

**Specification for an HCMOS OCXO**  
**MtronPTI P/N: XO5084-077sR**  
**Effective Date: January 7, 2020**

**Electrical Specifications:**

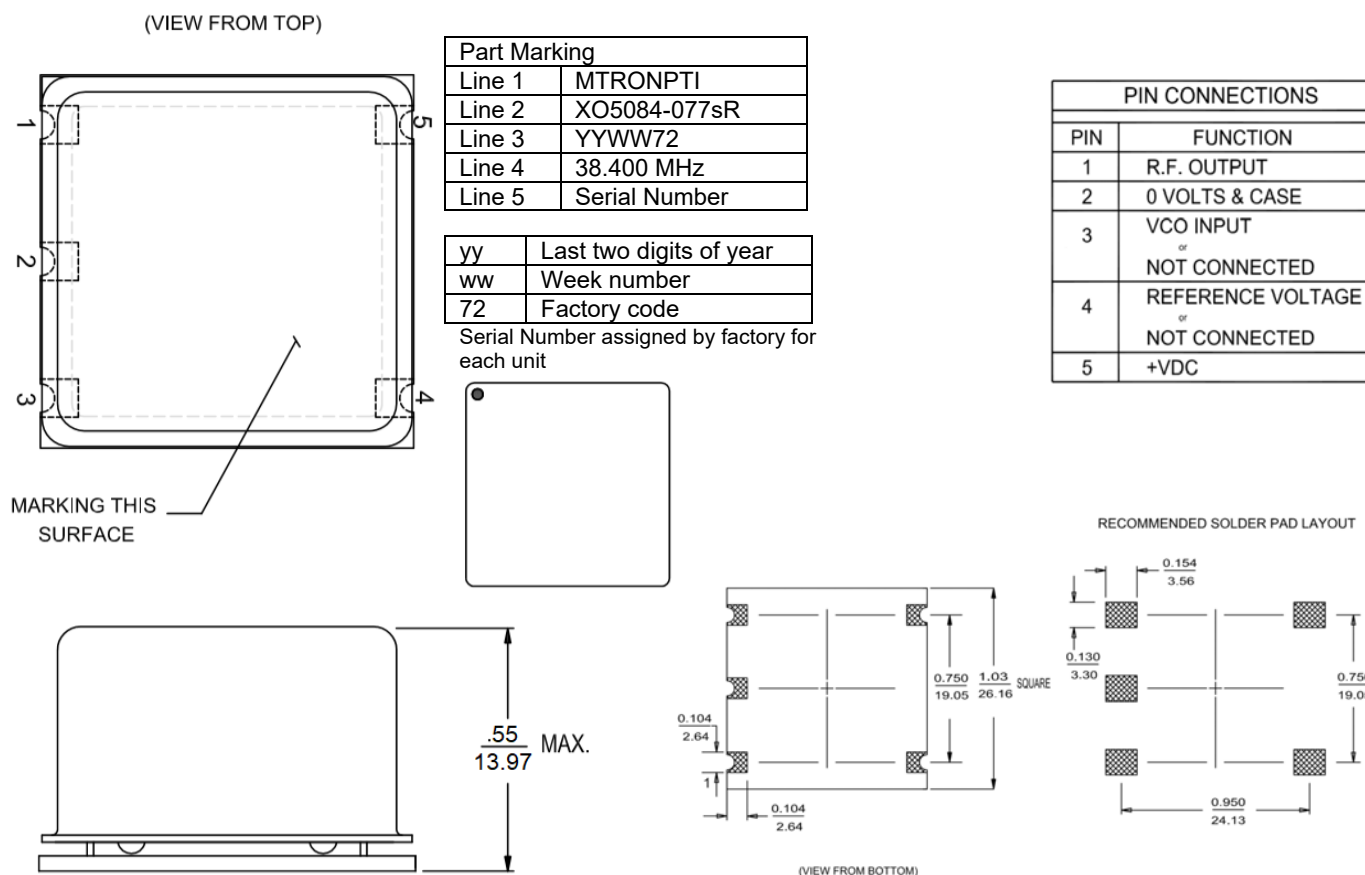
| Parameter                                | Symbol             | Min.             | Typ.      | Max.  | Units   | Conditions  |
|--|--------------------|------------------|-----------|-------|---------|---|
| Nominal Frequency                        | F <sub>0</sub>     |                  | 38.400000 |       | MHz     |   |
| <b>Frequency Stabilities</b>             |                    |                  |           |       |         |   |
| Initial Accuracy                         |                    | -0.2             |           | +0.2  | ppm     | At Time of shipment   |
| vs. Temperature                          | $\Delta F_T/F$     | -100             |           | +100  | ppb     | over operating temperature range  |
| vs. Supply Voltage                       | $\Delta F_{VDD}/F$ | -2               |           | +2    | ppb     | +/- 5% change   |
| vs. Load                                 |                    | -2               |           | +2    | ppb     | +/- 5% change   |
| Daily Aging                              |                    | -2               |           | +2    | ppb     | After 30 days   |
| Yearly Aging                             |                    | -200             |           | +200  | ppb     |   |
| 10 year Aging                            |                    | -0.8             |           | +0.8  | ppm     |   |
| Short term                               |                    |                  | 0.1E-9    |       |         | @ 0.1 second  |
|  |                    |                  | 0.1E-9    |       |         | @ 1 second  |
| <b>Frequency Adjust</b>                  |                    |                  |           |       |         |   |
| Adjustment Method                        |                    | External Voltage |           |       |         |   |
| Adjustment Voltage                       | V <sub>tune</sub>  | 0                |           | 2.8   | Vdc     |   |
| Tuning                                   |                    | ±1.0             |           | ±3    | ppm     | Ref. to frequency at nominal center voltage                                     |
| Adjustment Slope                         |                    | Positive         |           |       |         |   |
| Linearity                                |                    | -10%             |           | +10%  |         |   |
| Input Impedance                          |                    | 50               |           |       | kΩ      |   |
| Frequency Response                       |                    | 1                |           |       | kHz     |   |
| <b>RF Output</b>                         |                    |                  |           |       |         |   |
| Output Type                              |                    | CMOS             |           |       |         |   |
| Output Load                              |                    |                  | 15        |       | pF      |   |
| Symmetry (duty cycle)                    | T <sub>DC</sub>    | 45               | 50        | 55    | %       | @ 50% of waveform   |
| Logic "1" Level                          | V <sub>OH</sub>    | 2.4              |           |       | V       |   |
| Logic "0" Level                          | V <sub>OL</sub>    |                  |           | 0.4   | V       |   |
| Rise/Fall time                           |                    |                  |           | 6     | ns      | 10% to 90%  |
| <b>Temperature and Supply Voltage</b>    |                    |                  |           |       |         |   |
| Operating Temperature                    | T <sub>A</sub>     | -40              |           | +85   | °C      |   |
| Storage Temperature                      | T <sub>S</sub>     | -50              |           | +85   | °C      |   |
| Operating Voltage                        | V <sub>DD</sub>    | 3.135            | 3.3       | 3.465 | V       |   |
| Power Consumption                        |                    |                  |           | 2     | W       | Steady state @ 25°C<br>In still air   |
|  |                    |                  |           | 4     | W       | @ warm-up   |
| Warm-up Time (Restabilization)           |                    |                  |           | 3     | Minutes | Time to be within ±100 ppb of the frequency after 24 hours of operation @ 25°C  |
| <b>Additional Parameters</b>             |                    |                  |           |       |         |   |
| Phase Noise<br>(under static conditions) |                    |                  | -112      |       | dBc/Hz  | 100 Hz  |
|  |                    |                  | -141      |       | dBc/Hz  | 1KHz  |
|  |                    |                  | -155      |       | dBc/Hz  | 10 KHz  |
|  |                    |                  | -157      |       | dBc/Hz  | 12.5KHz   |
|  |                    |                  | -160      |       | dBc/Hz  | 25KHz   |
|  |                    |                  | -162      |       | dBc/Hz  | 100 KHz   |
|  |                    |                  | -163      |       | dBc/Hz  | 1 MHz   |
| Retrace                                  |                    | -100             |           | +100  | ppb     | 4 minutes after turn on, 2 hours minimum on time, and 24 hours maximum of time. |
| Spurious                                 |                    |                  |           | -60   | dBc     |   |
| Sub-Harmonics                            |                    |                  |           | -30   | dBc     |   |

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**Environmental Conditions:**

|                                  |   |
|----------------------------------|---|
| Humidity                         | Per MIL-STD-202, Method 103, Test Condition A (95% RH @ +40C, non-condensing, 240hours) |
| Mechanical Shock (non-operating) | Per MIL-STD-202, Method 213, Test Condition J (30g, 11ms, ½ sine)                       |
| Vibration (non-operating)        | Per MIL-STD-202, Method 201 (0.06" total p-p, from 10-55 Hz)                            |
| Re-flow                          | Bottom side assembly forbidden  |

**Mechanical, Marking and Layout Information:**



**Figure 1**

**Data Sheet Revision Table:**

| Date     | Rev. | Author. | Details of Revision |
|----------|------|---------|---------------------|
| 01-07-20 | A    | BRR     | Preliminary Release |