AXTAL ADVANCED XTAL PRODUCTS

Specification	RKOV206	Rev.: 2	Date: 2016-03-18

Type: Miniature Reference Quartz Crystal

Features:

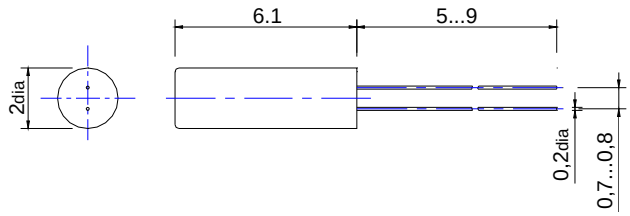
- **High frequency stability**
- **Miniature size : 2 mm diameter**
- **Wide temperature range:**
  -50°C up to +320°C, optionally down to -196°C
- **High Shock and vibration resistance**
- **Low power consumption in application**
- **Used in combination with temperature sensor crystal RKTV206**
  (see Application Note AXAN-101 on www.axtal.com)

Parameter	min.	typ.	Max.	Unit	Condition
Frequency range	32		36	kHz	
Vibration Mode	Tuning Fork				
Load capacitance C_L (Note 2)	Series (Standard) or 6pF				See ordering code
Adjustment tolerance @25°C				ppm	See ordering code
Frequency stability					
Frequency vs. temperature (see chart)	$(f(T)-f(T_0))/f(T_0) = A_2\cdot(T-T_0)^2$				T_0 =(25±5)°C , Note 3
2nd order temperature coefficient A_2(±10%)		-0.044 -0.051 -0.065		ppm/K² ppm/K² ppm/K²	RKTV206A RKTV206B RKTV206C
Long term (aging) 1st year @ 25°C			±15 ±20	ppm ppm	RKTV206A, RKTV206B RKTV206C
Long term (aging) following years @ 25°C			±7 ±10	ppm ppm	RKTV206A, RKTV206B RKTV206C
Series resonance resistance R_1 @ (25±5)°C			80k	Ω	See chart for $R_1(T)$
Static capacitance C_0		1.3		pF	
Nominal drive level		0.1	1.0	µW	
Insulation resistance	100			MΩ	100 V DC
Thermal time constant in liquid τ			5	s	
Storage temperature range (Note 4)	-55		+180 +260 +340	°C °C °C	RKTV206A RKTV206B RKTV206C
Enclosure (see drawing)	2 mm ø x 6 mm				IEC 60122-3, type DW
Weight		1		g	
Packing	Bulk				Note 5

Notes:

1. Terminology and test conditions are according to IEC standard IEC60122-1 or MIL-C3098
2. Adjustment at load capacitance of 6 pF on request
3. For higher accuracy a 3rd order polynomial $(f(T)-f(T_0))/f(T_0)=A_1\cdot(T-T_0)+A_2\cdot(T-T_0)^2+A_3\cdot(T-T_0)^3$ can be used
4. Maximum time at the upper storage temperature limit 10 minutes
5. Optionally delivered in pairs with temperature sensor crystal RKTV206 with a frequency offset defined such that overlapping in the operating temperature range is avoided

Enclosure drawings



Ordering Code

RKOV206X – X – X – X

Upper operating temperature (A, B, C)

Operating Temperature Range (OTR)

	0 (standard)	1 (low-temp)
A	-50°C to +170°C	-196°C to +170°C
B	-50°C to +250°C	-196°C to +250°C
C	-50°C to +320°C	-196°C to +320°C

Initial frequency tolerance

Tol-Code	0	1	2	3	4	5
Initial tolerance	Not specified	±30 ppm	±60 ppm	±90 ppm	±150 ppm	±1000 ppm

Load Capacitance C_L

C_L Code	0	1
Load capacitance	Series	6 pF

Examples:

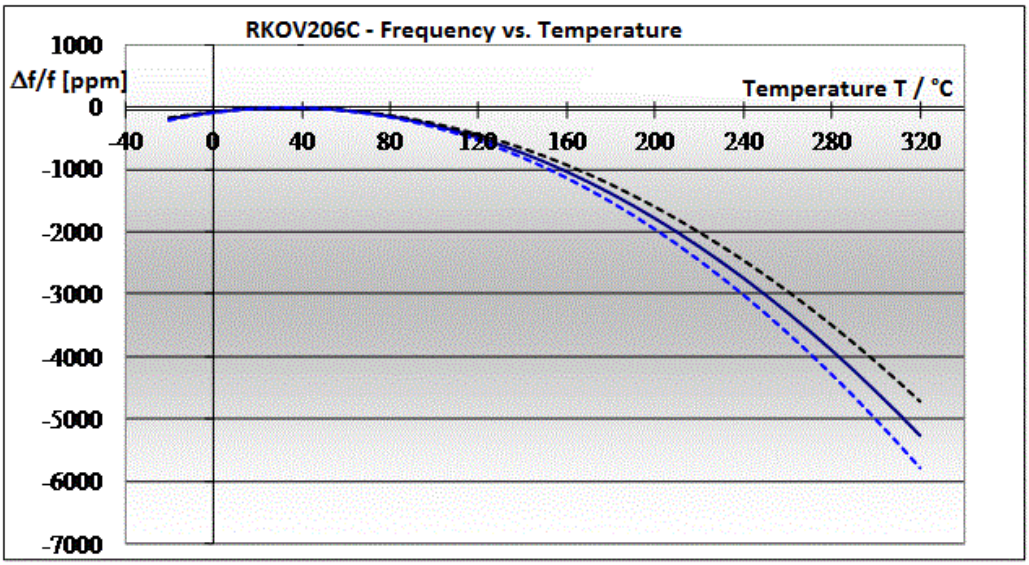
RKOV206A-0-0-0 - standard version

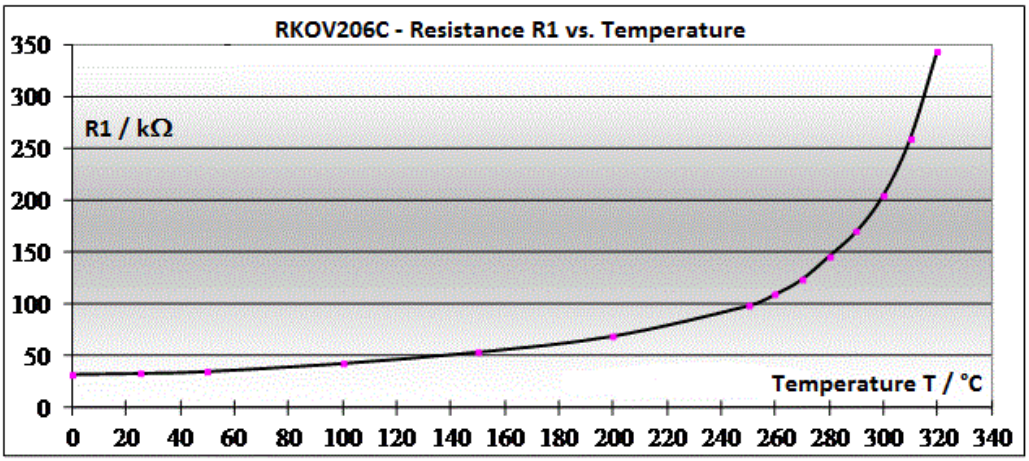
RKOV206A-0-2-1 - OTR = -50°C ~ +170°C, Initial tolerance ±60 ppm, C_L = 6 pF.

Environmental conditions

Test	IEC 60068-2 Part ...	IEC 60122-1 Clause ...	Test conditions
Solderability Resistance to soldering heat	2-20	4.8.3	Test Ta (235 ± 5)°C Method 1 Test Tb Method 1A, 5s
Free fall (Shock)	2-32 2-27	4.8.9 4.8.8	3 drops, 1m on hard wood, 5000g, 0.2 ms, Δf/f ≤ ±7 ppm
Vibration, sinusoidal	2-6	4.8.7	Test Fc, 30 min per axes, 10 Hz - 55 Hz 0,75mm; 55 Hz - 1 kHz, 10g, 8 hours, Δf/f ≤ ±7 ppm

Typical characteristics





Handling and Testing

Parameter	Procedure	Source
Testing		IEC 60689
Handling	Bending of leads with appropriate relief	
Processing	Manual soldering strictly recommended Soldering of metal can not allowed	

Parameter	Procedure		Condition
Electrostatic discharge (ESD)			
THD devices	IEC60749-26	HBM	2000 V
SMD devices	IEC60749-27	MM	200 V
Washable	✖ Yes ☐ No		No ultrasonic cleaning
RoHS- Compliant	✖ Yes ☐ No		

Revision History

Rev.	Date [dd.mm.yyyy]	Remarks	Author	Checked
1	11.08.2005	First issue RKOV206	BN	BN
2	18.03.2016	Major revisions with options	BN	BN