

FORCE SENSITIVE QUARTZ CRYSTAL **EPKV-10M**

APPLICATIONS

Force sensitive quartz crystals EPKV-10M are intended for operation in a structure of precision electronic balances and serves for conversion of efforts of stress-strain to a frequency. Using this crystal, it is possible to design balances for weighing with a split-hair accuracy of weights by a mass from several milligrams up to hundreds kilograms.

FEATURES

- High resolution and accuracy
- Long term quartz crystal stability
- Wide temperature range (-40...+80 °C)
- Low power consumption
- Suitable for precision weighting equipment
- Cost effective



OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	SPECIFICATIONS AND REMARKS	UNITS
Electrical characteristics		
Frequency Range (Fundamental mode), f_0	9960...10100	kHz
Series Resistance typ./max., R_S	30; 50 / 50	Ohm
Drive Level max., D_L	1.0	mW
Operation conditions		
Force sensitivity	3.5 ± 0.3	Hz/gm
Operating Temperature, T_{OPR} (typ/max)	-40...+80 / -60...+100	°C
Storage Temperature, T_{STR}	+5...+40	°C
Maximum Frequency Deviation	9.8 ± 0.85	kHz
Maximum Limited Load Of Stress-Strain	$\pm 5... \pm 20$	kg
Frequency Tolerance, f/f_0	± 50	PPM
Aging first year/next years max.	$\pm 5 / \pm 25$	PPM
Static Capacitance typ., C_0	9.1...8.1	pF
Capacitance Ratio	200	
Size	4 x 10 x 0.17	mm

A side with one electrode of the force sensitive quartz crystal EPKV-10M is glued by epoxy adhesive on preliminary cleared and skim surface, thus the central part of the crystal should be free (see figure). After drying glue the two wires are soldered to contacts of the crystal, if it is required.

If the crystal is in a free condition, its force sensitivity characteristic is practically linear. If the crystal is pasted, a nonlinearity of the force sensitivity characteristic it is necessary to determining individually.

Based on the force sensing quartz crystal EPKV-10M the several models of the balances are developed and made.

EXTERNAL DIMENSIONS

UNITS: millimeters

