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|----------------------|----------------|---------|------------------|
| Specification | AXIOM20 | Rev.: 7 | Date: 2015-03-13 |
|----------------------|----------------|---------|------------------|

Oscillator type: OCXO in DIL14 Package with HCMOS Output

| Parameter | min. | typ. | max. | Unit | Condition |
|--|----------------------------------|--------------------|----------------------|----------------|---|
| Frequency range | 5 | | 125 | MHz | |
| Standard frequencies | 10.000/20.000/80.000/100.000 | | | MHz | |
| Frequency stability | | | | | |
| Initial tolerance @ +25°C | | | ±500 | ppb | V _c @ centre value |
| vs. operating temperature range | Option 2 & 3 See tables 1 & 2 | | | | steady state |
| vs. supply voltage variation (pushing) | | | ±10 | ppb | V _s ±5% |
| vs. load change (pulling) | | | ±20 | ppb | Load ±10% |
| Long term (aging) per day (after 30 days operation) (Note 2) | | | ±10 ±2 | ppb ppb | AT-Cut SC-Cut |
| Long term (aging) 1 st year (after 30 days operation) (Note 2) | | ±300 ±100 | ±500 ±200 | ppb ppb | AT-Cut SC-Cut |
| Frequency adjustment range | | | | | |
| Electronic Frequency Control (EFC) | ±2 ±1 | | ±5 | ppm ppm | AT-Cut SC-Cut |
| EFC voltage V _c | 0.15 0.25 | 1.65 2.50 | 3.15 4.75 | V V | Option 1 = "33" Option 1 = "50", "12" |
| EFC slope ($\Delta f / \Delta V_c$) | Positive | | | | |
| EFC input impedance | 100 | | | kΩ | |
| RF output | | | | | |
| Signal waveform | HCMOS | | | | |
| Load | 15 | | | pF | ±10% |
| Symmetry (duty cycle) | 40 | | 60 | % | @ V _s /2 |
| Rise & decay time | | | 5 | ns | @ 10% ~ 90% V _s |
| Warm-up time @ +25°C | | | 2 | min | $\Delta f_{\text{final}}/f_0 < \pm 0.1$ ppm |
| Phase Noise | Consult factory | | | | |
| Supply voltage V_s | 3.15 4.75 11.4 | 3.3 5.0 12.0 | 3.45 5.25 12.6 | V V V | Option 1 = "33" Option 1 = "50" Option 1 = "12" |
| Current consumption (steady state) @ +25°C (Note 3) | | | 300 200 100 | mA mA mA | Option 1 = "33" Option 1 = "50" Option 1 = "12" |
| Current consumption (warm-up) (Note 3) | | | 700 500 200 | mA mA mA | Option 1 = "33" Option 1 = "50" Option 1 = "12" |
| Enclosure (see drawing) (LxWxH) | 20.7x13.1x8.5 max. | | | mm | IEC 60679-3 CO 02 |
| Weight | | | 5 | g | |
| Packing | Palette or Tube | | | | |

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Lower aging on request
3. May be higher for wide operating temperature range

Absolute Maximum Ratings

| Parameter | min. | max. | Unit | Condition |
|-----------------------|------|--------------|------|--------------|
| Supply Voltage V_S | -0.5 | $V_S + 10\%$ | V | V_S to GND |
| Control Voltage V_C | -0.5 | 15 | V | V_C to GND |
| Storage Temperature | -55 | +125 | °C | |

Frequency stability vs. temperature

| Option 2 | Stability [ppb] |
|----------|--------------------|
| 05 | ±5 |
| 10 | ±10 |
| 25 | ±25 |
| 50 | ±50 |
| 100 | ±100 |
| 200 | ±200 |
| 300 | ±300 |

Table 1

| Lower Temperature | | Upper Temperature | |
|-------------------|--------|-------------------|--------|
| Option 3 | T [°C] | Option 3 | T [°C] |
| 0 | 0 | A | +50 |
| 1 | -10 | B | +60 |
| 2 | -20 | C | +70 |
| 3 | -30 | D | +75 |
| 4 | -40 | E | +80 |
| 5 | -55 | F | +85 |

Table 2

Standard: "1B" = -10°C to +60°C

| Temperature range [°C] | Frequency stability [Option 2] | | | | | |
|------------------------|--------------------------------|----|----|----|-----|-----|
| | 05 | 10 | 25 | 50 | 100 | 200 |
| 0 ~ +50 | O | O | SC | AT | AT | AT |
| -10 ~ +60 | O | O | SC | AT | AT | AT |
| -20 ~ +70 | O | O | SC | SC | AT | AT |
| -30 ~ +70 | O | O | SC | SC | SC | AT |
| -40 ~ +75 | O | O | O | SC | SC | SC |
| -40 ~ +85 | O | O | O | SC | SC | SC |
| -55 ~ +85 | - | O | O | O | SC | SC |

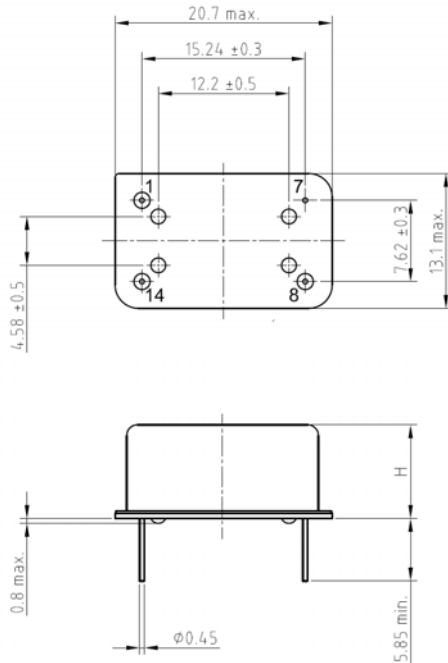
Table 3 "Availability" AT, SC = AT-Cut, SC-Cut available, O = available on request, - not available

Ordering Code

| Model | Option 1 [Supply Voltage] | Option 2 [Stability] | Option 3 [Temperature range] | Revision | Frequency [MHz] |
|---------|------------------------------|-------------------------|---------------------------------|----------|-----------------|
| AXIOM20 | 12, 33, 50 | Table 1 | Table 2 | Rev.7 | 10.000 |

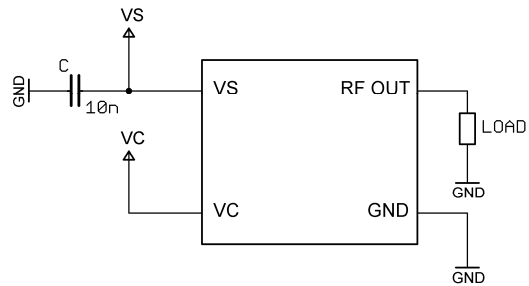
Example: AXIOM20-50-100-1B_Rev.7 – 10.000 MHz

Enclosure drawing



Pin connections

| Pin # | Symbol | Function |
|-------|----------------|-----------------------|
| 1 | V _C | Control Voltage (EFC) |
| 7 | GND | Ground |
| 8 | RF OUT | RF Output |
| 14 | V _S | Supply Voltage |



* See Application Note AXAN-011

Handling and Testing

| Parameter | Procedure | | Source |
|-------------------------------|---|-----|---------------|
| Handling and Testing | Application Note AXAN-011 | | www.axtal.com |
| Processing | Application Note AXAN-012 | | www.axtal.com |
| Parameter | Procedure | | Condition |
| Electrostatic discharge (ESD) | | | |
| THD devices | IEC60749-26 | HBM | 2000 V |
| SMD devices | IEC60749-27 | MM | 200 V |
| Washable | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| RoHS compliant | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |

Environmental conditions

| Test | IEC 60068 Part ... | IEC 60679-1 Clause | MIL-STD- 202G Method | MIL-STD- 810F Method | MIL-PRF- 55310D Clause | Test conditions (IEC) |
|--|--------------------------|--------------------------|----------------------------|----------------------------|------------------------------|--|
| Sealing tests (if applicable) | 2-17 | 5.6.2 | 112E | | 3.6.1.2 | Gross leak: Test Qc, Fine leak: Test Qk |
| Solderability Resistance to soldering heat | 2-20 2-58 | 5.6.3 | 208H 210F | | 3.6.52 3.6.48 | Test Ta Method 1 Test Td ₁ Method 2 Test Td ₂ Method 2 |
| Shock* | 2-27 | 5.6.8 | 213B | 516.4 | 3.6.40 | Test Ea, 3 x per axes 100g, 6 ms half-sine pulse |
| Vibration, sinusoidal* | 2-6 | 5.6.7.1 | 201A 204D | 516.4-4 | 3.6.38.1 3.6.38.2 | Test Fc, 30 min per axes, 10 Hz - 55 Hz 0,75mm; 55 Hz - 2 kHz, 10g |
| Vibration, random* | 2-64 | 5.6.7.3 | 214A | 514.5 | 3.6.38.3 3.6.38.4 | Test Fdb |
| Endurance tests - ageing - extended aging | | 5.7.1 5.7.2 | 108A | | 4.8.35 | 30 days @ 85°C, OCXO @25°C 1000h, 2000h, 8000h @85°C |

Other environmental conditions on request

Data sheet is for information purposes only and may be subject to modifications or may be discontinued without notice.

Revision History

| Rev. | Drawing | Date [dd.mm.yyyy] | Remarks | Author | Checked |
|------|---------|----------------------|--|--------|---------|
| 5 | D0 | 11.10.2013 | Major revision | CG | BN |
| 6 | D0 | 18.04.2014 | Frequency range extended, supply options extended, various parameters corrected/updated, environmental conditions updated, editorial changes | HH | HH |
| 7 | D0 | 13.03.2015 | Frequency range extended, stability code extended | BN | BN |