

**Nominal frequency (f0)**

**20 MHz**

**Frequency stabilities**

Parameter	Frequency stability	Operating temp. range
vs. operating temp. range (df/f@25 °C)	-10 to 10 ppb	0 ... 70 °C
Parameter	Value	Condition
initial tolerance (df/f0)	-500 to 500 ppb	@Vc = 2 V; 25 °C
vs. supply voltage change (df/f)	-3 to 3 ppb	static; 5 V ±5 %
vs. load change (df/f)	-2 to 2 ppb	static; Load ± 5 %
vs. aging / daily (df/f)	<± 1.5 ppb	after 30 days ; @ 25 °C
vs. aging / month (df/f)	<± 40 ppb	after 30 days ; @ 25 °C
vs. aging / year (df/f)	<± 100 ppb	after 30 days ; @ 25 °C
vs. aging / 15 years (df/f)	<± 2 ppm	after 30 days ; @ 25 °C

**Frequency tuning**

Parameter	Value	Condition
Electrical frequency control (EFC) (df/f0)	-3 to -1.5 ppm 1.5 to 3 ppm	ext. tuning voltage @ 0 V ext. tuning voltage @ 4 V
Linearity	< 10 %	
Ref.volt. output: 4V +/-5%		

**RF output**

Parameter	Value	Condition
Signal	HCMOS	
Load	15 pF ±5 %	
Fan out	3	
Rise Time	< 5 ns	@ 0.5 to 4.5 V
Fall Time	< 5 ns	@ 4.5 to 0.5 V
Duty cycle	40 / 60 %	@ 2.5 V
V Low	x < 0.5 V	
V High	x > 4.5 V	

**Supply voltage**

Parameter	Value	Condition
Supply voltage (Vs)	5 V ± 5 %	
Current consumption steady state	< 200 mA	@ Vsnom & 25 °C
Current consumption during warm up	< 500 mA	@ Vs

**Additional Parameters**

Parameter	Value	Condition
Warm-up time	< 5 min	@ 25 °C to final frequency
Additional information typ. phase noise: <-110dBc/Hz at 10Hz, <-145dBc/Hz at 50kHz		
Processing & Packing	handling&processing note	

**Additional environmental conditions**

Tensile strength of leads DIN IEC 68-2-21, Test Ua 1
Flexibility of leads DIN IEC 68-2-21 Test Ub
Sealing test A staubdicht (dust-dense)
Solderability DIN IEC 68-2-20 Test Ta
Solvent resistance EN 60068-2-45, Test xA

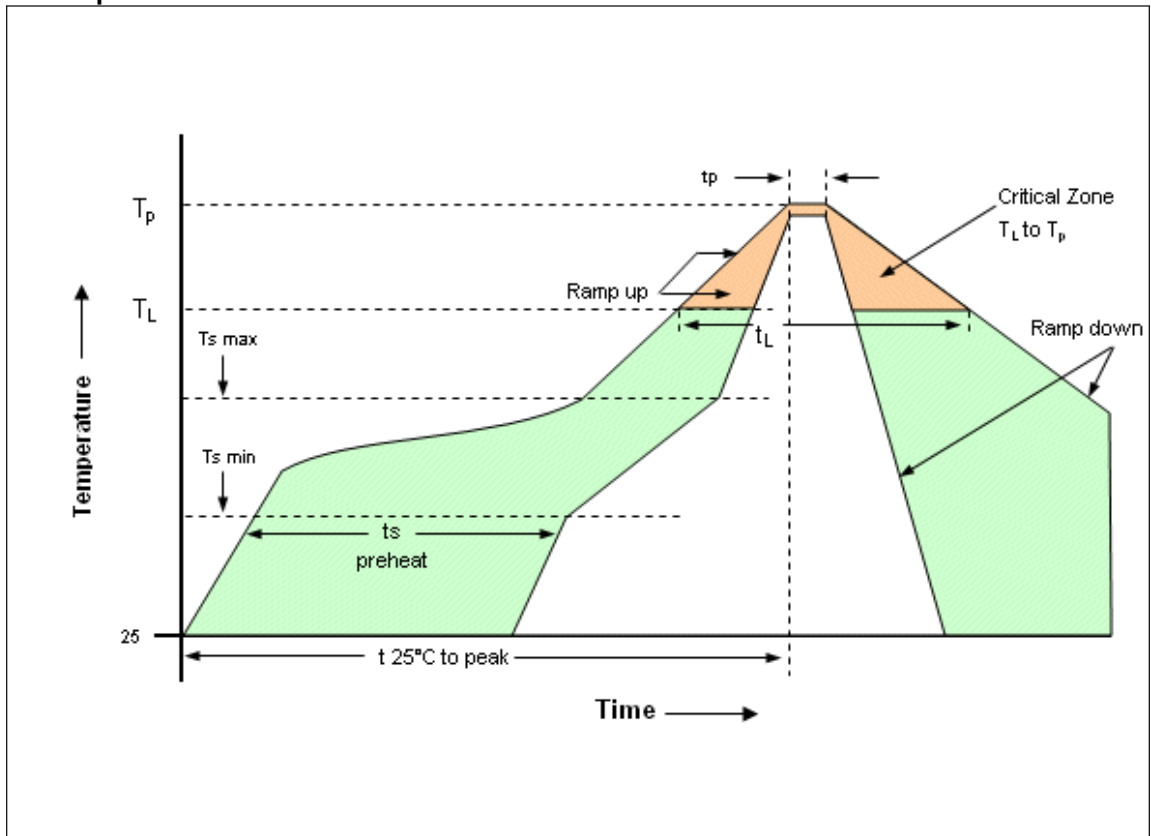
**Absolute Maximum Ratings**

Parameter	Min	Typ	Max	Units	Condition
Operable temperature range	-20		80	°C	
Storage temperature range	-40		90	°C	

**Enclosure**

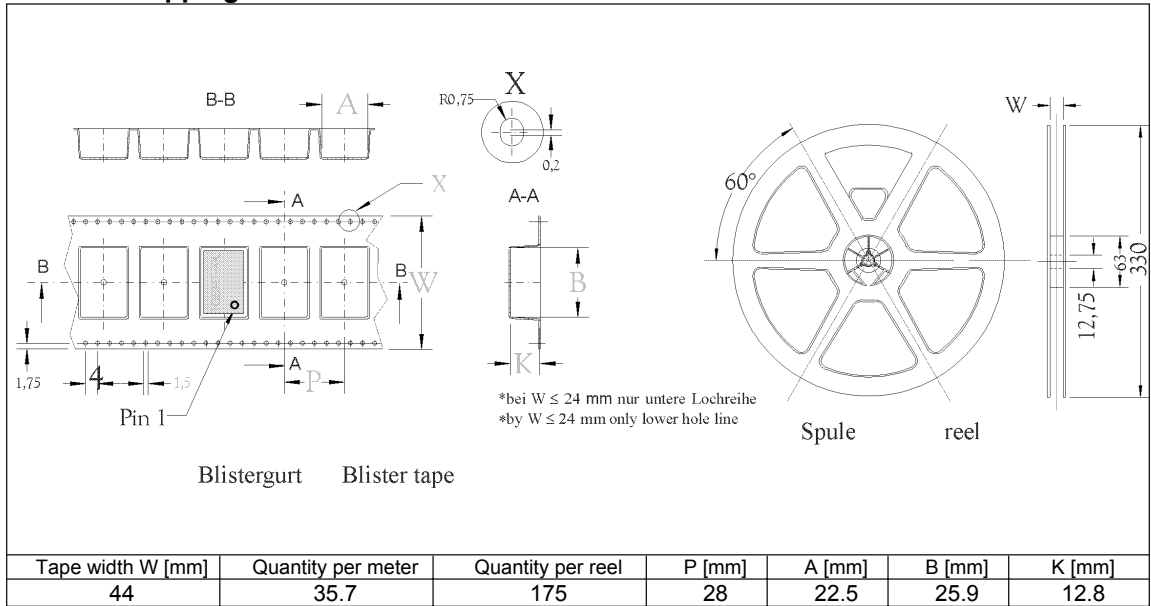
Type G185	Height 11.3 mm
all units in mm	
<p><b>Pin Connections</b></p> <p>Pin 1: Vc (control voltage)          Pin 2: Uref (ref. voltage output)          Pin 3: Vs (supply voltage)          Pin 4: HF-Output          Pin 5-6: N.C.          Pin 7: GND(Case)</p>	
<p><b>Marking</b></p> <p>OCO1000-15          20,000 MHz          Ser.Nr AYYWW *          * Pin-1 marking dot</p>	

**Reflow profile**



Profile Feature	Pb-Free Assembly/Sn-Pb Assembly
Average ramp-up rate (TL to Tp)	3°C/second max.
Preheat -Temperature Min (Tsmín)	150°C
-Temperature Min (Tsmáx)	200°C
-Time (min to max) (ts)	60-180 seconds
Tsmáx to TL - Ramp-up Rate	3°C/second max.
Time maintained above - Temperature (TL)	217°C
- Time (tL)	60-150 seconds
Peak Temperature (Tp)	max 260°C
Time within 5°C of actual Peak Temperature (tp)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.
Note: All temperatures refer to topside of the package, measured on the package body surface.	
Additional Information	
This SMD oscillator has been designed for pick and place reflow soldering. SMD oscillators must be on the top side of the PCB during the reflow process.	

**Standard shipping method**



**Notes:**

Unless otherwise stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).  
Subject to technical modification.