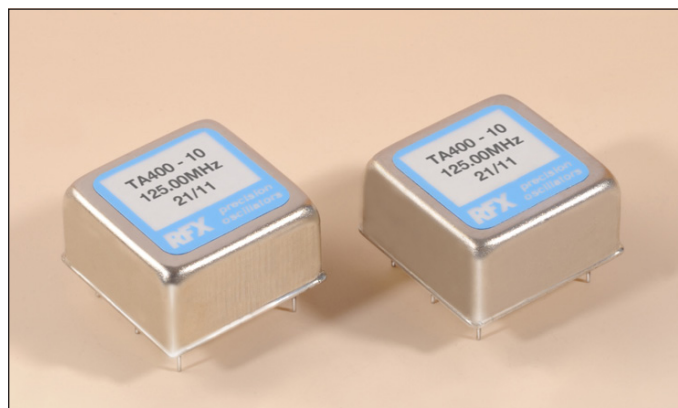


**TA400 - 10**

- $\pm 0.5\text{ppm}$ , excellent phase noise, low ageing, wide frequency range.
- A small hermetically sealed package, manufactured to standard and custom specifications over the frequency range of 1MHz to 1GHz.
- Precision crystals provide outstanding long term ageing from  $\pm 4.6\text{ppm}$  over 10 years.


**Standard options:**
**frequency range:**

1MHz ~ 1GHz

**accuracy codes:**

 temperature tolerance  
 temperature range

(A)	(B)	(C)
$\pm 0.5\text{ppm}$	$\pm 1.0\text{ppm}$	$\pm 2.0\text{ppm}$
(0 +50) $^{\circ}\text{C}$	(-20 +70) $^{\circ}\text{C}$	(-40 +70) $^{\circ}\text{C}$

**output codes:**

 output  
 harmonics -30dBc max.

(S)	(L)
sine wave, 0dBm into 50 $\Omega$	CMOS 15pF, 45% ~ 55%
<2ns max. rise and fall	

**supply voltage codes:**

 supply voltage  
 voltage reference option\*

(V1)*	(V2)*	(V3)*
+3.3Vd.c.	+5.0Vd.c.	+12.0Vd.c.
+3.0Vd.c.	+3.0Vd.c.	+3.0Vd.c.

 \*add suffix (R) for  $V_{ref}$  output on pin #2

**Generic specification:**
**stability:**

 against supply voltage change  
 against load change  
 ageing short term

$\pm 0.02\text{ppm}$  max. for  $V_{cc} \pm 5\%$   
 $\pm 0.02\text{ppm}$  max. for load  $\pm 10\%$   
 $\pm 0.005\text{ppm}$  max. per day  
 after 30 days continuous operation  
 $\pm 1.5\text{ppm}$  max. first year  
 $\pm 10\text{ppm}$  min. typical, linearity  $\pm 5\%$   
 100K $\Omega$  min.

ageing long term

 voltage trim  $V_t$   
 trim input impedance

**power supplies:**

 supply voltage  $V_{cc}$   
 supply current  
 insulation resistance

+3.3Vd.c.	+5.0Vd.c.	+12.0Vd.c.
50mA max. frequency dependent		
500Meg $\Omega$ min., 100Vd.c.		

**phase noise:**

single sideband, 1Hz bandwidth

$-80\text{dBc/Hz}$ ,  $f_o + 10\text{Hz}$   
 $-100\text{dBc/Hz}$ ,  $f_o + 100\text{Hz}$   
 $-125\text{dBc/Hz}$ ,  $f_o + 1\text{kHz}$

**temperature:**

 operating range  
 storage range

(0 +50) $^{\circ}\text{C}$	(-10 +60) $^{\circ}\text{C}$	(-40 +70) $^{\circ}\text{C}$
(-40 +125) $^{\circ}\text{C}$	(-40 +125) $^{\circ}\text{C}$	(-40 +125) $^{\circ}\text{C}$

### Environmental conditions:

- mechanical shock:** MIL standard 202F, method 213, condition J
- thermal shock:** MIL standard 202F, method 107, condition A
- vibration:** MIL standard 202F, method 204, condition B
- solderability:** 5 seconds max. at +230°C, 3 seconds max. at +350°C

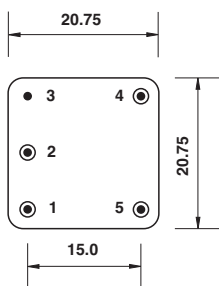
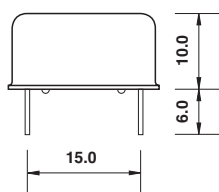
**Marking:** part number and frequency on high temperature metalised polyester label

### Ordering code:

- standard specification:** **TA400-10 A S V2\* - 16.384M**  
**TA400-10** = series generic code  
**A** temp. tol. and temp. range code: **A = ±0.5ppm(0 +50)°C**  
**S** output code: **S = sine wave output, 0dBm into 50Ω**  
**V2\*** supply voltage code: **V2 = +5Vd.c. supply**  
 \*add suffix (R) for  $V_{ref}$  output on pin #5  
**16.384M** output frequency: **16.384M = 16.384MHz**

**Custom specification:** part number issued with custom specification and drawing

### Dimensions(mm):

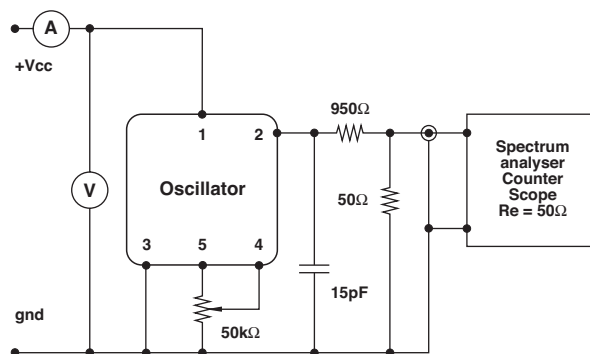


Pins viewed from bottom  
pin diameter 0.45mm

### Pin connections:

- # 1 +V<sub>cc</sub>
- # 2 output
- # 3 ground/case
- # 4 trim
- # 5 n.c. or trim reference voltage\*

### Test circuit, CMOS load:



test circuit includes a 20:1 step down into a matched 50Ω load