

OX4115A-D3-2-24.576-3.3



ELECTRICAL SPECIFICATIONS

| PARAMETER | SYMBOL | CONDITION | VALUE | | | UNIT |
|--|--------------------------------|---|--------|------|-------|------|
| | | | Min. | Typ. | Max. | |
| Nominal Frequency | f_0 | | 24.576 | | | 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 | | | 300 | mA |
| | $I_{s,w}$ | During warm-up, @ 25°C | | | 750 | mA |
| Warm-up Time | t_w | $V_s, T_a = +25^\circ\text{C}$, within ± 100 ppb of final frequency with reference after 1 hour on | | | 5 | min |
| Frequency Calibration | $\Delta f/f_0$ | $T_a = +25^\circ\text{C}$, after 15mins power on ref. to nominal frequency | -200 | | +200 | ppb |
| Frequency Stability vs. Temperature | $\Delta f/f_0 (T_a)$ | $T_a = -40^\circ\text{C} \dots +85^\circ\text{C}$, measurement referenced to $(f_{max} + f_{min})/2$ | -20 | | +20 | ppb |
| Frequency Stability vs. Supply Voltage | $\Delta f/f_0 (\Delta V_{CC})$ | $T_a = 25^\circ\text{C}$, $V_s \pm 5\%$, load=15pF | -5 | | +5 | ppb |
| Frequency Stability vs. Load Variation | $\Delta f/f_0 (\Delta I)$ | $T_a = 25^\circ\text{C}$, V_s , load=15pF $\pm 5\%$ | -5 | | +5 | 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 |
| | $\Delta f/\Delta t_y$ | 10 years | -2 | | +2 | ppm |
| Operating Temperature Range | T_a | | -40 | | +85 | °C |
| Storage Temperature Range | $T_{(stg)}$ | Absolute max | -40 | | +105 | °C |
| Holdover Stability | | 24 hours, constant temp, still air, p-p | | | 1 | ppb |
| Free-run Accuracy | | All causes 20 years life | -4.6 | | +4.6 | ppm |
| Short Term Stability | | $\tau = 0.1s$ | | | 0.05 | ppb |
| Wander Compliance | | G.8263 MTIE requirements met under min loop bandwidth of 0.05mHz (3200s max time constant) under G8263(amendment) appendix IV temp profile ($\pm 20^\circ\text{C}$ excursion at $0.5^\circ\text{C}/\text{min}$) | | | | |

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PHASE NOISE

| PARAMETER | SYMBOL | CONDITION | VALUE | | | UNIT |
|-----------------|--------|-----------|-------|--------------|------|--------|
| | | | Min. | Typ. / Nom.* | Max. | |
| @1 Hz Offset | £ (Δf) | | | | -80 | dBc/Hz |
| @10 Hz Offset | £ (Δf) | | | | -110 | dBc/Hz |
| @100 Hz Offset | £ (Δf) | | | | -130 | dBc/Hz |
| @1 kHz Offset | £ (Δf) | | | | -140 | dBc/Hz |
| @10 kHz Offset | £ (Δf) | | | | -145 | dBc/Hz |
| @100 kHz Offset | £ (Δf) | | | | -150 | dBc/Hz |
| @1 MHz Offset | £ (Δf) | | | | -155 | dBc/Hz |

CMOS OUTPUT CHARACTERISTICS

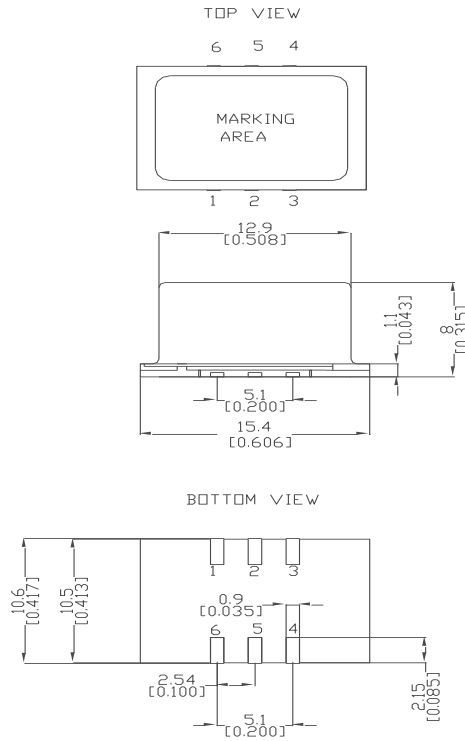
| PARAMETER | SYMBOL | CONDITION | VALUE | | | UNIT |
|----------------|--------------------------------|-------------------------------------|-------|---------|------|------|
| | | | Min. | Typ. | Max. | |
| Output Levels | VOH/VOL | V _{CC} = 3.3V, load = 15pF | | 2.4/0.4 | | V |
| Duty Cycle | DC | load = 15pF | | 45/55 | | % |
| Rise/Fall Time | t _r /t _f | 10% ~ 90% V _{out} | | | 5 | ns |
| Load | | | | 15 | ±5% | pF |
| Jitter | | RMS, 12kHz – 5MHz | | 0.6 | | ps |

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. 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 ² , each 4000±10times, 6ms pulse duration time |
| Vibration Test | Frequency range: 1Hz-4Hz-100Hz-200Hz Acceleration: 0.0001g ² /Hz-0.01g ² /Hz-0.01g ² /Hz-0.001g ² /Hz Grms=1.15g 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 |

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MECHANICAL DIMENSIONS AND PIN FUNCTIONING



| PIN | SYMBOL | FUNCTION |
|-----|--------|----------------|
| 1 | N/C | No connect |
| 2 | N/C | No connect |
| 3 | GND | Case/Ground |
| 4 | OUTPUT | RF Output |
| 5 | N/C | No connect |
| 6 | Vs | Supply Voltage |

| RALTRON | Signed | Date |
|---------------|--------|-------------------|
| Created | LP | December 22, 2018 |
| Eng. approved | SP | December 22, 2018 |
| REV A | | |

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