X5024 series

Nominal 5 x 2.4 mm blanks for
5x7mm ceramic SMD High Frequency Oscillators

XECO's X5024 crystal blank series offer high performance inverted mesa crystals at lower cost via an economical process achieving a frequency tolerance of 0.12f^2. The X5024 is intended for standard 5x7mm ceramic SMD package. Crystals are 100% tested and sorted by frequency and then sequentially packed into a waffle packs. Available to 170MHz on the fundamental and 240MHz for third overtone operation.

XECO proprietary processes yield a clean mesa and transition area to achieve good plating over the transitions and high crystal performance. The X5024 is a lower cost version of the RM196, which is supplied to a standard frequency tolerance of 0.02f^2.

A frequency report included with the shipment allows crystals to be selected by columns and rows to use for a plating group. Plating calibration setup accuracy is improved as the frequency of the crystals used is known, not just part of a sort group range.

FEATURES

- Rugged Crystal 4.978mm x 2.388mm
- Plateback set for Chrome-Gold electrodes or Aluminum Electrodes
- Sized for 5x7mm ceramic SMD
- 100% tested blanks for highest yield potential
- Stable oscillation
- High Q, chemically etched, free of etch channels or scratches in the Mesa area

APPLICATIONS

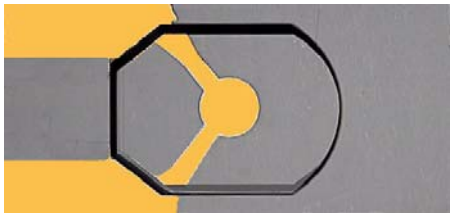
- Volume clock oscillators and VCXO
- Customer applications for SONET, 10G, 1G, Storage, network communications
- Small packaged crystals for precise frequency control applications

BENEFITS

- Low unit cost
- Higher yield through lower breakage (rugged)
- Flexible sorting groups
- More accurate plating calibration setup
- Excellent oscillator performance

PRODUCT OFFERING/RANGE

- Fundamental or overtone applications
- 50MHz to 170MHz Fundamental mode*
- 150MHz to 240 MHz third overtone mode*
- AT angles from 35D8' to 35D29.5' [EFG3D6' to 2D45']
- Standard angle tolerance of +/-2'
- Low etch Channel pure Z quartz with a Q minimum of 1.8 million
- Sorted and packed in order of frequency by each lot
- Cleaned and packed in vacuum sealed waffle packs



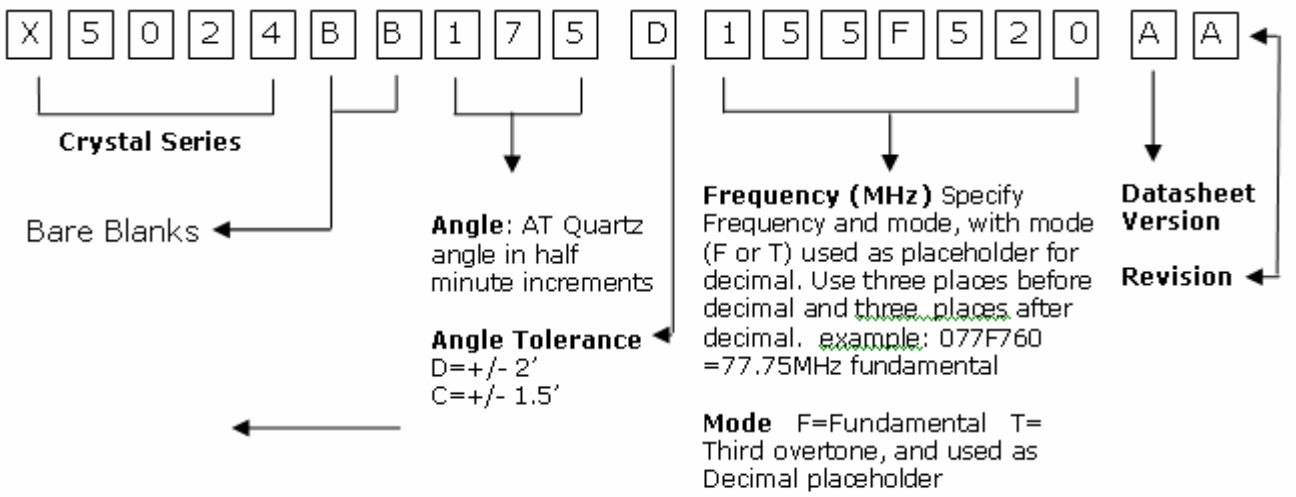
Typical electrode pattern for 5x7mm

*See RM196 series for higher frequencies or Z5024 for similar crystal for UM-1 packaging

9101 W. Sahara Ave. Suite 105-E10
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Ordering Information: XECO builds many frequency and specification combinations to meet specific customer requests. We list on the following tables those part types selected for general sale; however, you may specify or "build" your own part / specification using the part numbering system shown here. We will be pleased to make most any frequency inside our stated range — even higher! However, all manufacturing combinations may not be offered, so we recommend you contact VC America for assistance or pre-approval as to what is acceptable.

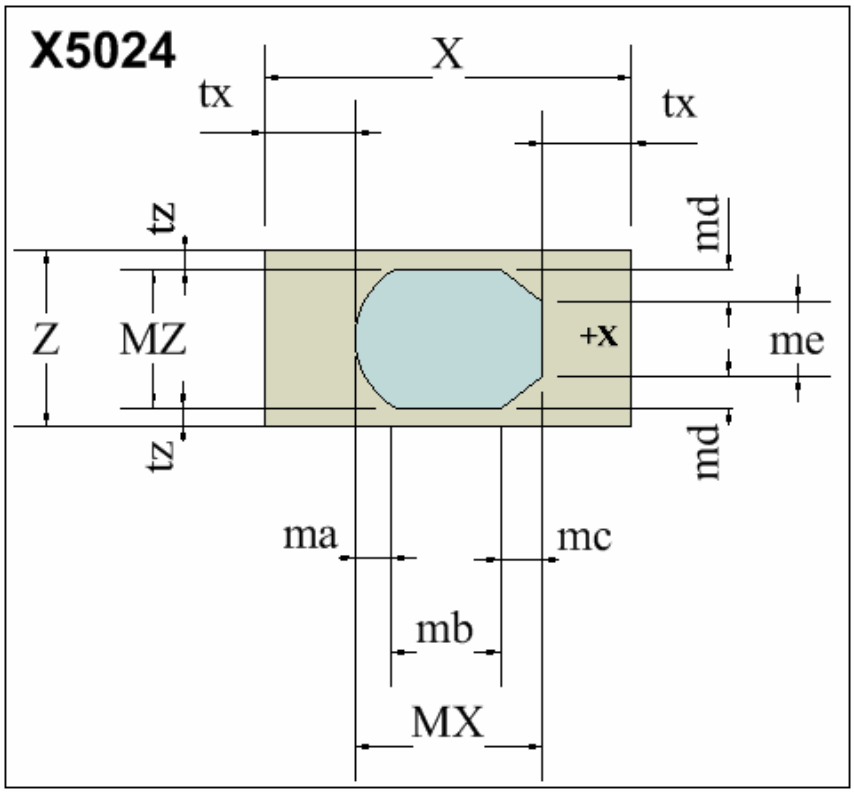
Below is a partial listing of some common frequencies. You may also specify the desired frequency range. In lieu of sort groups, XECO will supply a data report with all blanks pre-sorted and sequentially ordered into the waffle packs.

Part Number	Frequency	Mode	Cut_Angle	Angle Tol	Frequency Min	Frequency Max
X5024BB170D077F760AA	77.76	F	35° 17'	±2'	80.8446	81.5686
X5024BB170D155F520AA	155.52	F	35° 17'	±2'	167.0177	170.1437
X5024BB170D156F250AA	156.25	F	35° 17'	±2'	167.8557	171.0117
X5024BB170D161F133AA	161.13275	F	35° 17'	±2'	173.2116	176.5756
X5024BB245D155T520AA	155.52	T	35° 24.5'	±2'	53.4557	53.7717
X5024BB245D156T250AA	156.25	T	35° 24.5'	±2'	53.7147	54.0327
X5024BB245D161T133AA	161.13275	T	35° 24.5'	±2'	55.4171	55.7551
X5024BB245D187T500AA	187.5	T	35° 24.5'	±2'	64.729	65.193
X5024BB245D200T000AA	200	T	35° 24.5'	±2'	69.1138	69.6418
X5024BB245D212T500AA	212.5	T	35° 24.5'	±2'	73.594	74.194

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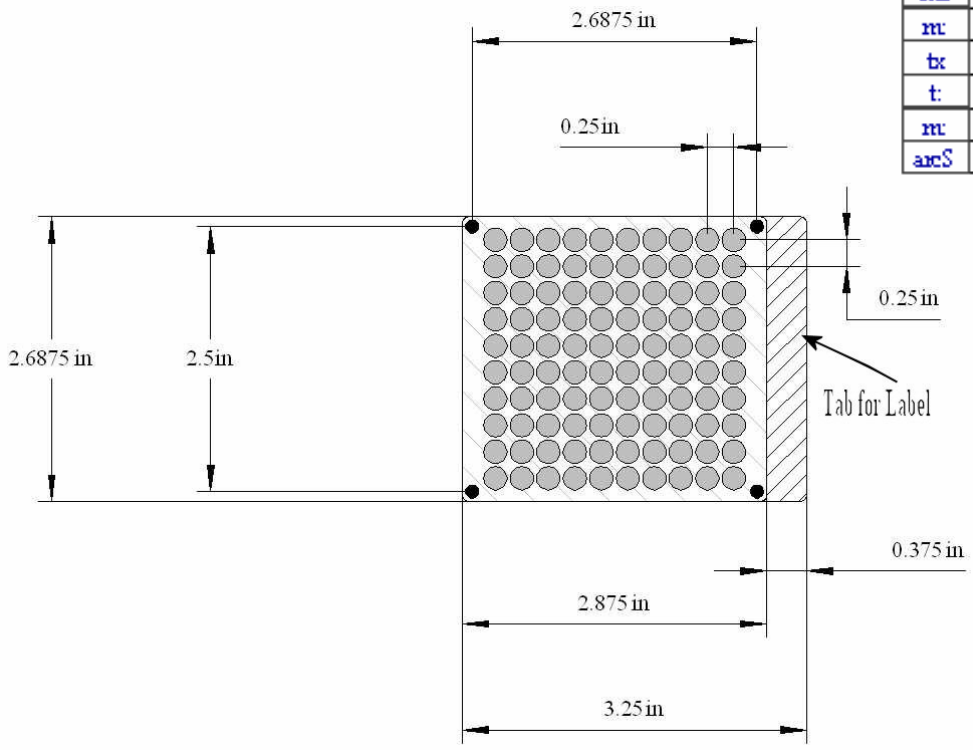


X5024 Blank drawing and dimensions

Device Dimensions

mm		
	mm	Tolerances
X	4.978	+0.000 -0.025
Z	2.388	+0.000 -0.025
MX	2.540	+0.025 -0.025
MZ	1.880	+0.025 -0.025
ma	0.483	+0.001 -0.001
mb	1.419	+0.003 -0.003
mc	0.559	+0.001 -0.001
md	0.432	+0.001 -0.001
me	1.016	+0.002 -0.002
tx	1.219	+0.013 -0.013
t:	0.254	+0.013 -0.013
m:		NA
arcS		NA

Inches		
mils (0.001")		Tolerances
X	196.00	+0.00 -1.00
Z	94.00	+0.00 -1.00
MX	100.00	+1.00 -1.00
MZ	74.00	+1.00 -1.00
ma	19.00	+0.05 -0.05
mb	55.88	+0.10 -0.10
mc	22.00	+0.05 -0.05
md	17.00	+0.05 -0.05
me	40.00	+0.08 -0.08
tx	48.00	+0.5 -0.5
t:	10.00	+0.5 -0.5
m:		NA
arcS		NA



XECO waffle pack dimensions

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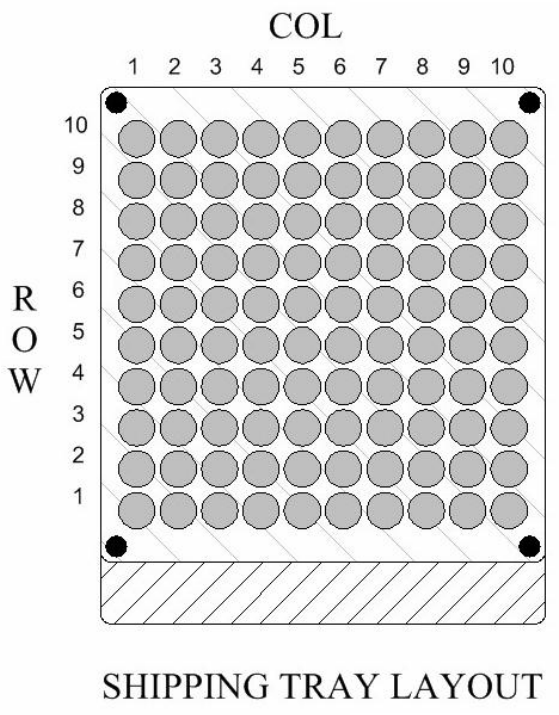
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This is a portion of a 5 page report submitted with a 300 unit, 3-waffle pack shipment to show how crystals are loaded into the waffle packs already sorted by frequency.

"6081205CM0723160.txt, 6/6/2005 12:00:00 AM"
Control No.: 6081205CM0723160 Basket No.: 1234
Customer PO: 1234 Xeco Work Order: 7777
Target Freq: 79.3625 Freq Tol: 0.14 Min: 78.9216 Max: 79.8034 Shipping Total: 300

TRAY	ROW	COL	FREQ(MHz)	TRAY	ROW	COL	FREQ(MHz)
1	1	1	78.94	1	6	1	79.1025
1	1	2	78.94	1	6	2	79.1025
1	1	3	78.94	1	6	3	79.1105
1	1	4	78.94	1	6	4	79.111
1	1	5	78.94	1	6	5	79.111
1	1	6	78.9665	1	6	6	79.1125
1	1	7	78.9665	1	6	7	79.1125
1	1	8	78.9715	1	6	8	79.1175
1	1	9	78.9715	1	6	9	79.1175
1	1	10	78.985	1	6	10	79.1225
1	2	1	78.985	1	7	1	79.1275
1	2	2	78.985	1	7	2	79.1285
1	2	3	78.986	1	7	3	79.1285
1	2	4	78.986	1	7	4	79.131
1	2	5	78.986	1	7	5	79.131
1	2	6	78.9865	1	7	6	79.1335
1	2	7	78.9865	1	7	7	79.1335
1	2	8	78.9875	1	7	8	79.1335
1	2	9	78.9875	1	7	9	79.1335
1	2	10	78.989	1	7	10	79.136
1	3	1	78.989	1	8	1	79.136
1	3	2	78.9975	1	8	2	79.1385
1	3	3	78.9975	1	8	3	79.1385
1	3	4	79.02	1	8	4	79.141
1	3	5	79.02	1	8	5	79.141

Report continues until 100 locations are filled



SHIPPING TRAY LAYOUT

"6081205CM0723160.txt, 6/6/2005 12:00:00 AM"

TRAY	ROW	COL	FREQ(MHz)	TRAY	ROW	COL	FREQ(MHz)
2	3	4	79.1825	2	8	4	79.2125
2	3	5	79.1825	2	8	5	79.2135
2	3	6	79.1825	2	8	6	79.2135
2	3	7	79.184	2	8	7	79.214
2	3	8	79.184	2	8	8	79.214
2	3	9	79.185	2	8	9	79.215
2	3	10	79.185	2	8	10	79.215

Report continues until 100 locations are filled

"6081205CM0723160.txt, 6/6/2005 12:00:00 AM"

TRAY	ROW	COL	FREQ(MHz)	TRAY	ROW	COL	FREQ(MHz)
Break in data; report completes at bottom							
3	5	2	79.236	3	10	2	79.2475
3	5	3	79.236	3	10	3	79.2475
3	5	4	79.2405	3	10	4	79.2485
3	5	5	79.2405	3	10	5	79.2485
3	5	6	79.2405	3	10	6	79.2485
3	5	7	79.2405	3	10	7	79.2485
3	5	8	79.241	3	10	8	79.2485
3	5	9	79.241	3	10	9	79.2485
3	5	10	79.241	3	10	10	79.2485

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