

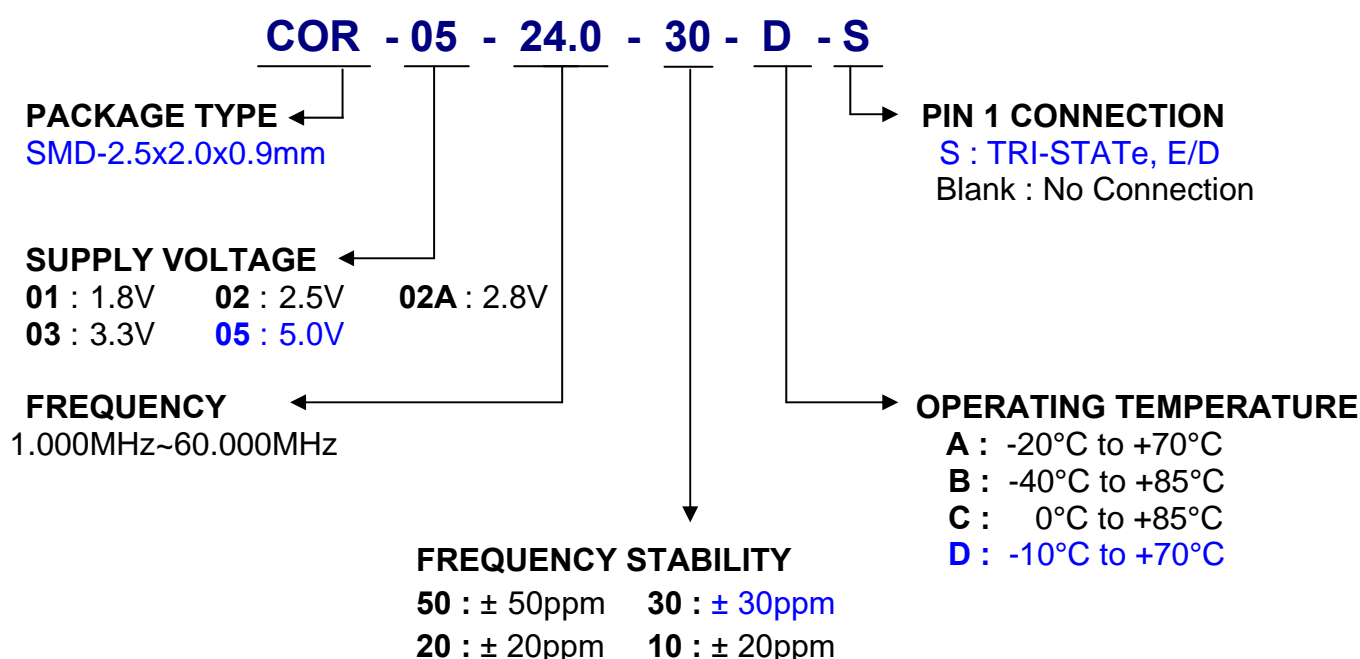


## COR Series Ceramic SMD Oscillator



- Ultra-thin, thickness (0.9mm)
- CMOS Output
- 1.8V to 5.0V supply voltage
- Stability to  $\pm 10\text{ppm}$
- Tri-state function available

### PART NUMBER GUIDE



### ELECTRICAL SPECIFICATIONS

MODEL	COR
Frequency Range	24.000MHz
Frequency Tolerance / Stability	$\pm 30\text{ppm}$
Operating Temperature Range	-10°C to +70°C
Storage Temperature Range	-55°C to +125°C
Supply Voltage (VDD)	5.0V $\pm 10\%$
Supply Current	30mA Max.
Load	15pf
Output Level	CMOS
Output Voltage Logic High (VOH)	0.9VDD Min.
Output Voltage Logic Low (VOL)	0.1VDD Max.
Start up Time	5ms Max.
Rise / Fall Time	5ns Max.
Output Symmetry	45~55 % (at 50% VDD)
Aging (at 25°C)	$\pm 3\text{ppm}/\text{year}$ Max.
Min. Packing	3000pcs/ Reel

**MECHANICAL DIMENSION**

**COR**

Marking

#4 #3 #1 #2

(Top View)

**PIN CONNECTION**

- 1 STANDBY CON
- 2 GND
- 3 OUTPUT
- 4 VDD

Pin 1	Output
H/Floating	Enable
L	Standby

**TEST CIRCUIT**

Power Supply    A    V    0.1uF

No connect or INH    OSC    CL    Oscilloscope    Frequency Counter

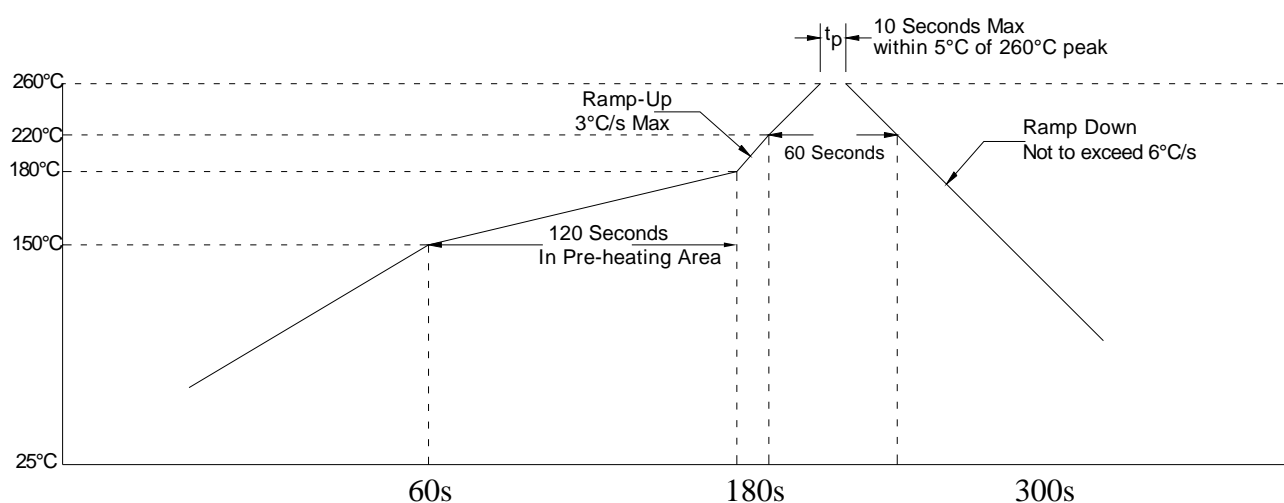
Tr    Tf

100%  
90%  
50%  
10%  
0VDC

40% min.  
60% max.

## SPECIFICATION OF CRYSTAL

### Soldering reflow



### 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, European ROHS 3 Directive (EU) 2015/865).

### 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

### EACH Regulation (EC) 1907/2006

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

**SPECIFICATION OF CRYSTAL**

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

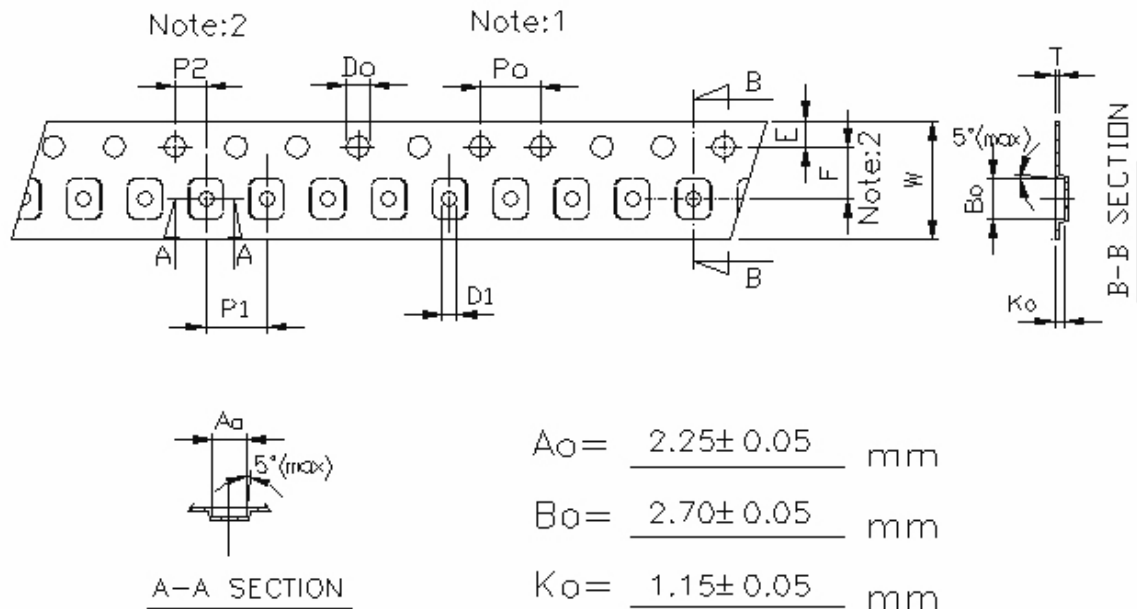
Test Items	Test Condition	Specification	
		General OSC (Note:1)	General X' tal (Note:2)
1. Gross Leak Test	FC-40 125°C/30sec	No continuous bubble	
2. Fine Leak Test	Bombing of He 5kg/cm <sup>2</sup> for 2 hours	Less than 1*10 <sup>-8</sup> atm.c.c./sec, Helium	
3. Drop Test	Free dropped a. ~19.999MHz(Fund.) →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)	ΔF ≤ ± 10PPM , Duty within spec.	ΔF ≤ ±10PPM , ΔC.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.	ΔF ≤ ± 10PPM , Duty within spec.	ΔF ≤ ±10PPM , ΔC.I. ≤ ±10ohms
5. Resistance to Soldering Test	a. IR Reflow furnace with the condition 2 times.Peak temp.260±3°C , 10sec( Min.)	ΔF ≤ ±10PPM , Duty within spec. For SMD OSC only	ΔF ≤ ±10PPM , ΔC.I. ≤ ±10ohms
	b. Dip terminals in a 260±5°C 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°	ΔF ≤ ±5PPM , Duty within spec. For DIP OSC only.	NA
7. Share Test	Weight : 10N, Test duration : 10±1 sec	ΔF ≤ ±5PPM , Duty within spec. For SMD OSC only.	ΔF ≤ ±10PPM , ΔC.I. ≤ ±10ohms
8. Low Temp. Exposure Test	-40±3°C, 240±12 hrs	ΔF ≤ ±10PPM , Duty within spec.	ΔF ≤ ±10PPM , ΔC.I. ≤ ±10ohms
9. Aging Test	125±3°C, 240±12hrs	ΔF ≤ ±10PPM , Duty within spec.	ΔF ≤ ±10PPM , ΔC.I. ≤ ±10ohms
10. High Temp. & Humidity Test	+85°C±5°C & 85%±5% R.H. , 240±12 hrs	ΔF ≤ ±10PPM , Duty within spec.	ΔF ≤ ±10PPM , ΔC.I. ≤ ±10ohms
11. Temperature Cycling Test	-40±3°C/15±3min ~ +85±3°C/15±3min 15cycles	ΔF ≤ ±10PPM , Duty within spec.	ΔF ≤ ±10PPM , ΔC.I. ≤ ±10ohms

**Note:1** → For communication application the spec. demanded "ΔF ≤ ±5 PPM, Duty within spec." .

**Note:2** → For communication application the spec. demanded "ΔF ≤ ±5 PPM, ΔC.I. ≤ ±5 ohms" .

**TAPE & REEL SPECIFICATIONS**

**Tape Dimensions (unit : mm)**



Unit: mm

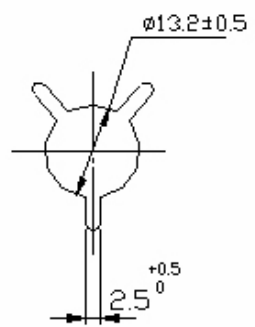
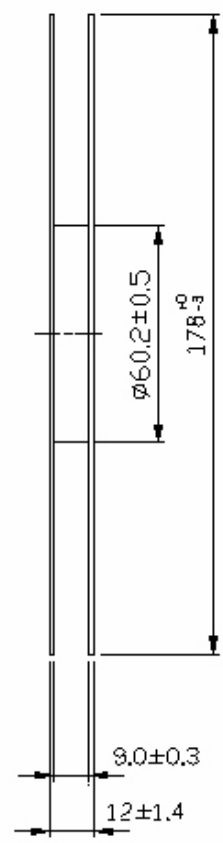
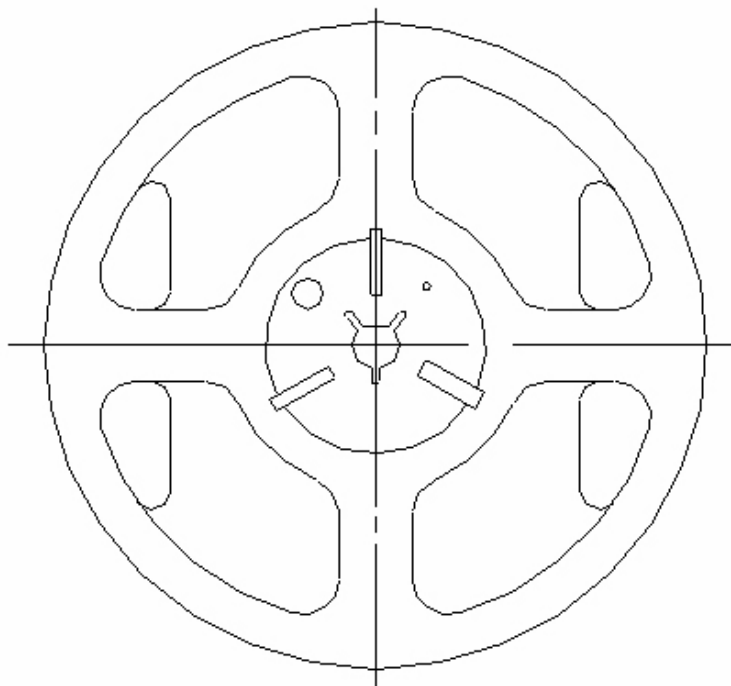
Symbol	Spec.
K1	—
Po	4.0± 0.10
P1	4.0± 0.10
P2	2.0± 0.05
Do	1.55± 0.05
D1	1.10± 0.10
E	1.75± 0.10
F	3.50± 0.05
10Po	40.0± 0.20
W	8.0± 0.20
T	0.25± 0.05

**Notice:**

1. Sprocket hole pitch cumulative tolerance is ±0.12mm
2. Pocket position relative to sprocket hole measured as true position of pocket not pocket hole.
3. Ao & Bo measured on a place 0.3mm above the bottom of the pocket to top surface of the carrier.
4. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
5. Carrier camber shall be not than 1mm per 100mm through a length of 250mm.

TAPE & REEL SPECIFICATIONS

Reel Dimensions (unit : mm)



Unit:mm

Q'ty: 2,500.pcs/reel