## **Features and Benefits**

High stability OCXO Sine wave output Frequency Tuning Input Phase noise less than -172dBc/Hz @10kHz offset 180 sec. max warm-up 20.0x20.2x11.7mm max

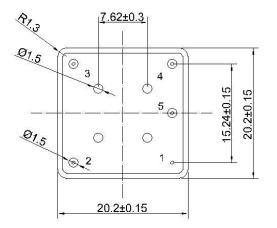
## **Description**

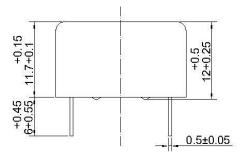
The OCXO2020MX is High stability with Sine wave output OCXO.

## **Typical Applications**

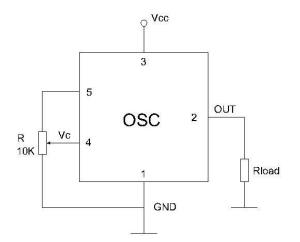
Ref. for Microwave comm. System Signal analyzer reference for internal synthesizers SATCOM systems

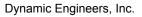
## **Mechanical Drawing & Pin Connections**





### Drawing No: MD140069-1





Rev.1

# **Specification**

| OCXO<br>Specification              | Sym                                | Condition                  | Min.   | Value<br>Typ.    | Max.        | Unit    | Note |  |  |
|------------------------------------|------------------------------------|----------------------------|--|------------------|-------------|---------|------|--|--|
| Nominal Frequency                  | f <sub>0</sub>                     |                            | IVIII.   | 88.052500        | IVIAA.      | MHz     |      |  |  |
| RF Output                          | 10                                 |                            |  | 00:032000        |             |         |      |  |  |
| Output waveform                    |                                    |                            |  | Sine wave        |             | 1       |      |  |  |
| Level                              | L                                  |                            | +10  | Sille wave       |             | dBm     | +    |  |  |
| Load                               |                                    |                            | 45   | 50               | 55          | Ohm     | т    |  |  |
| Harmonics level                    | <u> </u>                           |                            | 45   | 50               | -30         | dBc     |      |  |  |
| Spurious level                     |                                    |                            |  |                  | -30<br>-80  | dBc     |      |  |  |
|                                    |                                    |                            |  |                  | -80         | UBC     |      |  |  |
| Power Supply                       |                                    |                            | 44.4   | 10.0             | 40.0        | N/      |      |  |  |
| supply Voltage<br>Warm-up current  | Vcc                                | Vcc = 12.0V                | 11.4<br>220  | 12.0             | 12.6<br>300 | V<br>mA |      |  |  |
|                                    |                                    | @ +25°C,                   | 220  |                  | 300         | ША      |      |  |  |
| Continuous current                 |                                    | Vcc = 12.0V                |  |                  | 120         | mA      |      |  |  |
| Warm-up time                       | t <sub>up</sub>                    | To Δ f/f=1e-7,<br>@+25°C   |  |                  | 180         | sec.    |      |  |  |
| Frequency Control*                 |                                    |                            |  |                  |             |         |      |  |  |
| Input resistance                   | R <sub>in</sub>                    |                            |  | 11               |             | kOhm    |      |  |  |
| Voltage range                      | Vc                                 |                            | 0  |                  | 4.2         | V       |      |  |  |
| Factory set control voltage        | Vc0                                | Disconnected Vc pin        | 1.65   | 2.1              | 2.55        | V       |      |  |  |
| Slope                              |                                    |                            |  | Positive         |             |         |      |  |  |
|                                    | (f <sub>L</sub> -f)/f              | Vc=0V                      |  |                  | -1.0        | ppm     | +    |  |  |
| Frequency range                    | (f-f)/f                            | Vc=Vc0                     |  | 0                |             | ppm     |      |  |  |
|                                    | (f <sub>H</sub> -f)/f              | Vc=V <sub>REF</sub>        | 1.0  |                  |             | ppm     | +    |  |  |
| Reference output                   | VREF                               |                            | 4.1  | 4.2              | 4.3         | V       |      |  |  |
| Out resistance of V <sub>REF</sub> |                                    |                            |  | 91               |             | Ohm     |      |  |  |
| Frequency Stability                |                                    | •                          |  |                  |             |         |      |  |  |
| Initial Tolerance                  | (f-f <sub>0</sub> )/f <sub>0</sub> | @+25°C, Vc=Vc0             | -0.2   |                  | +0.2        | ppm     | +    |  |  |
| Vs. Temperature                    | (1.10)/10                          | 0°C to +50°C               |  |                  |             |         |      |  |  |
|                                    |                                    | (ref +25°C)                |  |                  | +/-200      | ppb     | +    |  |  |
|                                    |                                    | -20°C to +70°C             |  |                  |             |         | _    |  |  |
|                                    |                                    | (ref +25°C)                |  |                  | +/-500      | ppb     | +    |  |  |
| Vs. Supply Voltage                 |                                    | ref Vcc typ.               |  |                  | +/-5        | ppb     |      |  |  |
| Vs. Load                           |                                    | ref R <sub>L</sub> typ.    |  |                  | +/-5        | ppb     |      |  |  |
| Per day                            |                                    | After 30days               |  |                  | +/-3        | ppb     |      |  |  |
| Aging Per year                     |                                    | operation                  |  |                  | +/-0.3      | ppm     |      |  |  |
| Phase Noise                        |                                    | ·                          |  |                  |             |         |      |  |  |
|                                    |                                    | 100Hz                      |  |                  | -131        |         |      |  |  |
| SSB Phase Noise                    |                                    | 1kHz                       |  |                  | -157        | dBc/Hz  |      |  |  |
|                                    |                                    | 10kHz                      |  |                  | -172        |         |      |  |  |
|                                    |                                    | 100kHz                     |  |                  | -175        |         |      |  |  |
| Environmental                      |                                    |                            |  |                  |             |         |      |  |  |
| Power voltage                      | -0.5V to                           | 14.4V                      |  |                  |             |         |      |  |  |
| Control voltage                    |                                    | -1.0V to 6.0V              |  |                  |             |         |      |  |  |
| Operating temperature range        | -20°C to                           | o +70°C                    |  |                  |             |         |      |  |  |
| Storage temperature range          | -60°C to                           | -60°C to +90°C             |  |                  |             |         |      |  |  |
| Humidity                           |                                    | Hermetically sealed        |  |                  |             |         |      |  |  |
| Mechanical Shock                   |                                    | Per MIL-STD-202, 30G, 11ms |  |                  |             |         |      |  |  |
|                                    | Per MIL-STD-202, 5G to 500Hz       |                            |  |                  |             |         |      |  |  |
| Vibration                          |                                    | -010-202, 5010500112       | Hand solder only – not reflow compatible 260°C 10s (on pins) |                  |             |         |      |  |  |
| Vibration<br>Soldering conditions  |                                    |                            | mpatible 26  | 0°C 10s (on pins | )           |         |      |  |  |

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