



INTERQUIP ELECTRONICS CO., LIMITED

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Crystal Resonator Specification and Approval Sheet

Customer: Apex Electronics Ltd.

Project Name: N/A

Applications: N/A

Contact Person: N/A

Customer P/N: N/A

1. Scope:

1.1 This specification applies to quartz crystal unit with a frequency of 20.000000MHz, which will be used in crystal oscillator applications.

2. Construction:

2.1 Type of Holder: THHF-49S3 (RoHS Compliant)

2.2 Enclosure Seal: Resistance weld

3. Characteristics:

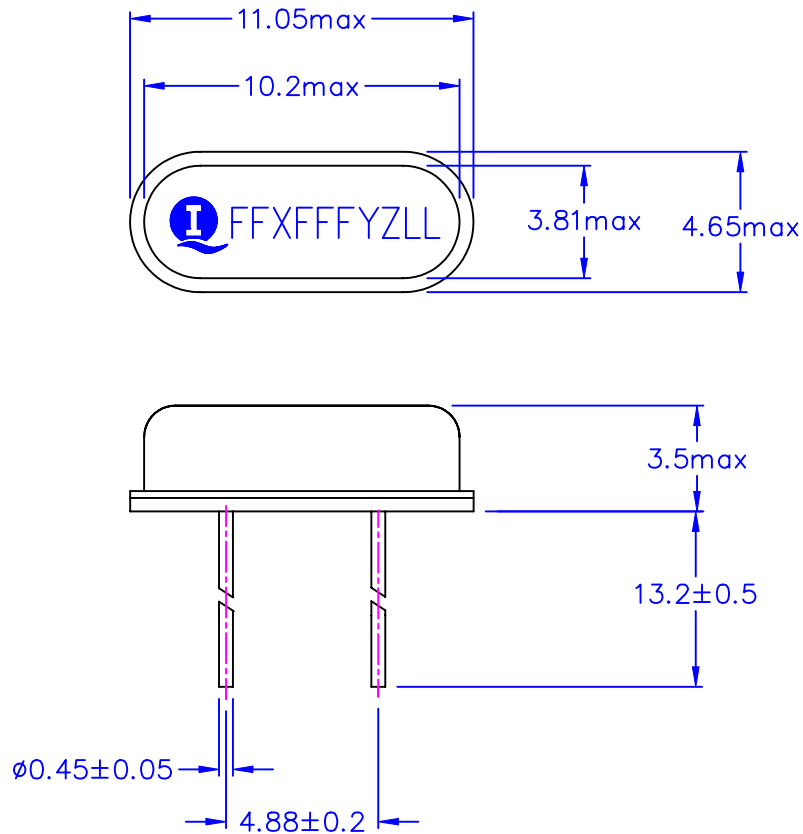
| | | | |
|------|--------------------------------------|---------------------|----------------------|
| 3.1 | Nominal Frequency | (f) | 20.000000MHz |
| 3.2 | Mode of Vibration | | Fundamental |
| 3.3 | Load Capacitance | (C _L) | 18pF |
| 3.4 | Frequency Tolerance at 25 °C±3 °C | (Δ f/f) | ±30 ppm |
| 3.5 | Resonance Resistance | (Ω) | 25 Ohm Max. |
| 3.6 | Shunt Capacitance | (C ₀) | 7pF Max. |
| 3.7 | Drive Level | (D _L) | 100uW |
| 3.8 | Frequency Deviation with Temperature | (Δ f/f) | ±30 ppm |
| 3.9 | Operating Temperature Range | (T _{OPR}) | -10°C to +70°C |
| 3.10 | Storage Temperature Range | (T _{STG}) | -55°C to +125°C |
| 3.11 | Insulation Resistance | (SR) | 500M Ω or More |
| 3.12 | Aging | (Δ f _A) | ±5 ppm per Year Max. |

4. Special Requirements:

No special requirement is needed

| | | | | | | | |
|------|--------------------|----|-------------------------|--------------------------------|--------------------|----------------|---------------|
| | | | | TITLE CRYSTAL RESONATOR | | DWG. | M Zhao |
| | | | | | | DATE | 07-03-10 |
| | | | | PART NO | 7C20000183AIAF25Q3 | TOLERANCE | CHKD. J Mok |
| | | | | MODEL | THHF-49S3 | X.± X.X± | DATE 07-03-10 |
| | | | | REMARK | | X.XX± ANGULAR± | APPD. XM Sun |
| | | | | | | DATE | 07-03-10 |
| DATE | MODIFY DESCRIPTION | BY | SALESMAN : Raymond Chan | | SHEET | 1/2 | REV 0 |

EXTERNAL DIMENSIONS



MARKING SPECIFICATIONS

-  — COMPANY'S LOGO
 FF FFF — REPRESENT FREQUENCY (MHz)
 X — REPRESENT PRODUCTION LINE CODE
 YZ — REPRESENT MONTH & YEAR CODE RESPECTIVELY
 " Y " :

| | | | | | | | | | | | | |
|-------|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|
| MONTH | Jan | Feb | Mar | Apr. | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| MARK | A | B | C | D | E | F | G | H | J | K | L | M |

" Z " CODE IS THE LAST NUMBER OF PRODUCTION YEAR

FOR INSTANCE:

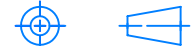
| | | | | | |
|------|------|------|------|------|------|
| YEAR | 2000 | 2001 | 2002 | 2003 | 2004 |
| MARK | 0 | 1 | 2 | 3 | 4 |

LL — REPRESENT LOT CODE (AA-ZZ)

2. DO NOT SCALE DRAWING
 NOTES: 1. ALL DIMENSIONS ARE IN MM



Interquip Electronics Co., Ltd

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|------|--------|-------------|----|-----------------------|--|---|--|-------|-------------|
| | | | | TITLE | | RESONATOR | | DWN. | M.Zhao |
| | | | | PART NO. | | TOLERANCE | | DATE | 2004.2.10 |
| | | | | MODEL | | X. \pm 0.3 X.X \pm 0.15 | | CHKD | Johnson Mok |
| | | | | REMARK | | X.XX \pm 0.05 ANGULAR \pm | | DATE | 2004.2.10 |
| | | | | | |  | | APPD. | XM.Sun |
| | | | | | | | | DATE | 2004.2.10 |
| DATE | MODIFY | DESCRIPTION | BY | DWG.NO. 004-06121-003 | | | | REV.3 | |