

Ultra-Miniature Crystals

Cardinal's ultra-miniature crystals are a smaller alternative to the standard HC-49 package where applications require compact board space. They are perfect for applications requiring tight tolerances over wide temperature ranges.

Series **CM1**



CM5

Part Numbering Example: **CM1 Z - A1 - B2 - C2 50 - 7.0 D18 - 3**

CM1	Z	A1*	B2	C2	50	7.0	D18	-3
SERIES	ADDED FEATURES	OPERATING TEMP.	STABILITY	TOLERANCE	RESISTANCE	FREQUENCY	LOAD CAP.	OVERTONE
CM1	BLANK = BULK PACK Z = TAPE AND REEL	A0 = -10°C ~ +60°C A1 = -10°C ~ +70°C A2 = -40°C ~ +85°C A3 = -55°C ~ +125°C	B1 = ±100 B2 = ± 50 B3 = ± 30 B4 = ± 10	C1 = ±100 C2 = ± 50 C3 = ± 30 C4 = ± 10	SEE CHART BELOW		D16, 18, 20, ETC. DS = SERIES	BLANK: FUND. -3: 3rd OT -5: 5th OT -7: 7th OT -BT: BT Cut
CM5								

*NOTE: The above ABC combinations cover basic specification options. We tailor our crystal specifications to meet customer requirements. Please contact our sales department if you don't see exactly what you need.

Specifications:

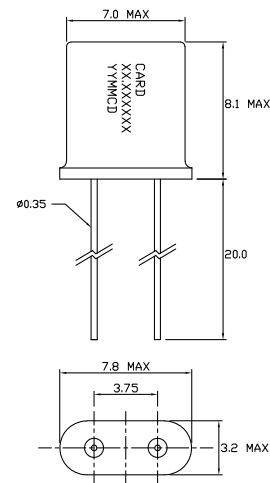
Frequency Range:	10.000 ~ 175.000 MHz
Operating Temperature:	-10°C ~ + 70°C <i>Standard</i> -40°C ~ + 85°C -55°C ~ + 125°C
Frequency Stability:	±100 ppm ± 50 ppm <i>Standard</i> ± 30 ppm ± 10 ppm
Frequency Tolerance: (at 25°C)	±100 ppm ± 50 ppm <i>Standard</i> ± 30 ppm ± 10 ppm
Load Capacitance:	Standard 18 pF or series. Please specify your required load.
Resistance:	Maximum resistance corresponds to frequency. See chart below.
Standard:	Mode: Fundamental, 3rd, 5th, or 7th Overtone Shunt Capacitance: 7 pF Max Aging: ± 5 ppm/year Drive Level: 1.0 mW Max
Optional Features:	Third lead Insulator pads Tape and Reel (1K per Reel)

Note 1: Not all combinations of the above tolerances, stabilities, and temperature ranges are available. Consult the factory if your requirement is not standard.

Resistance Chart: All resistances are maximum values.

EQUIVALENT SERIES RESISTANCE (ESR), MODE OF OPERATION (MODE), AND CUT					
CM1			CM5		
Frequency MHz	ESR(Ω)	Mode	Frequency MHz	ESR (Ω)	Mode/cut
7.000~15.999	50 Max	Fund.	10.000~15.999	60 Max	Fundamental
16.000~40.000	40 Max	Fund.	16.000~40.000	50 Max	Fundamental
30.000~90.000	70 Max	Third OT	30.000~90.000	80 Max	Third Overtone
70.000~150.000	100 Max	Fifth OT	70.000~175.000	120 Max	Fifth Overtone

CM1



CM5

