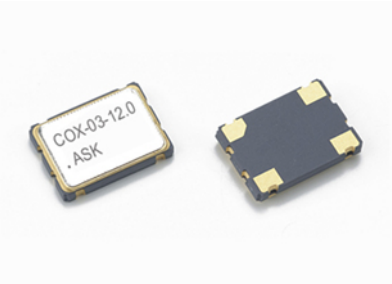
CRYSTAL OSCILLATORS

ASK



COX Series Ceramic SMD Oscillator

RoHS

- Ceramic SMD package
- HCMOS/TTL Output
- Stability to ±20ppm
- Tri-state function available
- Suitable for reflow soldering

PART NUMBER GUIDE

COX-01 - 50.0 - 25 - B - S

PACKAGE TYPE
COX-01 : SMD – 7x5.0mm – 1.8V
COX-02 : SMD – 7x5.0mm – 2.5V
COX-02A : SMD – 7x5.0mm – 2.8V
COX-03 : SMD – 7x5.0mm – 3.3V
COX-05 : SMD – 7x5.0mm – 5.0V

FREQUENCY
1.000MHz~156.000MHz

PIN 1 CONNECTION
S : TRI-STATe, E/D

OPERATING TEMPERATURE
A : -40 to +85°C
B : -20 to +70°C
C : -10 to +70°C
D : 0 to +70°C

FREQUENCY STABILITY
25 : ± 25ppm

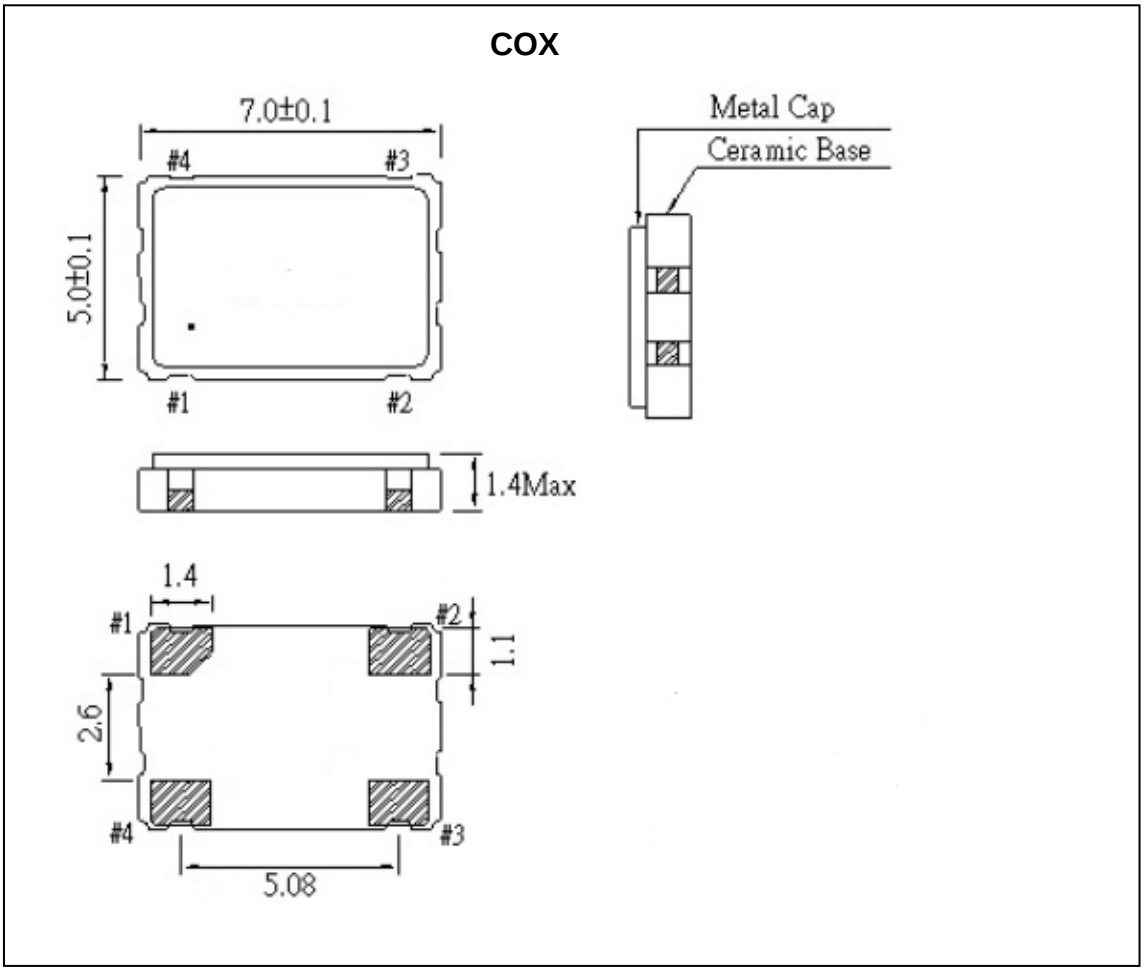
ELECTRICAL SPECIFICATIONS

MODEL	COX-01
Frequency Range	50.000MHz
Operating Temperature Range	-20°C to +70°C
Storage Temperature Range	-55°C to +125°C
Supply Voltage (V_{DD})	1.8V_{DC} ±10%
Frequency Tolerance / Stability	±25ppm Max
Output level Load / Output Level	15pf / CMOS
Start up Time	8mSec Max
Current Consumption	10mA Max
Aging (at 25°C)	3ppm / year Max
Output Voltage Logic High (V_{OH})	0.9VDD min
Output Voltage Logic Low (V_{OL})	0.1VDD max
Duty Cycle	45 to 55%
Rise / Fall Time	5ns max
PIN 1 Tri-State Input Voltage	No connection: Enables Output
	V_{IH}≥2.0V_{DC} : Enables Output V_{IH}≤0.8V_{DC}: High impedance
Phase Jitter(integrated 10KHz ~ 20Mhz)	2ps RMS (1-σ)
Phase Accumuated	5ps RMS (20.000 adjacent periods)
Peak to Peak jitter	50ps (100.000 random periods)

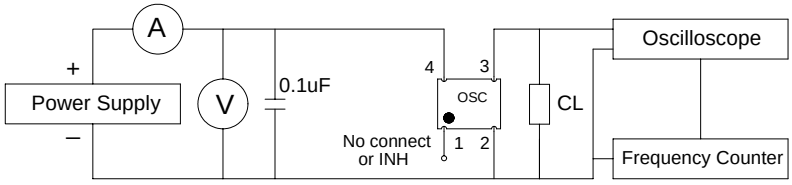
For other specifications, please contact our sales or engineering staff.

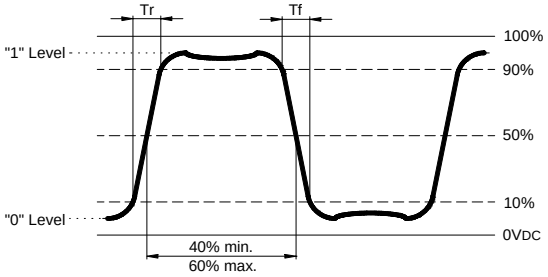
MECHANICAL DIMENSION

COX



Test circuit

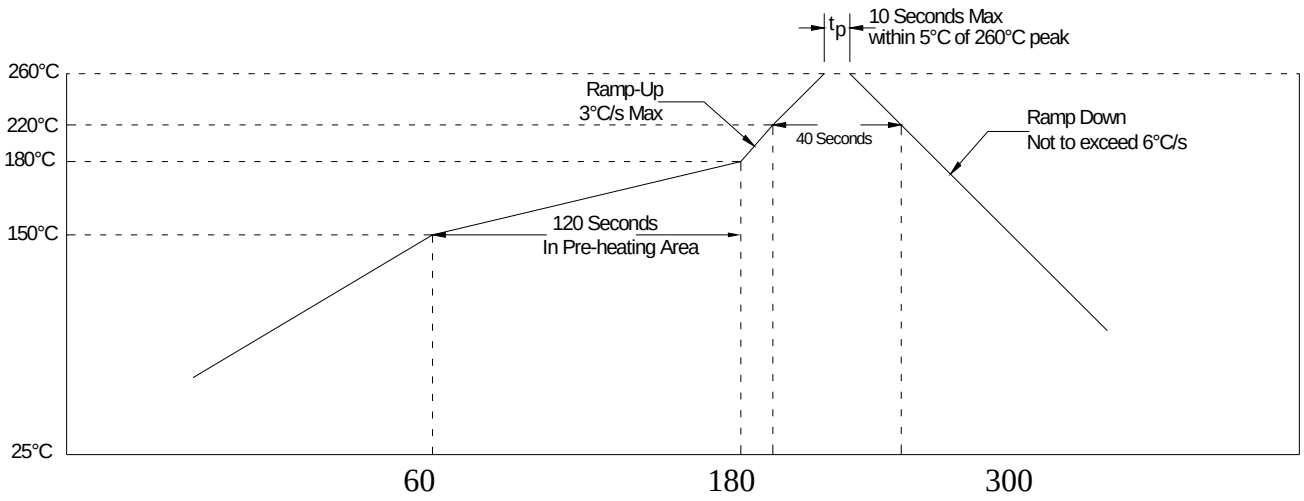




ASK

SPECIFICATION OF CRYSTAL

Soldering reflow



RoHS and REACH Regulation

Pb-free compliance

Component and Assembly Pb content shall be less than 0.1% by weight of the device (in accordance with IPC/EIA J-STD-006) and shall not be intentionally introduced.

Product Information

For a product to be RoHS compliant, it must satisfy several conditions:

- Contain no more than the specified limits of the target hazardous substances set out in the RoHS Directive
- Able to withstand Pb-free 260°C solder reflow profile below
- External packaging and terminations are Pb-free
- Internal PCB, components, solders, and terminations are Pb-free

REACH Regulation (EC) 1907/2006

Above concerned part is compliant with all rquirement in the REACH regultaions EC No. 1907/2006.

SPECIFICATION OF CRYSTAL

Reliability Test (applicable to OSC and SMD type X'tal)

Test Items	Test Condition	Specification	
		General OSC (Note:1)	General X' tal (Note:2)
1. Gross Leak Test	FC-40 125℃/30sec	No continuous bubble	
2. Fine Leak Test	Bombing of He 5kg/cm^2 for 2 hours	Less than 1*10^-8atm.c.c./sec, Helium	
3. Drop Test	Free dropped a ~19.999MHz(Fund.) →100 cm height b. 20~29.999MHz(Fund.) →50 cm height c. 30~ MHz(Fund.) →20 cm height on a hard wooden board for 3 times (board is thickness more than 30 mm)	△F≦± 10PPM , Duty within spec.	△F≦±10PPM , △C.I.≦±10ohms
4. Vibration Test	Freq. range: 10~55Hz Peak to peak amplitude:1.5mm Peak acceleration:10 G 3 direction(X,Y,Z) , each 60min.	△F≦± 10PPM , Duty within spec.	△F≦±10PPM , △C.I.≦±10ohms
5. Resistance to Soldering Test	a. IR Reflow furnace with the condition 2 times.Peak temp.260±3℃ , 10sec(Min.)	△F≦±10PPM , Duty within spec. For SMD OSC only	△F≦±10PPM , △C.I.≦±10ohms
	b. Dip terminals in a 260±5℃ solder bath for 5±0.5 sec.	At least 90% of each dipped area shall be covered by fresh solder. For DIP OSC only.	NA
6. Bending Test	Bending cycle : 1 cycle 0° - > 45° -> 0° -> 45° - > 0°	△F≦±5PPM , Duty within spec. For DIP OSC only.	NA
7. Share Test	Weight : 10N, Test duration : 10±1 sec	△F≦±5PPM , Duty within spec. For SMD OSC only.	△F≦±10PPM , △C.I.≦±10ohms
8. Low Temp. Exposure Test	-40±3℃, 240±12 hrs	△F≦±10PPM , Duty within spec.	△F≦±10PPM , △C.I.≦±10ohms
9. Aging Test	125±3℃, 240±12hrs	△F≦±10PPM , Duty within spec.	△F≦±10PPM , △C.I.≦±10ohms
10. High Temp. & Humidity Test	+85℃±5℃& 85%±5% R.H. , 240±12 hrs	△F≦±10PPM , Duty within spec.	△F≦±10PPM , △C.I.≦±10ohms
11. Temperature Cycling Test	-40±3℃/15±3min ~ +85±3℃/15±3min 15cycles	△F≦±10PPM , Duty within spec.	△F≦±10PPM , △C.I.≦±10ohms

Note:1 → For communication application the spec. demanded **"△F≦±5 PPM, Duty within spec."** 。

Note:2 → For communication application the spec. demanded **"△F≦±5 PPM, △C.I.≦±5 ohms "** 。