

### OX4120A-D3-5-10.000-3.3



#### ELECTRICAL SPECIFICATIONS

| PARAMETER                              | SYMBOL                         | CONDITION                                                                                                                                                 | VALUE  |      |       | UNIT |
|----------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------|-------|------|
|                                        |                                |                                                                                                                                                           | Min.   | Typ. | Max.  |      |
| Nominal Frequency                      | $f_0$                          |                                                                                                                                                           | 10.000 |      |       | MHz  |
| Supply Voltage                         | $V_s$                          | $V_s \pm 5\%$ @ 25°C                                                                                                                                      | 3.135  | 3.3  | 3.465 | V    |
| Input Current                          | $I_s$                          | Steady state, @ 25°C                                                                                                                                      |        |      | 400   | mA   |
|                                        | $I_w$                          | During warm-up, @ 25°C                                                                                                                                    |        |      | 1000  | mA   |
| Load                                   |                                | Output to Ground                                                                                                                                          | 13.5   | 15   | 16.5  | pF   |
| Frequency Calibration                  | $\Delta f/f_0$                 | $V_s = 3.3V$ , $T_a = 25^\circ C$ , after 15 min power on ref to nominal freq                                                                             | -200   |      | +200  | ppb  |
| Frequency Stability vs. Temperature    | $\Delta f/f_0 (T_a)$           | $T_a = -40^\circ C \dots +85^\circ C$ , ref to 25°C                                                                                                       | -50    |      | +50   | ppb  |
| Frequency Stability vs. Supply Voltage | $\Delta f/f_0 (\Delta V_{CC})$ | $T_a = 25^\circ C$ , $V_s \pm 5\%$ , load=15pF                                                                                                            | -10    |      | +10   | ppb  |
| Frequency Stability vs. Load           |                                |                                                                                                                                                           | -10    |      | +10   | ppb  |
| Aging, after 30 days of operation      | $\Delta f/\Delta t_d$          | Daily                                                                                                                                                     | -2.0   |      | +2.0  | ppb  |
|                                        | $\Delta f/\Delta t_y$          | First year                                                                                                                                                | -300   |      | +300  | ppb  |
|                                        | $\Delta f/\Delta t_y$          | 20 years                                                                                                                                                  | -3.0   |      | +3.0  | ppm  |
| Total Free Run Accuracy                |                                | Over all conditions, for 20 years                                                                                                                         | -4.6   |      | +4.6  | ppm  |
| Holdover Drift                         |                                | 24 hours, temp variation $\pm 1^\circ C$ max                                                                                                              | -3.0   |      | +3.0  | ppb  |
| Slope in Still Air                     |                                | The freq movement in any 5.6°C band ( $\pm 2.8^\circ C$ ) within the temp range -5 to +65°C When subjected to temp change at a rate of 1°C/minute or less | -5.0   |      | +5.0  | ppb  |
| Short Term Stability                   |                                | At 25°C, after power on 1 hour, $\tau = 1s$                                                                                                               |        |      | 0.05  | ppb  |
| Warm-up Time                           |                                | $T_a = 25^\circ C$ , within $\pm 100ppb$ of frequency with reference after 1 hour on                                                                      |        |      | 5     | min  |
| Operating Temperature Range            | $T_a$                          |                                                                                                                                                           | 0      |      | +50   | °C   |
| Storage Temperature Range              | $T_{(stg)}$                    | Absolute max                                                                                                                                              | -55    |      | +105  | °C   |

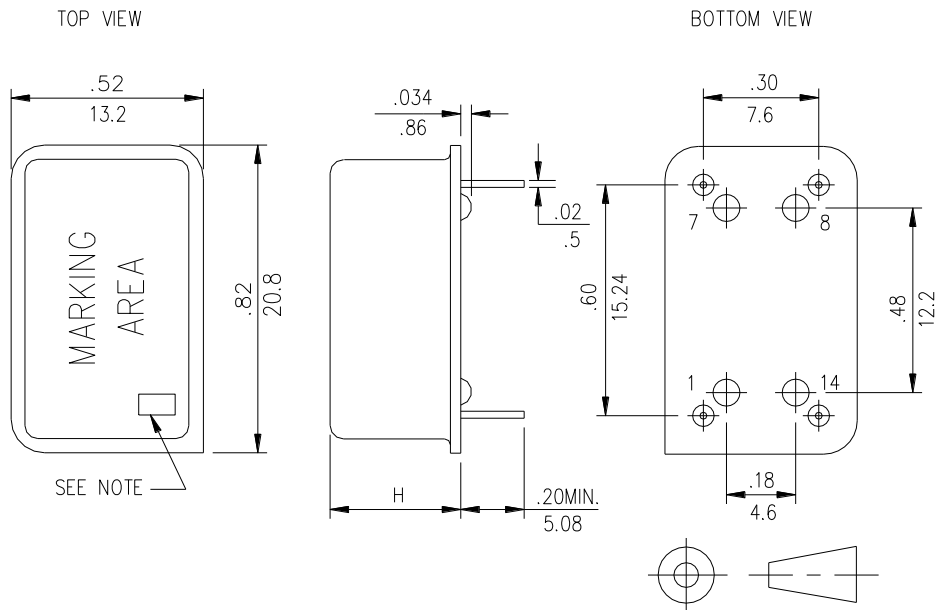
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### PHASE NOISE

| PARAMETER       | SYMBOL                   | CONDITION | VALUE |      |      | UNIT   |
|-----------------|--------------------------|-----------|-------|------|------|--------|
|                 |                          |           | Min.  | Typ. | Max. |        |
| @1 Hz Offset    | $\mathcal{E} (\Delta f)$ |           |       | -70  |      | dBc/Hz |
| @10 Hz Offset   | $\mathcal{E} (\Delta f)$ |           |       | -96  |      | dBc/Hz |
| @100 Hz Offset  | $\mathcal{E} (\Delta f)$ |           |       | -123 |      | dBc/Hz |
| @1 kHz Offset   | $\mathcal{E} (\Delta f)$ |           |       | -143 |      | dBc/Hz |
| @10 kHz Offset  | $\mathcal{E} (\Delta f)$ |           |       | -152 |      | dBc/Hz |
| @100 kHz Offset | $\mathcal{E} (\Delta f)$ |           |       | -153 |      | dBc/Hz |
| @1 Mz Offset    | $\mathcal{E} (\Delta f)$ |           |       | -154 |      | dBc/Hz |

### LVC MOS OUTPUT CHARACTERISTICS

| PARAMETER      | SYMBOL    | CONDITION                     | VALUE |      |      | UNIT |
|----------------|-----------|-------------------------------|-------|------|------|------|
|                |           |                               | Min.  | Typ. | Max. |      |
| Output Levels  | VOL       | $V_{CC} = 3.3V$ , load = 15pF |       |      | 0.3  | V    |
|                | VOH       | $V_{CC} = 3.3V$ , load = 15pF | 2.7   |      |      | V    |
| Duty Cycle     | DC        | @50% output signal            | 45    |      | 55   | %    |
| Rise/Fall Time | $t_r/t_f$ | 10% ~ 90% Vout                |       |      | 4    | ns   |
| Load           |           |                               |       | 15   |      | pF   |

**OX4120A-D3-5-10.000-3.3****MECHANICAL DIMENSIONS AND PIN FUNCTIONING**

| PIN | SYMBOL | FUNCTION       |
|-----|--------|----------------|
| 1   | VC/NC  | N/C            |
| 7   | GND    | Case/Ground    |
| 8   | OUTPUT | RF Output      |
| 14  | Vs     | Supply Voltage |

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### ENVIRONMENTAL MECHANICAL CONDITIONS

|                           |                                                                                                                                                                                                                                   |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Storage temperature range | -55°C to +105°C                                                                                                                                                                                                                   |
| Drop Test                 | The test shall be carried out as the provisions of the IEC60028-2-32 test Ed.<br>10cm height, 3 times on hard board with thickness of 3cm                                                                                         |
| Bumping Test              | Device are bumped to three mutually perpendicular axes at peak acceleration of 400m/s <sup>2</sup> , each 4000±10times, 6ms pulse duration time                                                                                   |
| Vibration Test            | Frequency range: 1Hz-4Hz-100Hz-200Hz<br>Acceleration: 0.0001g <sup>2</sup> /Hz-0.01g <sup>2</sup> /Hz-0.01g <sup>2</sup> /Hz-0.001g <sup>2</sup> /Hz<br>Grms=1.15g<br>Sweep time: 30 minutes (perpendicular axes each sweep time) |
|                           |                                                                                                                                                                                                                                   |
| Mechanical Shock          | 100g, 6mS duration, 1/2 sine wave, 3 shocks each direction along 3 mutually perpendicular planes.                                                                                                                                 |
| Thermal shock             | 0.5h@-40°C , 0.5h@+85°C , Note: the changing time < 30 seconds, cycling for 100 times                                                                                                                                             |

|               | Signed                                                                    | Date              |
|---------------|---------------------------------------------------------------------------|-------------------|
| Created       | CP                                                                        | December 14, 2019 |
| Eng. approved | SP                                                                        | December 14, 2019 |
| REV A<br>B    | Initial Release<br>CP, March 3, 2021 Updated to the<br>current spec level |                   |