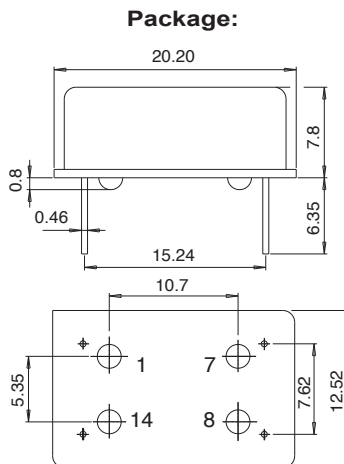




**RoHsCompliant:**

## DIMENSIONS



## Pin out

Pin 1 = Voltage control  
Pin 7 = GND  
Pin 8 = Fout  
Pin 14 = Vdd

All dimensions in mm typical

**Oven control quartz crystal oscillator**  
**Fundamental mode frequency**  
**High shock and vibration resistance**  
**Wide temperature range**  
**Low aging**  
**Customer specification on request**  
**Ultra fast warm up**  
**Ultra low power consumption**  
**Swiss made quality**

## DESCRIPTION:

This DIL 14 package has been specially designed for the applications:

- Digital switching
- Telecom transmission
- Sonet / SDH / DWDM / FDM/36 / WIMAX
- Airbone equipments
- Battery operated systems
- Instrumentation
- Radio Transceiver

The OCXO are supplied on trays (50 pcs/tray).

## ELECTRICAL CHARACTERISTICS 25°C

|                                                                                                               |              |                                   |           |            |
|---------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------|-----------|------------|
| <b>Frequency versus temperature</b><br>A: 0 to +60°C<br>B: -20 to +70°C<br>C: -40 to +85°C<br>E: -55 to +85°C | $\Delta F/F$ | see table 1<br>(without air flow) |           |            |
| <b>Frequency long term aging 1)</b><br>long term aging 10 years<br>long term aging 1 <sup>st</sup> year       | $\Delta F/F$ | < $\pm 2.5$<br>$\leq \pm 0.3$     |           | ppm        |
| Frequency control range                                                                                       | Vc           | $\geq \pm 2.5$ (see table 3)      |           | ppm        |
| Supply voltage                                                                                                | Vdd          | 3.3 / 5 / 12                      |           | V          |
| Input current                                                                                                 | Idd          | see table 2                       |           |            |
| Output signal                                                                                                 |              | HC-MOS compatible                 |           |            |
| Symmetry at Vdd/2                                                                                             |              | 40 / 60                           |           | %          |
| Rise & fall time (without load)                                                                               |              | $\leq 7$                          |           | nS         |
| Level "0" & "1"                                                                                               |              | <0.4V> Vcc-0.5                    |           | V          |
| Start-up time                                                                                                 | t            | <5                                |           | ms         |
| Load min / max                                                                                                |              | 3/47                              |           | pF         |
| Frequency stability versus load $\pm 10\%$                                                                    | $\Delta F/F$ | $\leq \pm 10$                     |           | ppb        |
| Warm-up within $\pm 0.1$ ppm at 25°C                                                                          | Vdd          | 3.3                               | 5         | 12         |
|                                                                                                               | t            | $\leq 30$                         | $\leq 20$ | $\leq 15$  |
| Stability versus Vdd                                                                                          | $\Delta F/F$ | < $\pm 0.1$                       |           | ppm        |
| Short term stability 0.1 to 30s<br>5E-11 typ at 1s                                                            | Tau          | < 1                               |           | E-10       |
| Phase noise typical at 10 MHz<br>Static conditions<br><br>BW = 1Hz                                            |              | 3.3 / 5V                          |           | 12V        |
|                                                                                                               |              | -100                              |           | -90        |
|                                                                                                               |              | -130                              |           | -120       |
|                                                                                                               |              | -140                              |           | -130       |
|                                                                                                               |              | -145                              |           | -135       |
|                                                                                                               |              |                                   |           | dBc/<br>Hz |

1) <  $\pm 1$  E-9 / day after 30 days operating

TABLE 1: Vdd = 3.3V

| Operating Temperature range | Vdd = 3.3V ± 0.15V |                        |
|-----------------------------|--------------------|------------------------|
|                             | Version standard   | Version high stability |
| A = 0 to +60°C              | ≤ ± 75 ppb         | ≤ ± 50 ppb             |
| B = -20 to +70°C            | ≤ ± 150 ppb        | ≤ ± 75 ppb             |
| C = -40 to +85°C            | ≤ ± 250 ppb        | ≤ ± 100 ppb            |
| E = -55 to +85°C            | ≤ ± 400 ppb        | ≤ ± 200 ppb            |

TABLE 1: Vdd = 5V

| Operating Temperature range | Vdd = 5V ± 0.2V  |                        |
|-----------------------------|------------------|------------------------|
|                             | Version standard | Version high stability |
| A = 0 to +60°C              | ≤ ± 50 ppb       | ≤ ± 25 ppb             |
| B = -20 to +70°C            | ≤ ± 100 ppb      | ≤ ± 50 ppb             |
| C = -40 to +85°C            | ≤ ± 150 ppb      | ≤ ± 100 ppb            |
| E = -55 to +85°C            | ≤ ± 400 ppb      | ≤ ± 200 ppb            |

TABLE 1: Vdd = 12V

| Operating Temperature range | Vdd = 12V ± 0.5V |                        |
|-----------------------------|------------------|------------------------|
|                             | Version standard | Version high stability |
| A = 0 to +60°C              | < ± 50 ppb       | ≤ ± 25 ppb             |
| B = -20 to +70°C            | ≤ ± 100 ppb      | ≤ ± 50 ppb             |
| C = -40 to +85°C            | ≤ ± 150 ppb      | ≤ ± 100 ppb            |
| E = -55 to +85°C            | ≤ ± 400 ppb      | ≤ ± 200 ppb            |

TABLE 2: Idd

| Temperature                       | Vdd = 3.3V     | Vdd = 5V       | Vdd = 12V      |
|-----------------------------------|----------------|----------------|----------------|
| 25°C                              | ≤ 80 mA        | ≤ 50 mA        | ≤ 25 mA        |
| -20°C                             | ≤ 120 mA       | ≤ 80 mA        | ≤ 40 mA        |
| start-up current at 25°C duration | ≤ 350mA<br>10s | ≤ 300mA<br>10s | ≤ 250mA<br>10s |

TABLE 3:

| Frequency control adjustment response slope positive                       | Vdd = 3.3V           | Vdd = 5V  | Vdd = 12V |
|----------------------------------------------------------------------------|----------------------|-----------|-----------|
| Voltage control input impedance > 47kΩ                                     | 0 to 3.3V            | 0.5 to 5V | 0.5 to 5V |
| Resistor control<br>R connect pin 1 to ground<br>(Input impedance > 4,7kΩ) | 0 to 10kΩ            | 0 to 10kΩ | 0 to 10kΩ |
| No frequency control<br>YA or YB                                           | Pin 1 connect to GND |           |           |

**STANDARD FREQUENCIES:**

| Frequency «MHz»                                       |      |         |        |    |      |    |
|-------------------------------------------------------|------|---------|--------|----|------|----|
| 10                                                    | 12.8 | 14.7456 | 16.384 | 20 | 25.6 | 26 |
| 32.768                                                | 40   | 52      | 54     |    |      |    |
| Other frequencies from 10 kHz up to 54 MHz on request |      |         |        |    |      |    |

**ENVIRONMENTAL  
CHARACTERISTICS:**

|                      |                        |
|----------------------|------------------------|
| Storage temp. range  | -55 to +125°C          |
| Vibration resistance | 10 to 2000Hz / 20g     |
| Shocks resistance    | 5000g / 0.3ms / ½ sine |

**TERMINATIONS AND  
PROCESSING:**

|                                                                |                                           |
|----------------------------------------------------------------|-------------------------------------------|
| Pin soldering                                                  | +235°C / 10s max<br>+260°C / 5s max       |
| Package<br>SMD version option D1 or D2<br>see application note | Dil 14.4 pins GND to case<br>height = 8mm |

**PRODUCT DESCRIPTION AND  
ORDERING INFORMATION:**

**SCOCXOL V T - C V5 20MHz XXX**

W = Vdd 3.3V  
V = Vdd 5V  
blank = Vdd 12V

T = high stability  
blank = standard stability

A = 0 to +60°C  
B = -20 to +70°C  
C = -40 to +85°C  
E = -55 to +85°C  
X = custom

R1 = R = 0 to 10kΩ  
V3 = Vc = 0 to 3.3V  
V5 = Vc = 0.5 to 5V

YA internal accuracy= ± 1ppm  
YB internal accuracy= ± 0.5ppm  
Y = custom

Frequency

customer spec N°

A unique part number will be generated for each product specification, i.e:  
**20xxxx-EA00** (in ESD plastic tray)  
Please contact us.

All specifications subject to change without notice.



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