



**LOW FREQUENCY CRYSTALS- 1KHz TO 1MHz**

The BREL crystals for the lower frequency ranges 1KHz to 1MHz include units specifically suited for filter and oscillator applications.

The various holders available for specific frequency ranges are listed, by cuts, in accompanying table. The following illustration shows the basic configurations and lists the most pertinent dimensions, keyed to the dimensional drawing.

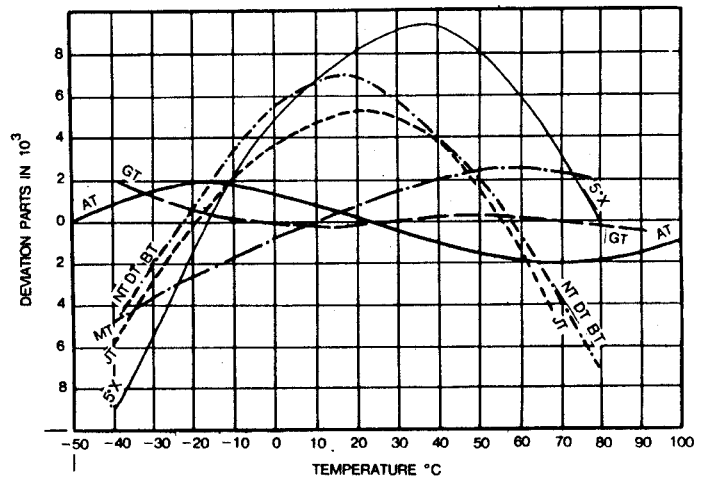
**SPECIFICATIONS**

The Low Frequency range is covered by various crystal cuts and for your convenience, a summary of the frequency temperature characteristics is shown in the following table.

TYPE CUT	FREQUENCY RANGE	APPROXIMATE DEVIATION FROM NOMINAL FREQ. IN PERCENT				
JT	1KHz-12KHz	.015	.025	.03	.035	.005
NT	8KHz-130KHz	.005	.01	.015	.02	.0025
5°X	50KHz-250KHz	.003	.014	.02	.025	.002
MT	80KHz-200KHz	.003	.006	.009	.01	.0015
DT	75KHz-800KHz	.003	.008	.012	.015	.0015
CT	300KHz-900KHz	.006	.01	.018	.02	.001
SL	300KHz-800KHz	.007	.008	.014	.016	.002
TEMPERATURE RANGE-°C		0	-40	-55	-55	+75
		+65	+70	+90	+105	±5

**FREQUENCY-TEMPERATURE CURVES**

LOW FREQUENCY CRYSTALS



FREQUENCY RANGE	1KHz-12KHz	8KHz-130KHz	50KHz-250KHz	75KHz-800KHz	300KHz-900KHz
CUT	JT	NT	5°X	DT	CT
STANDARD HOLDER	HC-13/U Long	HC-13/U	HC-13/U	HC-6/U	HC-6/U or HC-32/U
COLD WELD HOLDER	N/A	N/A	N/A	HC-36/U	HC-36/U
FREQUENCY TOLERANCE -40 to+70°C	.015%	.01%	.01%	.01%	.01%
FREQUENCY TOLERANCE 0 to+50°C	.008%	.003%	.005%	.003%	.003%
MAXIMUM SERIES RESISTANCE in ohms	75K@3KHz	40K@15KHz to 5K@150KHz	2K@150KHz to 3K@200KHz	1K@190KHz to 2.5K@400KHz	1.8K@500KHz to 7K@1000KHz
ZERO TEMPERATURE COEFFICIENT	25°C	20°C to 75°C	20°C to 75°C	20°C to 75°C	20°C to 75°C
AGING 1 <sup>ST</sup> MONTH IN PPM/DAY	.1	.2	.2	.2	.2
AGING AFTER 3 MONTHS IN PPM/DAY	.2	.05	.05	.05	.05
MAXIMUM DRIVE LEVEL (mV)	.5	.2	2.0	2.0	2.0
APPLICABLE MIL SPECIFICATIONS	CR-88A/U	CR-38, CR-50	CR-37	CR-25, CR-26, CR-45, CR-47, CR-63	CR-25, CR-26, CR-46, CR-47, CR-63