

Quartz Crystals

H49

[10.7 * 4.5 * 13.2 mm]

Thru - Hole Crystals

Fund.

3rd O.T.

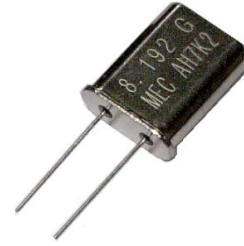
Min.
455 KHz

Max.
100 MHz

Features

Specifications

- Tight tolerance and stability. Ideal for communication equipment
- RoHS compliant



General Specifications

Item / Type	H49
Frequency Range	455KHz ~ 1.0MHz , 1.8MHz ~ 100.0MHz (see Table 1)
Load Capacitance	Series or Parallel (8 to 32 pF) resonance
Drive Level	100μ W typical (500μ W max.)
Frequency Tolerance	AT- cut : ± 10 ppm , ± 20 ppm or ± 30 ppm at 25°C
Frequency Stability	See Table 2
Aging	$\Delta F / F : \pm 5 \text{ ppm / year (max.)}$
Storage Temperature Range	- 55°C to 125°C

Table 1

ESR (Equivalent Series Resistance)					
Freq.(MHz)	E.S.R.	Osc. Mode	Freq.(MHz)	E.S.R.	Osc. Mode
0.455	3000 Ω	CT , Fund.	4.0 ~ 4.9	70 Ω	AT , Fund.
0.5 ~ 1.0	3000 Ω	SL , Fund.	5.0 ~ 7.9	60 Ω	
1.8 ~ 1.9	500 Ω	AT , Fund.	8.0 ~ 9.9	30 Ω	
2.0 ~ 2.4	450 Ω		10.0 ~ 50.0	25 Ω	
2.5 ~ 2.9	350 Ω		24.0 ~ 100.0	40 Ω	AT , 3rd
3.0 ~ 3.9	90 Ω				

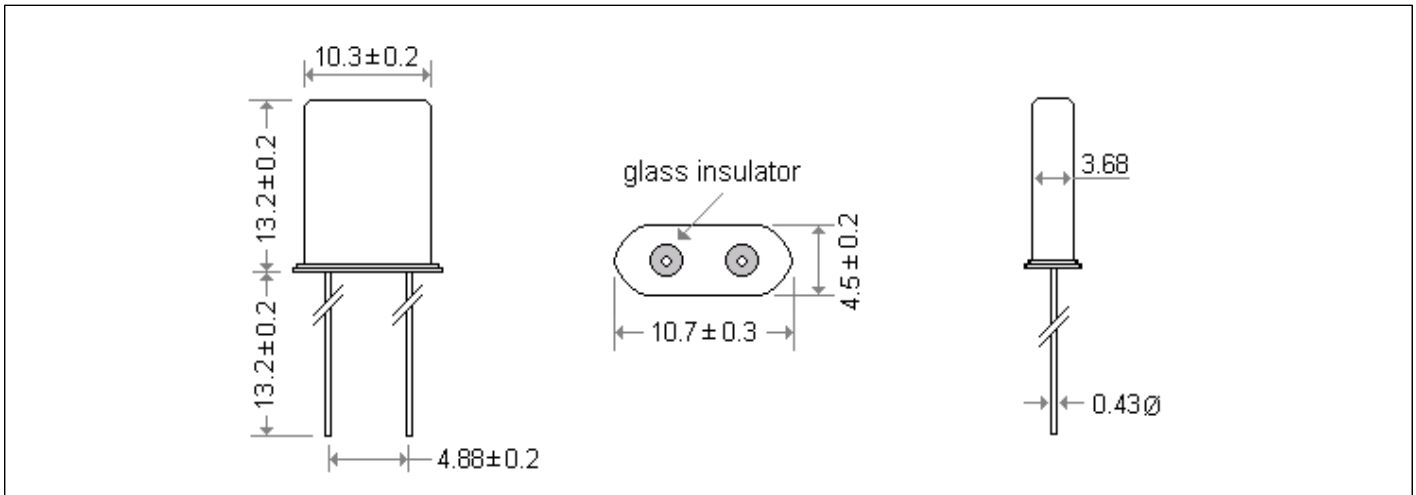
Table 2

Frequency stability vs Operating temperature range								
Stability code	Temp. (°C) \ ppm	± 5	± 10	± 15	± 20	± 25	± 30	± 50
X	-10 to 60°C	○	○	○	○	○	○	○
Y	-20 to 70°C	▲	○	○	○	○	○	○
I	-40 to 85°C		▲	○	○	○	○	○

○ : available

▲ : contact Mercury

Outline Dimensions (Unit : mm)



Mercury www.mercury-crystal.com

■ Taiwan : Tel: (+886)-2-2406-2779 / sales-tw@mercury-crystal.com

■ USA : Tel: (+1)-909-466-0427 / sales-us@mercury-crystal.com

■ China : Tel: (+86)-512-5763-8100 / sales-cn@mercury-crystal.com

Part Number Formats and Product Marking Rules

Quartz Crystals

Holder Type

SMD type :	X11	X21	X22	X32	X42	MJ	MF	MQ	M49	ML49	MP5	MP4	MP25	MP24
Dip type :	H49	HUS	HUSL	U1	U5	T38	T26							
Jacket type :	H49MJ	49TMJ	U1MJ	U5MJ	T26MJ									
Gull wing :	H49SM	49TSM	U1SM	U5SM	T26SM									

Part Number Format

	[1] Holder Type	-	[2] Center Freq.	-	[3] CL	-	[4] Freq. Tolerance	/	[5] Freq. Stability	[6] Operating Temp. Range Code	/	[7] Special ESR
Example	(1)	H49	40.000A3	-	12	-	30	/	30	X		
	(2)	X32	26.000	-	16	-	30	/	30	X	/	20R
	(3)	MJ	12.000	-	20	-	10	/	10	W		
	(4)	M49	24.000	-	18	-	20	/	30	H	/	15R

- Ex (1) : H49 - 40.000A3 - 12 - 30 / 30 X [49/U type , 40.000MHz , AT-cut 3rd overtone , 12pF , ±30ppm (25°C) , ±30ppm (-10°C to 60°C)]
 Ex (2) : X32 - 26.000 - 16 - 30 / 30 X / 20R [X32 type , 26.000MHz , 16pF , ±30ppm (25°C) , ±30ppm (-10°C to 60°C) , 20 Ω]
 Ex (3) : MJ - 12.000 - 20 - 10 / 10 W [MJ type , 12.000MHz , 20pF , ±10ppm (25°C) , ±10ppm (0°C to 50°C)]
 Ex (4) : M49 - 24.000 - 18 - 20 / 30 H / 15R [M49 type , 24.000MHz , 18pF , ±20ppm (25°C) , ±30ppm (-30°C to 85°C) , 15 Ω]

[1]	Holder Type										
[2]	Center frequency . Please add " A3 , A5 or B " after the " Freq. in MHz " for the quartz cut other options . Blank : AT-cut fund. mode ; A3 : AT-cut 3rd overtone ; A5 : AT-cut 5th overtone ; B : BT-cut fund. mode										
[3]	Load Capacitance (CL) : series (spec. code is " S ") or										
	Parallel (If parallel , please specify CL value , typical CL ranges from 8 to 32 pF)										
	Available Options " V " = Vinyl sleeve around holder , " K " = 3rd lead at bottom center , " R " = On reel " G " = 3rd lead at top center , " I " = Teflon insulator at bottom										
[4]	Calibration tolerance value : freq. tolerance value (at 25°C) , industrial temp. range										
[5]	Frequency Stability , industrial temp. range										
[6]	Temp. Range	W	0°C ~ +50°C	X	-10°C ~ +60°C	Y	-20°C ~ +70°C	F	-30°C ~ +70°C	G	-10°C ~ +80°C
	Options	H	-30°C ~ +85°C	I	-40°C ~ +85°C	J	-40°C ~ +90°C	K	-40°C ~ +105°C	M	-55°C ~ +105°C
[7]	If non-standard please enter the desired ESR (Equivalent Series Resistance) after " / " , for example " 20R " : 20Ω										

Production Marking Rules

General X'tal package type marking rules	MQ, MF, MJ, X42 marking rules	X22, X32 marking rules																																																											
<p>(Cutting method) : A : AT-cut (fundamental) B : BT-cut (fundamental) 3 : AT-cut (3rd overtone) 5 : AT-cut (5th overtone)</p> <p>Lot code : (month) : Table 2 (Year) : ex: 2020 --- 0 2021 --- 1</p> <p>Load capacitance (CL) : Table 1</p>	<p>Mercury Logo</p> <p>(Cutting method) : A : AT-cut , fundamental B : BT-cut , fundamental 3 : AT-cut , 3rd overtone 5 : AT-cut , 5rd overtone</p> <p>Lot code : (Month) --- Table 2 (Year) --- 2020 --- 0</p> <p>Load capacitance (CL) : Table 1</p>	<p>Mercury Logo</p> <p>(Month) --- Table 2 (Year) 2020 --- 0 2021 --- 1</p> <p>X21 marking rules</p> <p>Mercury Logo</p> <p>(Month) --- Table 2 (Year) 2020 --- 0 2021 --- 1</p>																																																											
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