

ULTRA MINIATURE OCXO MV118

Features:

- Small package of 20x20x10 mm
- High stability vs. temperature: up to $\pm 1 \times 10^{-8}$
- Frequency range: 10.0 – 25.0 MHz
- Supply voltage: 3.3V or 5V
- Available as RoHS
- Output type: CMOS or SIN

| Power Supply |
|--------------|
| 5 V |
| 3.3 V |

| Output type |
|-------------|
| CMOS |
| SIN |

ORDERING GUIDE: MV118-B20G-3.3V-SIN-10.0MHz

| Availability of certain stability vs. operating temperature range | | $\pm 1 \times 10^{-7}$ | $\pm 5 \times 10^{-8}$ | $\pm 2 \times 10^{-8}$ | $\pm 1 \times 10^{-8}$ |
|---|-------------|------------------------|------------------------|------------------------|------------------------|
| | | 100 | 50 | 20 | 10 |
| A | 0...+55°C | A | A | A | C |
| B | -10...+60°C | A | A | A | C |
| C | -20...+70°C | A | A | A | NA |
| D* | -40...+70°C | A | A | C | NA |
| EX* | -40...+85°C | A | C | NA | NA |

A – available, NA – not available, C – consult factory

* for 5V power supply only

For other temperature ranges see designation at the end of Data Sheet

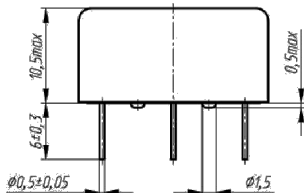
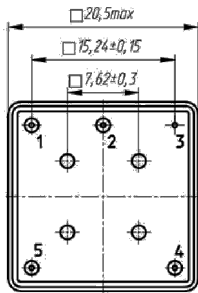
| Availability of certain aging values for certain frequencies | | Standard frequencies, MHz | | | | |
|--|--------------------------------|---------------------------|------|------|--------|------|
| | | 10.0 | 12.8 | 13.0 | 16.384 | 20.0 |
| H | $\pm 2.0 \times 10^{-7}$ /year | A | A | A | A | A |
| G | $\pm 1.0 \times 10^{-7}$ /year | A | A | A | A | C |
| F | $\pm 5.0 \times 10^{-8}$ /year | A | A | A | C | NA |
| E | $\pm 3.0 \times 10^{-8}$ /year | A | C | C | NA | NA |

A – available, NA – not available, C – consult factory

Package drawing:

soldered package

welded package



| Pin's designation | |
|-------------------|------|
| 1 | Us |
| 2 | Rf |
| 3 | GND |
| 4 | Uin |
| 5 | Uref |

| | | |
|--|--------------------------|----------|
| Frequency stability vs. load changes | $< \pm 5 \times 10^{-9}$ | |
| Frequency stability vs. power supply changes | $< \pm 5 \times 10^{-9}$ | |
| Power supply (Us) | 5V±5% | 3.3V±5% |
| Current consumption at steady state @ 25°C | < 150 mA | < 250 mA |
| Peak current consumption during warm-up @ 25°C | < 450 mA | < 700 mA |
| Warm-up time within $< \pm 1 \times 10^{-7}$ @ 25 °C | < 3 min | |
| Frequency pulling range | $> \pm 5 \times 10^{-7}$ | |
| with external voltage range (Uin) | 0...+4.5 V 0...+3.0 V | |
| or with external potentiometer | 20 kOhm | |
| reference voltage output (Uref) | + 4.5 V | +3.0 V |
| Pulling slope | Positive | |

| Output Level | CMOS | | SIN |
|----------------------|------------------|--------------------|------------|
| | For 5V: 4.0/0.4V | For 3.3V: 2.4/0.3V | >400 mV |
| Load | 10 kOhm/15 pF | | 50 Ohm±10% |
| Harmonic suppression | - | | >40 dBc |

| Phase noise, dB/Hz, at | 10 - 13 MHz | > 13 - 25 MHz |
|--|-------------------------|-------------------------|
| | 1 Hz | <-90 |
| 10 Hz | <-120 | <-105 |
| 100 Hz | <-140 | <-125 |
| 1000 Hz | <-145 | <-135 |
| 10000 Hz | <-150 | <-145 |
| Short term stability (Allan deviation) per 1 sec | $< 5 \times 10^{-11}$ | $< 5 \times 10^{-11}$ |
| | $< 1 \times 10^{-11}$ * | $< 2 \times 10^{-11}$ * |

* consult factory

| | |
|---------------------------|--------------|
| Vibrations: | |
| Frequency range | 10-500 Hz |
| Acceleration | 10g |
| Shock: | |
| Acceleration | 75 g |
| Duration | 3±1 ms |
| Storage temperature range | -55...+85 °C |

Additional notes:

- Showed values of frequency stability vs. temperature usually are tested in Still Air test conditions. Please inform factory about different conditions in operation to provide appropriate tests.
- Please consult factory for daily aging values. Normally typical correspondence of daily aging per day to aging per year is as following: $\pm 2 \times 10^{-7}$ /year - $\pm 2 \times 10^{-9}$ /day; $\pm 1 \times 10^{-7}$ /year - $\pm 1 \times 10^{-9}$ /day; $\pm 5 \times 10^{-8}$ /year - $\pm 5 \times 10^{-10}$ /day.
- Please mention RoHS requirement (if any) while requesting for quote or while placing PO.
- For non standard operating temperature ranges please use the following two letters designations (first letter for the lower limit, second letter for the upper limit), °C:

| A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S | T | U | W | X |
|-----|-----|-----|-----|-----|-----|-----|-----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| -60 | -55 | -50 | -45 | -40 | -30 | -20 | -10 | 0 | +10 | +30 | +40 | +45 | +50 | +55 | +60 | +65 | +70 | +75 | +80 | +85 |