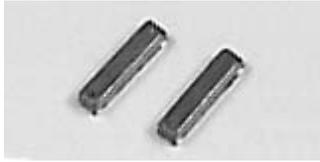


# CM130 Preliminary

(3,000pcs/reel)



## ■ FEATURES:

- Being of the ultra-miniature SMD type, and thus featuring excellent efficiency in mounting, the CM130 is ideal for application to high-density circuit boards.
- As it incorporates a heat-resisting packaged cylinder-type crystal, it features highly stable characteristics-high enough to permit reflow soldering.
- Can be mounted automatically because of the emboss tapping used.
- Its low power consumption makes it ideal for application to portable equipment as well as high density, cellular phone designs.

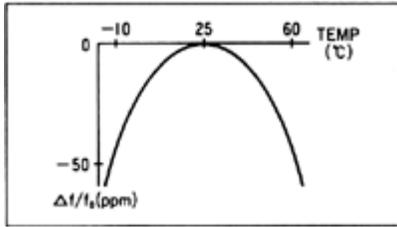
## ■ APPLICATIONS:

- Permits use as a clock source for communication equipment, AV equipment, OA equipment, camera, cellular phones, pagers and measuring instruments.

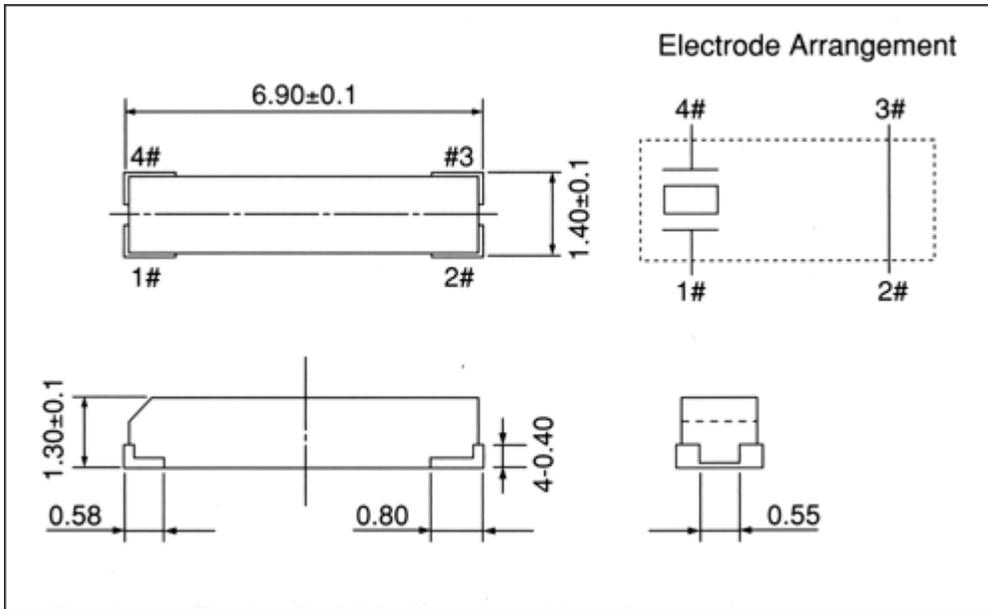
## ■ STANDARD SPECIFICATIONS

Item		CM130	Conditions
Nominal frequency	$f_0$	32.768kHz	
Frequency tolerance	$\Delta f/f_0$	$\pm 20\text{ppm}$	Reference temperature
Frequency vs. Temperature Characteristics	$\Delta f/f_0$	See drawing	$-10^\circ\text{C}$ to $+60^\circ\text{C}$
Turnover temperature	$T_m$	$25^\circ\text{C} \pm 5^\circ\text{C}$	
Freq. temp. coefficient	beta	$-0.034 \pm 0.006\text{ppm}/^\circ\text{C}^2$	
Operating temperature range	$T_{opr}$	$-40^\circ\text{C}$ to $+85^\circ\text{C}$	
Storage temperature range	$T_{stg}$	$-55^\circ\text{C}$ to $+125^\circ\text{C}$	
Equivalent series resistance	$R_1$	65k ohm MAX.	Reference temperature
Load capacitance	$C_L$	12.5pF TYP.	Please specify
Motional capacitance	$C_1$	0.0023pF TYP.	
Shunt capacitance	$C_0$	1.2pF TYP.	
Capacitance ratio	gamma	520 TYP.	
Drive level	DL	1 $\mu$ W MAX.	
Insulation resistance	IR	500M ohm MIN.	DC100V $\pm$ 15V
Aging (First year)	$\Delta f/f_0$	$\pm 3\text{ppm MAX.}$	$25^\circ\text{C} \pm 3^\circ\text{C}$
Sealing		$1 \times 10^{-2} \mu \text{ Pa}\cdot\text{m}^3 / \text{s MAX.}$	
Shock resistance		$\pm 5\text{ppm MAX.}$ Drop test of 3 times on a hard board from 75cm height or shock test of 3000G x 0.3ms x 1/2sin wave x 3 directions	

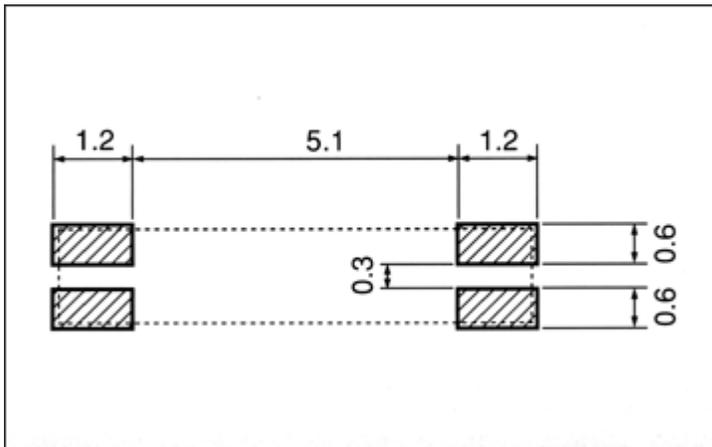
■ FREQUENCY vs TEMPERATURE CURVE



■ DIMENSIONS: (UNIT=mm)



■ RECOMENDED SOLDERING PATTERN: (UNIT=mm)



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