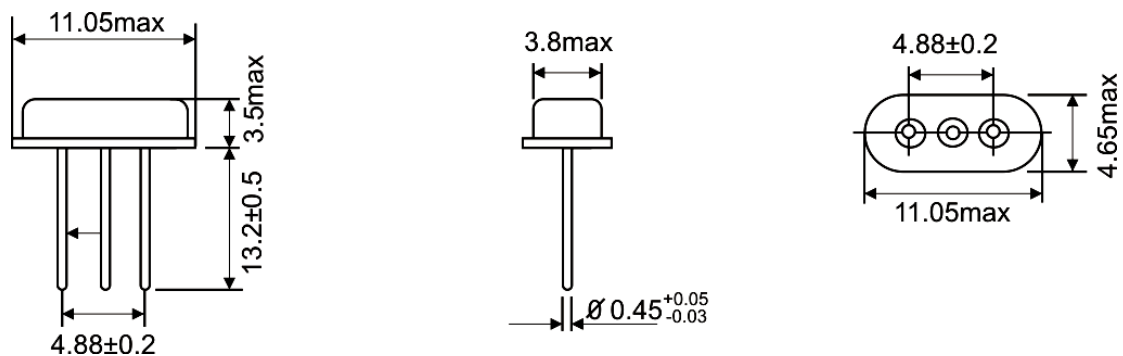
## DIMENSIONS OF HC-49/US (standard package height of 3.5mm max.)



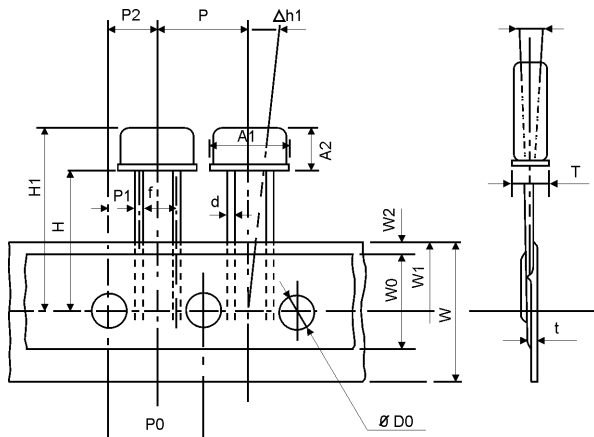
## DIMENSIONS OF HC-49/US (optional package height of 2.5mm max.)



## DIMENSIONS OF HC-49/3US



## REEL SPECIFICATION OF HC-49/US (only for 2pin Housing)



Description	Symbol	Dimensions
Outside Diameter of Part	A1xA2	11.1x3.5
Thickness of Part	T	5.0max
Lead Wire Diameter	d	Ø0.43 <sup>+0.05</sup> <sub>-0.02</sub>
Interval Spacing of Part	P	12.7±1.0
Pitch to Leading Hole	P0	12.7±1.0
Tolerance of Leading Hole	P1	3.85±0.7
	P2	6.35±1.0
Lead Pitch	F	5.0 <sup>+0.5</sup> <sub>-0.2</sub>
Inclination	Δ h	0±1.0
Tape Width	W	18.2±0.2
Adhesive Tape Width	W0	13.0 <sup>+0.8</sup> <sub>-0.2</sub>
Tolerance of Leading Hole (Vertical)	W1	9.0±0.5
Tolerance of Cover Tape	W2	2.0max
Bottom Surface Position of Part	H	20.5±0.5
Top Surface Position of Part	H1	24.0max
Hole Diameter	D0	Ø4.0±0.2
Tape Thickness	t	0.7±0.1
Inclination	Δ h1	0±1.0

Unit:mm

## ORDERING INFORMATION

SERIES  
HC-49/US  
OR  
HC-49/3US

FREQUENCY  
3.48755 ~ 36.0 MHz  
AT-FUNDAMENTAL  
24.0 ~ 44.0 MHz BT-  
FUNDAMENTAL  
24.576 ~ 75.0 MHz  
3rd OVERTONE

FREQUENCY  
TOLERANCE  
AT 25°C  
±5 PPM ~ ±50 PPM

TEMPERATURE  
RANGE  
0°/+50°C  
-10°/+60°C  
0°/+70°C  
-20°/+70°C  
-40°/+85°C  
-40°/+125°C  
-55°/+125°C

HC-49/US 3.5 27.000 MHz 30/50/-40+125/20pF

HOUSING  
3.5 mm  
2.5 mm

TEMPERATURE  
STABILITY  
See Table  
„FREQUENCY  
STABILITY VS.  
TEMPERATURE“

LOAD  
CAPACITANCE  
6 pF ~ 50 pF or Series

EXAMPLE: HC-49/US 3.5 27.000 MHz 30/50/-40+125/20pF  
PLEASE INDICATE YOUR REQUIRED PARAMETERS

## RESONANCE RESISTANCE

FREQUENCY IN MHz	VIBRATION MODE	ESR MAX. IN $\Omega$
3.5 ~ 3.79 MHz	AT Fund.	120
3.9 ~ 4.99 MHz	AT Fund.	100
4.5 ~ 5.99 MHz	AT Fund.	90
6.0 ~ 6.99 MHz	AT Fund.	70
7.0 ~ 7.99 MHz	AT Fund.	70
8.0 ~ 8.99 MHz	AT Fund.	60
9.0 ~ 9.99 MHz	AT Fund.	60
10.0 ~ 11.99 MHz	AT Fund.	50
12.0 ~ 19.99 MHz	AT Fund.	40
20.0 ~ 26.99 MHz	AT Fund.	30
27.0 ~ 40.00 MHz	AT Fund.	25
27.0 ~ 40.00 MHz	3rd OT AT	100
40.0 ~ 40.00 MHz	3rd OT AT	60

## REVISION HISTORY

REVISION	RELEASE DATE	AMENDMENTS SUMMARY
0.0	APRIL 2015	+ Initial Data Sheet (SPEC 01/REV.00)
0.1	OCTOBER 2016	+ Revised frequency ranges, frequency stability, dimensions of HC-49/US and HC-49/3US + Added additional operating temperature range (-55°C to 125°C)



## PREMIUM QUALITY BY PETERMANN-TECHNIK



OUR COMPANY IS CERTIFIED ACCORDING TO ISO 9001:2008 IN OCTOBER 2013 BY THE DMSZ CERTIFIKATION GMBH.

THIS IS FOR YOU TO ENSURE THAT THE PRINCIPLES OF QUALITY MANAGEMENT ARE FULLY IMPLEMENTED IN OUR QUALITY MANAGEMENT SYSTEM AND QUALITY CONTROL METHODS ALSO DOMINATE OUR QUALITY STANDARDS.