

Package	Description	Last Modified
Ultra Slim	32.768 kHz Crystal	Jan. 02 2005

Features

- Ultra slim package
- Low Profile
- Long term stability
- Industry standard footprint
- Excellent shock resistance
- Excellent environmental characteristics
- Tape and Reel
- RoHs/ Lead Free compliant



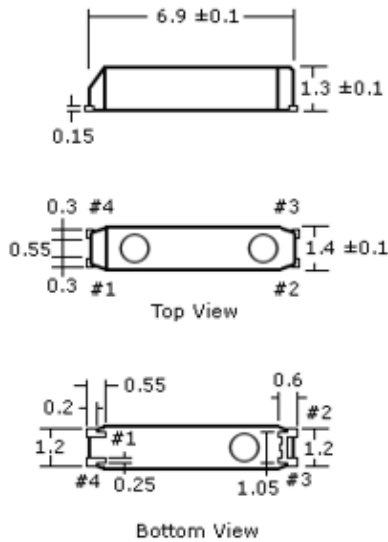
Electrical Characteristics

Parameter	Conditions	Characteristics	Units
Nominal Frequency	f ₀	32.768 (typ.)	kHz
Turnover Temperature	T _O	+25 ±5	°C
Operating Temperature	T _{OPR}	-40 ~ +85	°C
Storage Temperature	T _{STG}	-55 ~ +125	°C
Equivalent Series Resistance	R ₁	65 max.	kohm
Load Capacitance	C _L	12.5 (typ.) / 7.0 (Optional)	pF
Motional Capacitance	C ₁	1.9 (typ.)	fF
Shunt Capacitance	C ₀	0.8 (typ.)	pF
Temperature Coefficient	K	-0.000000040 / °C ² max.	-
Drive Level	DL	1 max.	μW
Insulation Resistance	IR ₁	500 min. DC 100V	Mohm
Aging (First Year)	f/f ₀	±3 PPM max. @25°C	PPM
Frequency Tolerance	@25°C	±20	PPM
Q Factor	Q	40,000 min.	-

Part Numbering Guide

Size	Figure No.	Frequency	Load Capacitance	Part Number	Packaging**
SMD	1, & 2	32.768	12.5	224-000312-20	Blank* = Bulk -TR = Tape/ Reel
			7.0	224-000307-20	
<p>NOTE: - Deviations on all parameters available. Please consult Oscilent for details.</p> <p>*STANDARDS: - "Blank" part number selections, indicate standard variables for the particular characteristic.</p>					

Package Dimensions (All Dimensions in Millimeters)



Recommended Solder Pad Dimensions (All Dimensions in Millimeters)

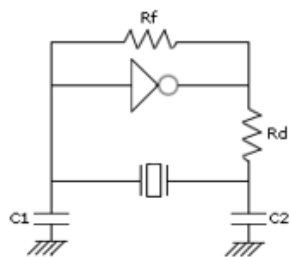


Figure 1) Pin Connection



Figure 2) Land Pattern - Top View

Recommended Oscillation Circuit



ELECTRICAL CHARACTERISTICS

IC: 74HCU04AP
 R_f : 10 Megohms
 R_d : 330 Kohms
 C_1 : 14pF
 C_2 : 14pF
 V_{dd} : 3.0V