

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

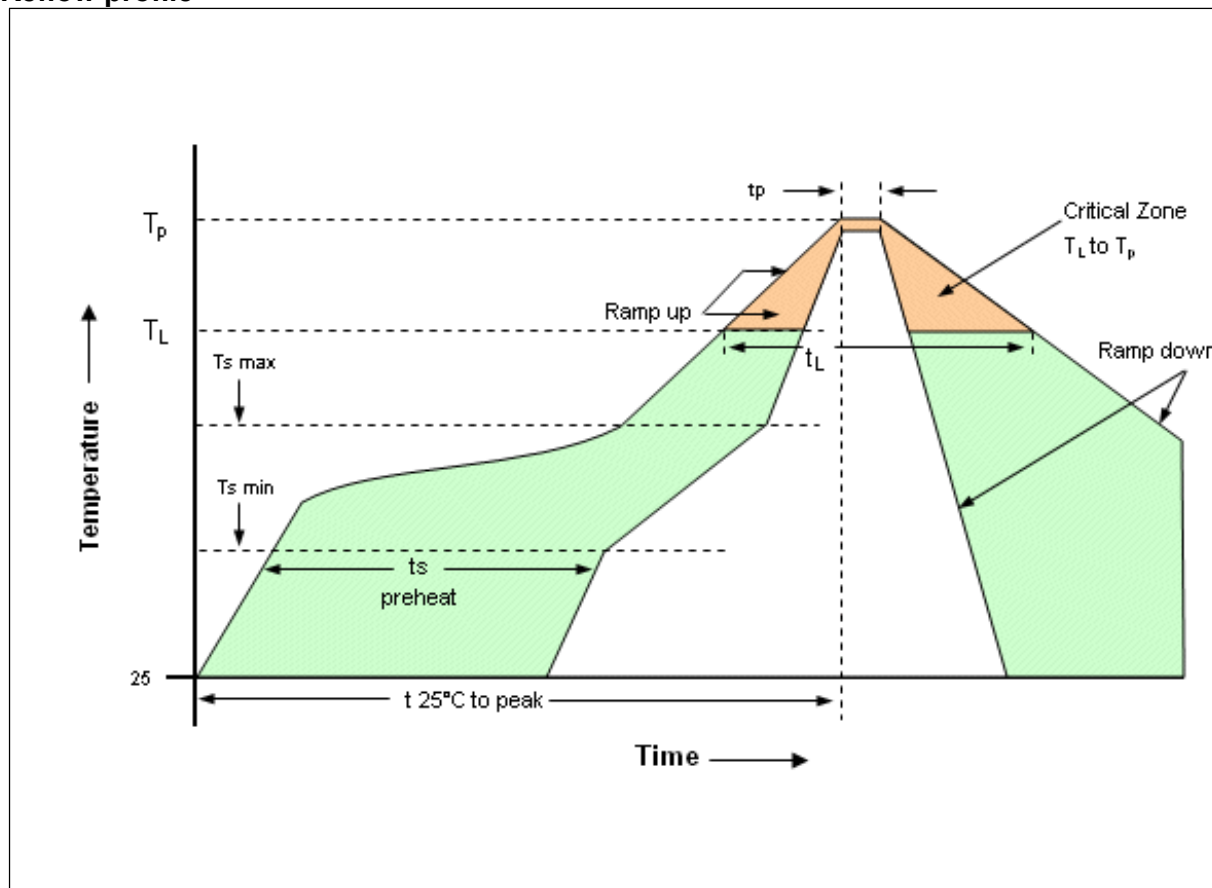
Absolute Maximum Ratings

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 Pin Connections 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) Marking OCO1000-15 20,000 MHz Ser.Nr AYYWW * * Pin-1 marking dot	

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 maintainted 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

