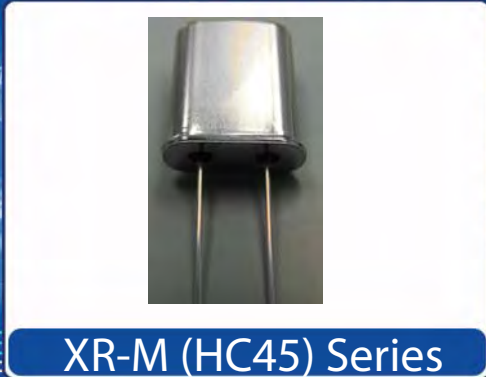


Helping Customers Innovate, Improve & Grow



Description

Vectron International's XR-M (HC45) Series Cold Weld crystals provide a high reliability design in a small package size. These precision crystals offer excellent performance characteristics and tight stabilities in a wide range of frequencies. Outstanding performance in a cost effective industry standard package make this an ideal crystal for a wide range of applications.

Features

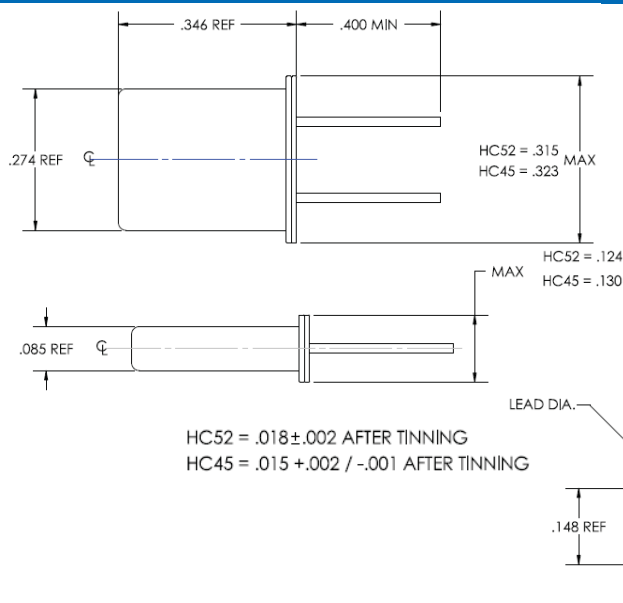
- Cost Effective-Volume Production Available
- Industry Standard Holder
- DR (SC-IT) Cut Fundamental and OT Modes (3rd, 5th, 7th)
- Cold Weld (HC45/U) or Resistance Weld (HC52/U)
- Tight Stabilities and Tolerances, Excellent Aging
- Robust Rugged Design for harsh environments
- Surface Mount Lead Forming options available
- Swept Quartz & Hi-Rel Screening Options Available
- High Temperature Options to +250°C

Applications

- Telecommunications
- Military & Defense
- Base Station
- Medical-Test and Measurement Instrumentation
- Precision Oscillators (TCXO, VCXO, OCXO)

Note: HC45 (XR-M series for best precision/stability-Cold Weld)

Standard Physical Specifications

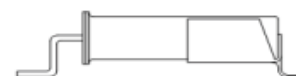


HEIGHT CODE OPTION	PACKAGE EXAMPLES	
	XR-A SERIES	
	inches	mm
1	0.346	8.79
2	0.315	8.00

Nominal dimensions specified in inches and millimeters (mm). Specification subject to change without notice.

SURFACE MOUNT APPLICATIONS:

Special lead forming is available for surface mount applications



Typical Electrical Performance Characteristics

DOUBLY ROTATED (DR)-CUT VARIETIES (SC, MODIFIED SC, IT, ETC...)		
Performance Characteristic	Symbol	Typical Performance Specifications
Frequency Range	F_o	8.0 MHz to 210 MHz
Turn Point	TP	+75°C to +105°C (mode, cut, frequency dependent, other turn points available)
Frequency Calibration Tolerance	$F_R - F_L$	+/- 2 ppm to +/- 10 ppm typical
Equivalent Series Resistance	R (ESR)	10 ohms to 120 ohms (mode and frequency dependent)
Shunt Capacitance	C_o	3 pF - 5 pF typical
Motional Capacitance	C_1	0.1 fF - 25 fF (mode and frequency dependent)
Load Capacitance	C_L	series to 32 pF (customer specified load)
Drive Level	DL	100 uW (50 uW to 5 mW)
Aging per year after first 30 days		1 ppm

MODE	FREQUENCY RANGE (MHz)	*ESR Typical (ohms)	* C_1 Typical (fF)
Fund.	8.0 - 30 MHz	25	10 - 25
3 rd	20 - 90 MHz	40	1 - 2.5
5 th	50 - 150 MHz	75	0.70
7 th	70 - 210 MHz	120	0.35

*ESR and C_1 values are dependent upon the specified frequency and mode of vibration.

PHASE NOISE @ 100 Hz OFFSET (dBc/Hz)		
Mode - Cut	Frequency Range	Phase Noise
Fundamental-DR	8.0 MHz - to 30 MHz	-80 to -115
3 rd OT - DR	20 MHz - 105 MHz	-115 to -150
5 th OT - DR	50 MHz - 175 MHz	-115 to -140
7 th OT - DR	70 MHz - 225 MHz	-90 to -125

Phase Noise performance is mode and frequency dependent

Typical Environmental Specifications

TEST DESCRIPTION	SPECIFICATION REFERENCE
SHOCK	MIL-STD-202, Method 213, Cond. C (100g, 6ms, Half-Sine)
VIBRATION	MIL-STD-202, Method 201/204 (Random-Sine, 20g)
TEMPERATURE CYCLE	MIL-STD-883, Method 1010 (-55°C/+125°C), 10 cycles
THERMAL SHOCK	MIL-STD-202, Method 107
MOISTURE RESISTANCE	MIL-STD-202, Method 106
SALT ATMOSPHERE	MIL-STD-202, Method 101
ACCELERATION	MIL-STD-883, Method 2001, Condition A (5,000g)
SOLDERABILITY	MIL-STD-202, Method 208 (ANSI-EIA-J-STD-002)
TERMINAL STRENGTH	MIL-STD-202, Method 211 (2lbs)
PIND	MIL-STD-883, Method 2020, Condition A or B (20g, 10g)
FINE LEAK	MIL-STD-202, Method 112, Condition C-IIIc (1x10 ⁻⁸ atm/cc ²)
GROSS LEAK	MIL-STD-202, Method 112, Condition D
RESISTANCE TO SOLVENTS	MIL-STD-202, Method 215
RESISTANCE TO SOLDERING HEAT	MIL-STD-202, Method 210, Condition K
HIGH TEMPERATURE STORAGE	MIL-STD-883, Method 1008, Condition C (+125°C, 168 hours)
LOW TEMPERATURE STORAGE	MIL-PRF-3098

Vectron is uniquely equipped to handle all of your special test requirements. All environmental and qualification related tests are performed in house. We've demonstrated compliance and the ability to test to the requirements of all governing industry and military crystal specifications (past and present).

Some of which include:

- MIL-PRF-3098
- MIL-C-49468
- MIL-C-3098
- TOR-2006 (8583)-5236
- EEE-INST-002
- MIL-PRF-55310
- MIL-STD-202
- MIL-STD-883
- OTHERS

