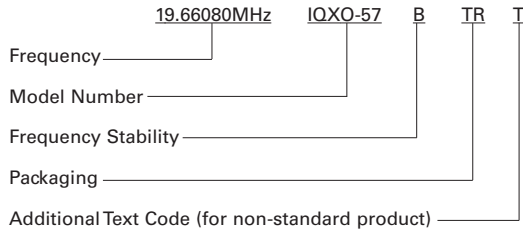


SPECIFYING SURFACE MOUNT SIMPLE PACKAGED CRYSTAL OSCILLATORS (SM SPXOs)

A typical surface mount SPXO specification reads like this:



The following notes define each element of the specification.

Frequency

Frequency is normally specified in kilohertz (kHz) up to 999.999kHz and in megahertz (MHz) from 1.0MHz. All our computer-generated transaction documents follow this standard convention automatically.

The SPXO frequency should be specified to seven significant figures. If seven significant figures are not used, we assume that any figure that might follow those given may be taken as zero. Thus a frequency given as 16.6MHz will be taken as 16.60, not 16.6666.

Please contact the sales office for details of developed frequencies.

Model Number

The model number incorporates information which describes output compatibility and holder style.

Frequency Stability

The frequency stability of a surface mount oscillator includes the initial adjustment tolerance at room temperature, the tolerance over operating temperature range and the effect of supply voltage variation. This value is specified as 'parts per million' (ppm) and is available in three ranges; ± 25 ppm, ± 50 ppm, 100ppm.

The following codes apply:

- A = ± 25 ppm
- B = ± 50 ppm
- C = ± 100 ppm

Operating Temperature Range

- 0 to 70°C
- -10 to 70°C
- -40 to 85°C
- -55 to 125°C

Although in general SPXOs will continue to operate outside their normal temperature range with a degradation in frequency stability, damage can result if the temperatures reached are excessive.

Packaging Code

Tape and Reel packaging is available as an option on many of the products outlined in the SM SPXO Chapter.

Unless individual data sheets state Tape and Reel packaging, items will be bulk packed. Please note: only complete reels are sold.

- BU = Bulk packed
- TR = Tape & Reel packed

Additional Text Code

If the product is non-standard, the letter 'T' will appear at the end of the product specification. This refers to additional text on the quotation/sales order to identify the non-standard requirements.

Outline Drawings

Dimensions on the SPXO drawings are shown only as a guide. Precise dimensions of the SPXO holders are available upon request. All dimensions are shown in mm and are nominal unless otherwise stated.

Marking

Product will be indelibly marked as detailed in the individual data sheets. Where space is limited some or all of the information will be omitted/truncated at C-MAC's discretion. Full product description will be found on the individual batch packaging.

Ordering Information

- See individual data sheets

STOCK SURFACE MOUNT SPXOs

IQXO-57 Tri-state - HCMOS/LS TTL

Frequency	Frequency Stability	Stock No.	Alpha Code	Packaging
3.68640MHz	±100ppm	SPX0003224	X363M	Bulk
4.0MHz	±100ppm	SPX0003157	X351M	Bulk
8.0MHz	±100ppm	SPX0003164	X352M	Bulk
10.0MHz	±100ppm	SPX0003170	X353M	Bulk
12.0MHz	±100ppm	SPX0003178	X354M	Bulk
14.318180MHz	±100ppm	SPX0003249	X373M	Bulk
16.0MHz	±100ppm	SPX0003184	X355M	Bulk
16.3840MHz	±100ppm	SPX0003237	X370M	Bulk
20.0MHz	±100ppm	SPX0003191	X356M	Bulk
24.0MHz	±100ppm	SPX0003241	X371M	Bulk
24.5760MHz	±100ppm	SPX0003272	X386M	Bulk
25.0MHz	±100ppm	SPX0003282	X390M	Bulk
32.0MHz	±100ppm	SPX0003215	X360M	Bulk
33.3330MHz	±100ppm	SPX0003275	X387M	Bulk
40.0MHz	±100ppm	SPX0003199	X357M	Bulk
50.0MHz	±100ppm	SPX0003206	X358M	Bulk

CFPS-65

Frequency	Supply Voltage	Stock No.	Alpha Code	Packaging
32.76800kHz	3.3V ±0.3V	SPX0009459	X208C	Bulk
32.76800kHz	3.3V ±0.3V	SPX0008126	X208D	T & R

CFPS-72 Tri-state - HCMOS/TTL

Frequency	Frequency Stability	Stock No.	Alpha Code	Packaging
3.68640MHz	±50ppm	SPX0019242	X325Y	Bulk
4.0MHz	±50ppm	SPX0018033	X101Y	Bulk
4.0MHz	±50ppm	SPX0020464	X101Z	T & R
8.0MHz	±50ppm	SPX0019079	X107Y	Bulk
8.0MHz	±50ppm	SPX0019613	X107Z	T & R
10.0MHz	±50ppm	SPX0017735	X108Y	Bulk
12.0MHz	±50ppm	SPX0019080	X110Y	Bulk
12.0MHz	±50ppm	SPX0020458	X110Z	T & R
14.318180MHz	±50ppm	SPX0019081	X373Y	Bulk
14.318180MHz	±50ppm	SPX0018820	X373Z	T & R
16.0MHz	±50ppm	SPX0018034	X112Y	Bulk
16.0MHz	±50ppm	SPX0019221	X112Z	T & R
16.3840MHz	±50ppm	SPX0020459	X130Y	Bulk
20.0MHz	±50ppm	SPX0018032	X109Y	Bulk
20.0MHz	±50ppm	SPX0020091	X109Z	T & R
24.0MHz	±50ppm	SPX0019082	X114Y	Bulk
24.0MHz	±50ppm	SPX0019614	X114Z	T & R
25.0MHz	±50ppm	SPX0019930	X120Y	Bulk
25.0MHz	±50ppm	SPX0019011	X120Z	T & R
32.0MHz	±50ppm	SPX0019083	X360Y	Bulk
32.0MHz	±50ppm	SPX0020460	X360Z	T & R
40.0MHz	±50ppm	SPX0018739	X357Y	Bulk
40.0MHz	±50ppm	SPX0018741	X357Z	T & R
48.0MHz	±50ppm	SPX0019884	X436Y	Bulk
48.0MHz	±50ppm	SPX0020349	X436Z	T & R
50.0MHz	±50ppm	SPX0018035	X358Y	Bulk
50.0MHz	±50ppm	SPX0020461	X358Z	T & R
60.0MHz	±50ppm	SPX0019084	X381Y	Bulk
64.0MHz	±50ppm	SPX0020462	X384Y	Bulk
64.0MHz	±50ppm	SPX0020463	X384Z	T & R
80.0MHz	±50ppm	SPX0009443	X389Y	Bulk
80.0MHz	±50ppm	SPX0009444	X389Z	T & R

CFPS-73 Tri-state - HCMOS/TTL

Frequency	Frequency Stability	Stock No.	Alpha Code	Packaging
3.68640MHz	±50ppm	SPX0018610	X325C	Bulk
3.68640MHz	±50ppm	SPX0018913	X325D	T & R
4.0MHz	±50ppm	SPX0018041	X101P	Bulk
4.0MHz	±50ppm	SPX0018533	X101Q	T & R
6.0MHz	±50ppm	SPX0018534	X105C	Bulk
6.0MHz	±50ppm	SPX0018535	X105D	T & R
8.0MHz	±50ppm	SPX0018045	X107P	Bulk
8.0MHz	±50ppm	SPX0018416	X107Q	T & R
10.0MHz	±50ppm	SPX0018036	X108V	Bulk
10.0MHz	±50ppm	SPX0018536	X108W	T & R
12.0MHz	±50ppm	SPX0018037	X110P	Bulk
12.0MHz	±50ppm	SPX0018537	X110Q	T & R
12.2880MHz	±50ppm	SPX0020465	X122P	Bulk
14.318180MHz	±50ppm	SPX0018538	X373V	Bulk
14.318180MHz	±50ppm	SPX0018539	X373W	T & R
16.0MHz	±50ppm	SPX0018038	X112V	Bulk
16.0MHz	±50ppm	SPX0018076	X112W	T & R
16.3840MHz	±50ppm	SPX0020466	X130P	Bulk
20.0MHz	±50ppm	SPX0018039	X109P	Bulk
20.0MHz	±50ppm	SPX0018540	X109Q	T & R
24.0MHz	±50ppm	SPX0018541	X114P	Bulk
24.0MHz	±50ppm	SPX0018542	X114Q	T & R
25.0MHz	±50ppm	SPX0018077	X120P	Bulk
25.0MHz	±50ppm	SPX0018078	X120Q	T & R
32.0MHz	±50ppm	SPX0018040	X360X	Bulk
32.0MHz	±50ppm	SPX0018543	X360W	T & R
32.7680MHz	±50ppm	SPX0019203	X380P	Bulk
40.0MHz	±50ppm	SPX0018042	X357X	Bulk
40.0MHz	±50ppm	SPX0017839	X357W	T & R
48.0MHz	±50ppm	SPX0018043	X436P	Bulk
50.0MHz	±50ppm	SPX0018044	X358X	Bulk
50.0MHz	±50ppm	SPX0018544	X358W	T & R
60.0MHz	±50ppm	SPX0018545	X381X	Bulk
60.0MHz	±50ppm	SPX0017708	X384W	T & R
64.0MHz	±50ppm	SPX0020467	X384P	Bulk
64.0MHz	±50ppm	SPX0020468	X384Q	T & R
80.0MHz	±50ppm	SPX0009441	X389P	Bulk
80.0MHz	±50ppm	SPX0009442	X389Q	T & R

Frequency	Frequency Stability	Stock No.	Alpha Code	Packaging
100.0MHz	±50ppm	SPX0009437	X397P	Bulk
100.0MHz	±50ppm	SPX0009438	X397Q	T & R
106.250MHz	±50ppm	SPX0009439	X453P	Bulk
125.0MHz	±50ppm	SPX0009440	X455P	Bulk

SURFACE MOUNT
SPX08

Europe Tel: +44 (0)1460 270200 Fax: +44 (0)1460 72578
Americas Tel: +1 919 941 9333 Fax: +1 919 941 9371
Asia Tel: +86 755 8826 5991 Fax: +86 755 8826 5990

Website: www.cmac.com

CFPS-72, -73

ISSUE 5; 19 OCTOBER 2004

Delivery Options

- Common frequencies are available from stock. Please see stock list or contact sales office

Output Compatibility

- Tri-state HCMOS/TTL (5.0V) (CFPS-72), Load 15pF max
- Tri-state HCMOS (3.3V) (CFPS-73), Load 15pF max

Package Outline

- 7.0 x 5.0mm SMD Ceramic Package.
Available over 0 to 70°C (CFPS-72, -73) or
-40 to 85°C (CFPS-72L, -73L)

Standard Frequency Stabilities

- ±20ppm, ±25ppm, ±50ppm, ±100ppm (inclusive of supply voltage & output load variations over the operating temperature range)

Operating Temperature Range

- 0 to 70°C (CFPS-72, -73)
- 40 to 85°C (CFPS-72L, -73L)

Storage Temperature Range

- 55 to 125°C

Tri-state Operation

- Logic '1' to pad 1 enables oscillator output, 2.2V min
- Logic '0' to pad 1 disables oscillator output; when disabled the oscillator output goes to the high impedance state, 0.8V max
- No connection to pad 1 enables oscillator output

Solder Conditions

- For typical soldering conditions, please see the relevant pages in Applications Notes

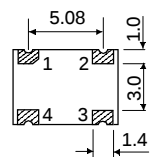
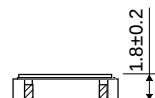
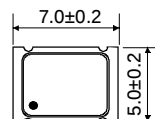
Marking

- Model number (+ Operating Temperature Code; if applicable)
- Frequency Stability Code
- Frequency

Minimum Order Information Required

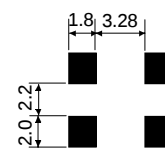
- Frequency + Model Number + Operating Temperature Code (if applicable) + Frequency Stability
- Please refer to our programmable oscillator chapter for fast make products

Outline in mm



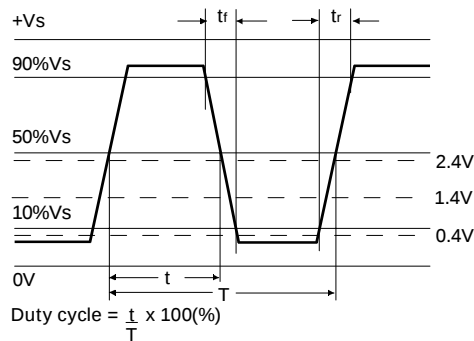
Pad Connections

- N/C or Enable/Disable
- GND
- Output
- +Vs



Solder pad layout

Output Waveform

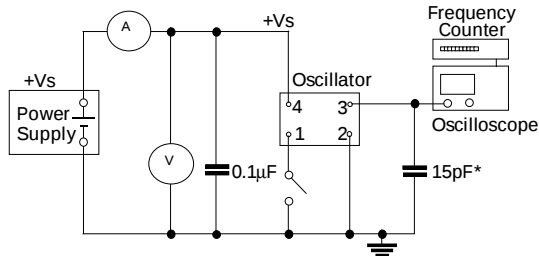


Electrical Specification - maximum limiting values when measured in HCMOS test circuit

Frequency Range	Frequency Stability	Supply Voltage	Supply Current	Rise Time(tr)	Fall Time (tf)	Duty Cycle	Model Number
1.25 to 35.0MHz	±20ppm, ±25ppm, ±50ppm, ±100ppm	3.3V	15mA	6ns	6ns	40/60%	CFPS-73, CFPS-73I
>35.0 to 70.0MHz			30mA	6ns	6ns		
>70.0 to 106.25MHz			40mA	6ns	6ns		
>106.25 to 120.0MHz			40mA	6ns	6ns		
>120.0 to 125.0MHz			40mA	6ns	6ns		
>125.0 to 160MHz			40mA	6ns	6ns		
1.25 to 20.0MHz	±25ppm, ±50ppm, ±100ppm	5.0V	20mA	6ns	6ns		CFPS-72, CFPS-72I
>20.0 to 35.0MHz			30mA	6ns	6ns		
>35.0 to 70.0MHz			50mA	6ns	6ns		
>70.0 to 100.0MHz			70mA	6ns	6ns		
>100.0 to 125.0MHz			70mA	6ns	6ns		
>125.0 to 160.0MHz			70mA	6ns	6ns		
Ordering Example							
Frequency _____				24.0MHz	CFPS-73I	C	
Model No _____							
Operating Temperature Code: I = -40 to 85°C; Not applicable for 0 to 70°C _____							
Frequency Stability: A = ±25ppm; B = ±50ppm; C = ±100ppm; G = ±20ppm _____							

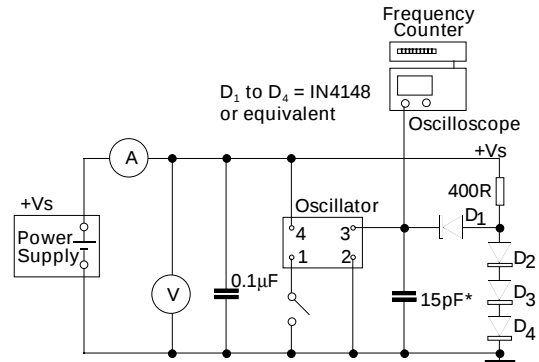
Please note that the rise and fall times listed are the maximum values we specify to cover various frequency breaks. In practise the actual values are generally lower depending upon the spot frequency chosen. For typical values please contact our sales office.

Test Circuit - HCMOS



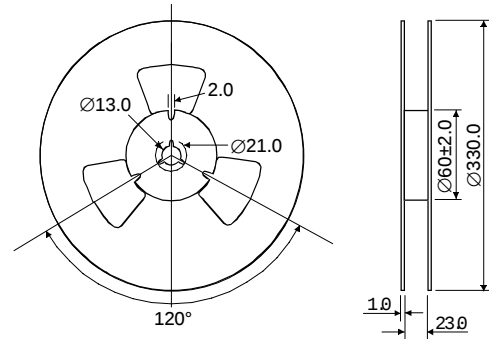
*Inclusive of jigging & equipment capacitance

Test Circuit - TTL



*Inclusive of jigging & equipment capacitance
Note: CFPS-72, 72I only

Outline in mm - Reel



Outline in mm - Tape

