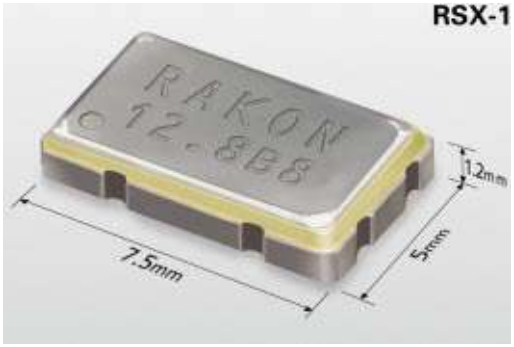
Product Description

Low profile AT-cut quartz crystal. True SMD style, ceramic package with metal lid, seam sealed. The product is supplied on tape and reel.



SMD Communication Crystals

Features

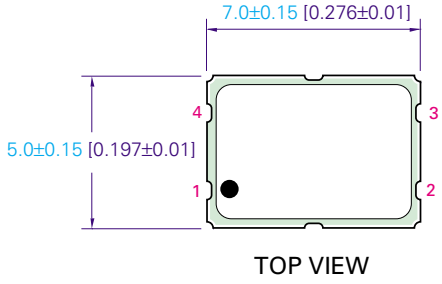
- Excellent shock and vibration performance
- SMD and reflow compatible
- Very good short term stability
- Wide frequency range

FREQUENCY CHARACTERISTICS				
Parameter	***Test Condition***	***Min.***	***Max.***	***Unit***
Fundamental frequency range	Nominal Frequency reference to 25 deg C. (See Note 1)	10	30	MHz
3rd Overtone frequency range	Nominal Frequency reference to 25 deg C. (See Note 1)	30	90	MHz
5th Overtone frequency range	Nominal Frequency reference to 25 deg C. (See Note 1)	90	110	MHz
Calibration tolerance	Frequency tolerence at 25 deg C. (See Note 1)	10	25	+/-ppm
Frequency stability over temperature	Referenced to frequency reading at 25 deg C. (See Note 2)	5	50	+/-ppm
Temperature range	Maximum operating temperature available (See Note 2)	-40	85	Degree C
Short term stability	Root Allan Variance for 1 second Tau		2	ppb
Long term stability	Frequency drift over 1 year		2	+/-ppm
G sensitivity	Gamma vector (resultant) all 3 axis with random vibration from 30 Hz to 1500Hz		2	ppb/G
ELECTRICAL				
Load capacitance	Frequency is callibrated to a load at room temperature. Value required to be specified. (See Note 3.)		8	Series pF
Shunt capacitance	Operating specification		7	pF
Drive level	Operating specification		100	uW
EQUIVALENT SERIES RESISTANCE (ESR)				
Operating Mode	***Frequency Range***			
Fundamental	10MHz to < 30MHz		40	Ohm
3rd Overtone	30MHz to < 90MHz		60	Ohm
5th Overtone	90MHz to 110MHz		80	Ohm
ENVIRONMENTAL				
The crystal shall meet electrical characteristics and suffer no physical damage after being subject to the following conditions				
Shock	Half sinewave acceleration of 100G peak amplitude for 11ms duration, 3 cycles each plane			
Vibration	10G's RMS 30Hz to 1500Hz duration of 6 hours			
Humidity	After 48 hours at 85 deg C 85% realtive humidity non-condensing			
Thermal Shock Test	Exposed at -40 deg C for 30 minutes then to 85 deg C for 30 minutes constantly for a period of 5 days			
Storage Temperature	-40 to 85 degC			
MANUFACTURING INFORMATION				
Reflow	Able to withstand solder reflow process			
Packaging description	Tape and Reel. 2000pcs per reel standard. Refer to drawing for details.			

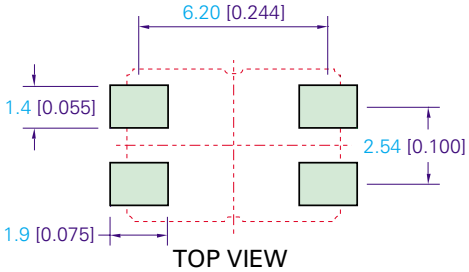
RSX-1

MARKING	
Type	Laser engraved
Line 1	Rakon logo and internal partnumber
Line 2	Pin 1 mark and date Code

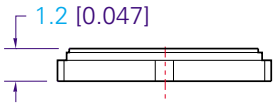
SPECIFICATION NOTES	
Note 1	Value required to be specified.
Note 2	Values between Min. and Max. are available. Both frequency stability and temperaturerange are required to be specified. For frequency stability options refer to the table labelled “RSX-1 Temperature Stability Table”. The shaded area represents which frequency stabilities are available for a given temperature range.
Note 3	Value required to be specified. Values above Min. are available as well as Series Resonance.



TOP VIEW

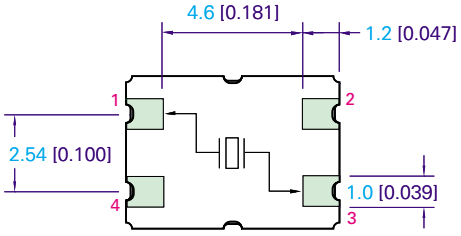


TOP VIEW
RECOMMENDED PAD LAYOUT
TRACKS NOT RECOMMENDED UNDER OSCILLATOR



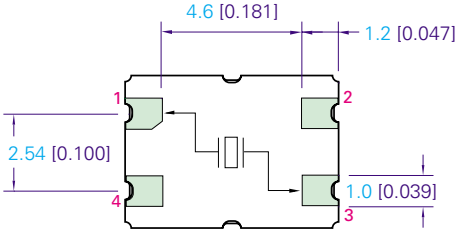
SIDE VIEW

END VIEW



BOTTOM VIEW (Type 1)

PIN CONNECTIONS	
1	CRYSTAL
2	GND
3	CRYSTAL
4	GND



BOTTOM VIEW (Type 2)

NOTE: BOTTOM VIEW VARIATION CATERS FOR ALTERNATIVE CERAMIC SUPPLIES

TITLE: RSX-1 MODEL
FILENAME: CAT161
REVISION: B
DATE: 10 NOV 99
SCALE: 4:1
Millimetres [inch]

RELATED DRAWINGS: RSX-1 TAPE & REEL (CAT121)

Tolerances:
XX =±0.5
X.X =±0.10
X.XX =±0.05
X.XXX =±0.05
X° =±1.0°
Hole =±0.10

RAKON PRECISION QUARTZ PRODUCTS

Product Description

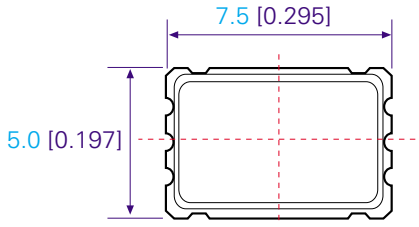
Very small 7.5 x 5mm microprocessor crystal in a surface mount resin sealed package. Standard on tape and reel 2000pcs. per reel.

SMD Microprocessor Crystal

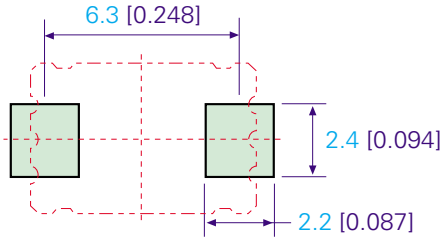
Features

- Low cost
- Low profile only 1.4mm max height
- Excellent solderability
- Wide frequency range

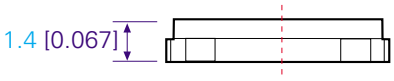
FREQUENCY CHARACTERISTICS				
Parameter	***Test Condition***	***Min.***	***Max.***	***Unit***
Fundamental frequency range	Nominal Frequency referenced to 25 deg C	8	50	MHz
3rd Overtone frequency range	Nominal Frequency referenced to 25 deg C	28	67	MHz
Frequency stability	Total stability over temperature range including tolerance at 25 deg C		100	+/-ppm
Temperature range	Operating specification	-10	60	Degree C
Long term stability	Frequency drift over 1 year		5	+/-ppm
ELECTRICAL				
Shunt Capacitance (Co)	Operating specification		7	pF
Load Capacitance (CL)	The frequency is calibrated at this load. (See Note 1)	16		Series pF
Drive Level	Operating specification		0.1	mW
EQUIVALENT SERIES RESISTANCE (ESR)				
Operating Mode	***Frequency Range***			
Fundamental	8MHz to <10MHz		80	Ohm
Fundamental	10MHz to <16MHz		60	Ohm
Fundamental	16MHz to 50MHz		40	Ohm
3rd Overtone	28MHz to 67MHz		60	Ohm
MANUFACTURING INFORMATION				
Reflow	Able to withstand solder reflow process			
Packaging Description	Tape and reel. 2000pcs standard per reel.			
MARKING				
Line 1	RAKON trademark.			
Line 2	Consists of six characters including decimal point. First 3 numbers of frequency in MHz given only. Two character month and year code. The month corresponds to a letter code ie: Jan=A, Feb=B etc. The year is the last number ie: 8 =1998.			
SPECIFICATION NOTES				
Note 1	The standard load is 16pf, but other values are available.			



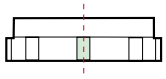
TOP VIEW



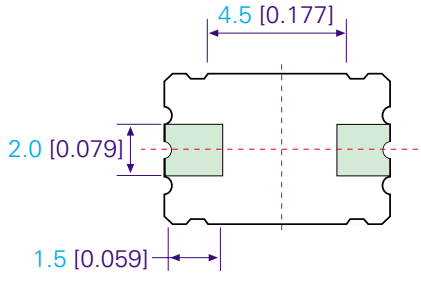
TOP VIEW
RECOMMENDED PAD LAYOUT



SIDE VIEW



END VIEW



BOTTOM VIEW

TITLE: CSX-1L MODEL
FILENAME: CAT058
REVISION: A
DATE: 5 OCT 98
SCALE: 4:1
Millimetres [inch]

RELATED DRAWINGS: CSX-1L REFLOW
CSX-1L TAPE AND REEL

Tolerances:
XX =±0.5
X.X =±0.10
X.XX =±0.05
X.XXX =±0.05
X° =±1.0 °
Hole =±0.08-0.0

RAKON PRECISION QUARTZ PRODUCTS

HC-49/SM

Product Description

Standard SMD microprocessor crystal is packaged using a resistance welded metal enclosure. The product is supplied on tape and reel.

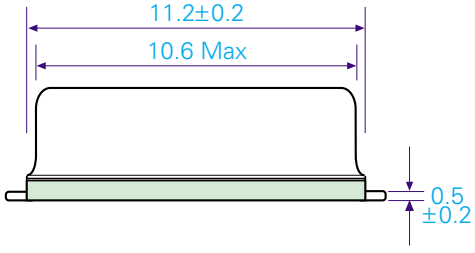
SMD Microprocessor Crystal

Features

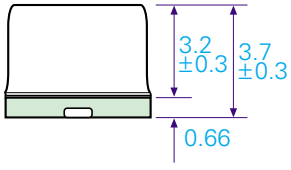
- Low cost
- High reliability surface mount crystals
- High stability and calibration tolerances available
- Wide frequency range available

FREQUENCY CHARACTERISTICS				
Parameter	***Test Condition***	***Min.***	***Max.***	***Unit***
Fundamental frequency range	Nominal Frequency referenced to 25 deg C	3.2	40.32	MHz
3rd Overtone frequency range	Nominal Frequency referenced to 25 deg C	24	70	MHz
Calibration tolerance	Referenced to 25 deg C at the circuit condition (see Note 1)	10	50	+/-ppm
Frequency stability over temperature	Referenced to frequency reading at 25 deg C (see Note 1)	10	50	+/-ppm
Temperature range	Operating specification	-10	60	Degree C
Long term stability	Frequency drift over 1 year		5	+/-ppm
ELECTRICAL				
Shunt Capacitance (Co)			7	pF
Load Capacitance (CL)	The load the crystal is calibrated at. Standard load is 18pF.	12		Series pF
Drive Level	Operating specification		1	mW
Insulation Resistance	At 100Vdc	500		M Ohm
EQUIVALENT SERIES RESISTANCE (ESR)				
Operating Mode	***Frequency Range***			
Fundamental	3.2MHz to <5MHz		200	Ohm
Fundamental	5MHz to <6MHz		150	Ohm
Fundamental	6MHz to <8MHz		120	Ohm
Fundamental	8MHz to <9MHz		90	Ohm
Fundamental	9MHz to <10MHz		80	Ohm
Fundamental	10MHz to <15MHz		70	Ohm
Fundamental	15MHz to <16MHz		60	Ohm
Fundamental	16MHz to <24MHz		50	Ohm
Fundamental	24MHz to 40.32MHz		40	Ohm
3rd Overtone	24MHz to<30MHz		150	Ohm
3rd Overtone	30MHz to<50MHz		100	Ohm
3rd Overtone	50MHz to 70MHz		80	Ohm
MANUFACTURING INFORMATION				
Reflow	Able to withstand solder reflow process			
Packaging Description	Tape and reel. 1000pcs standard per reel.			
MARKING				
One line	Seven characters. “R” Rakon trademark. First 3 numbers of frequency in MHz given only. Two character month and year code. The month corresponds to a letter code ie: Jan=A, Feb=B etc. The year is the last number ie: 8 =1998.			
SPECIFICATION NOTES				
Note 1	The Max. value is the standard specification. Values down to Min. are available.			

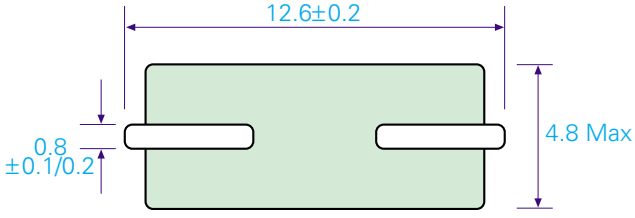
HC-49/SM



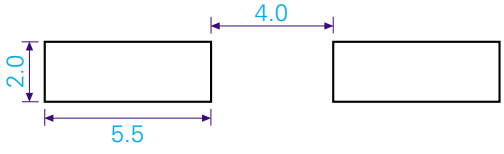
SIDE VIEW



END VIEW



BOTTOM VIEW



RECOMMENDED PAD LAYOUT

TITLE: HC-49/SM MODEL
FILENAME: CAT060
REVISION: A
DATE: 5 OCT 98
SCALE: 4:1
Millimetres [inch]

RELATED DRAWINGS: HC-49/SM REFLOW
HC-49/SM TAPE & REEL

Tolerances:
XX =±0.5
X.X =±0.10
X.XX =±0.05
X.XXX =±0.05
X° =±1.0 °
Hole =±0.08-0.0

RAKON PRECISION QUARTZ PRODUCTS