

Nominal frequency (f0)

20 MHz

Frequency stabilities

Parameter	Frequency stability	Operating temp. range
Over all (df/f0)	-4.6 to 4.6 ppm	
vs. operating temp. range (df/f@25 °C)	-10 to 10 ppb	-40 ... 85 °C
Additional information Drift 24 Hr and $\pm 2.8^{\circ}\text{C}$ temp. change $< \pm 0.8\text{ppb}$ over all include: Temp Stab, supply, load stab, initial, 20 years aging S3E compliant according GR1244		
Parameter	Value	Condition
initial tolerance (df/f0)	-500 to 500 ppb	@25 °C
vs. supply voltage change (df/f)	-10 to 10 ppb	static; 3.3 V $\pm 5\%$
vs. load change (df/f)	-5 to 5 ppb	static; Load $\pm 5\%$
vs. aging / daily (df/f)	$< \pm 1$ ppb	after 30 days ; @ 25 °C
vs. aging / month (df/f)	$< \pm 25$ ppb	after 30 days ; @ 25 °C
vs. aging / year (df/f)	$< \pm 100$ ppb	after 30 days ; @ 25 °C
vs. aging / 10 years (df/f)	$< \pm 1$ ppm	after 30 days ; @ 25 °C
Holdover 24 h	± 10 ppb	incl. Drift and -40..85°C temperature stability

RF output

Parameter	Value	Condition
Signal	LVC MOS	
Load	15 pF $\pm 10\%$	
Fan out	3	
Rise Time	< 10 ns	@ 10 to 90 %Vout
Fall Time	< 10 ns	@ 90 to 10 %Vout
Duty cycle	45 / 55 %	@ 1.65 V
V Low	$x < 0.4$ V	
V High	$x > 2.4$ V	

Supply voltage

Parameter	Value	Condition
Supply voltage (Vs)	3.3 V $\pm 5\%$	
Current consumption steady state	< 400 mA	@ Vsnom & 25 °C
Current consumption during warm up	< 950 mA	@ Vs

Additional Parameters

Parameter	Typ.	Max.	Condition
Phase Noise	-85	-60	dBc/Hz@1Hz
	-110	-90	dBc/Hz@10Hz
	-130	-115	dBc/Hz@100Hz
	-143	-130	dBc/Hz@1kHz
	-150	-145	dBc/Hz@10kHz
MTIE	0.2 ns		1 sec
	2.0 ns		10 sec
	7.0 ns		100 sec
	20.0 ns		1000 sec
	40.0 ns		10000 sec
Parameter	Value		Condition
Jitter	< 1.00 psec (RMS)		@ 12 kHz to 20 MHz
TDEV	0.01 ns		1 s
TDEV	0.1 ns		10 s
TDEV	1 ns		100 s
TDEV	3 ns		1000 s
Warm-up time	< 5 min		@ 25 °C to final frequency
Additional information			
TDEV:Typical Wander Generation performance when locked through a 1mHz system loop bandwidth			
Holdover 10ppb peak-peak: incl. of 24 h aging and a 40°C temperature change			
Processing & Packing	handling&processing note		

Additional environmental conditions

Sealing test A staubdicht (dust-dense)
Solderability DIN IEC 68-2-20 Test Ta 100% RoHS 6 compliant
Solvent resistance EN 60068-2-45, Test xA non-washable device

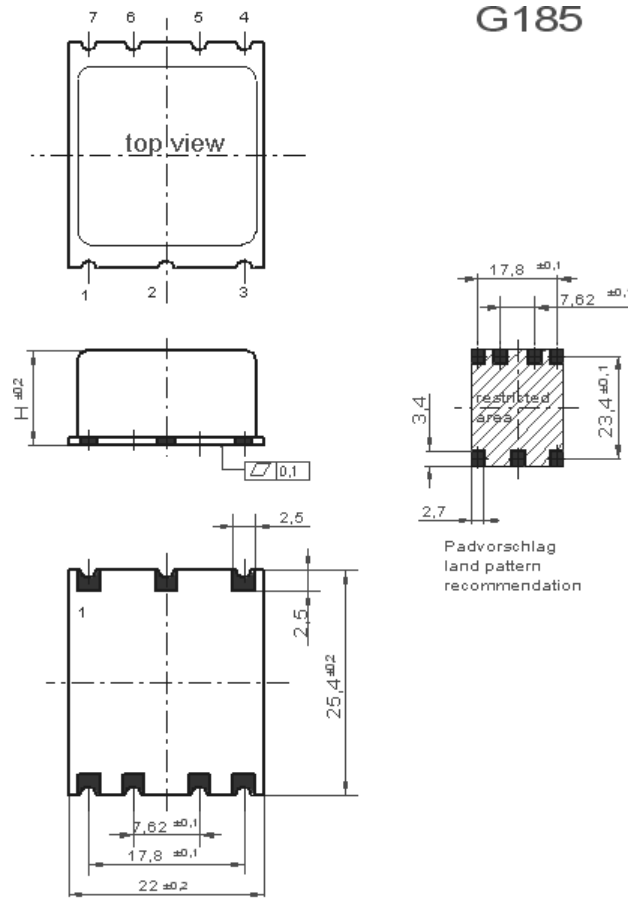
Absolute Maximum Ratings

Parameter	Min	Typ	Max	Units	Condition
Operable temperature range	-40		85	°C	
Storage temperature range	-50		90	°C	

Enclosure

Type G185C

Height 12.1 mm



all units in mm

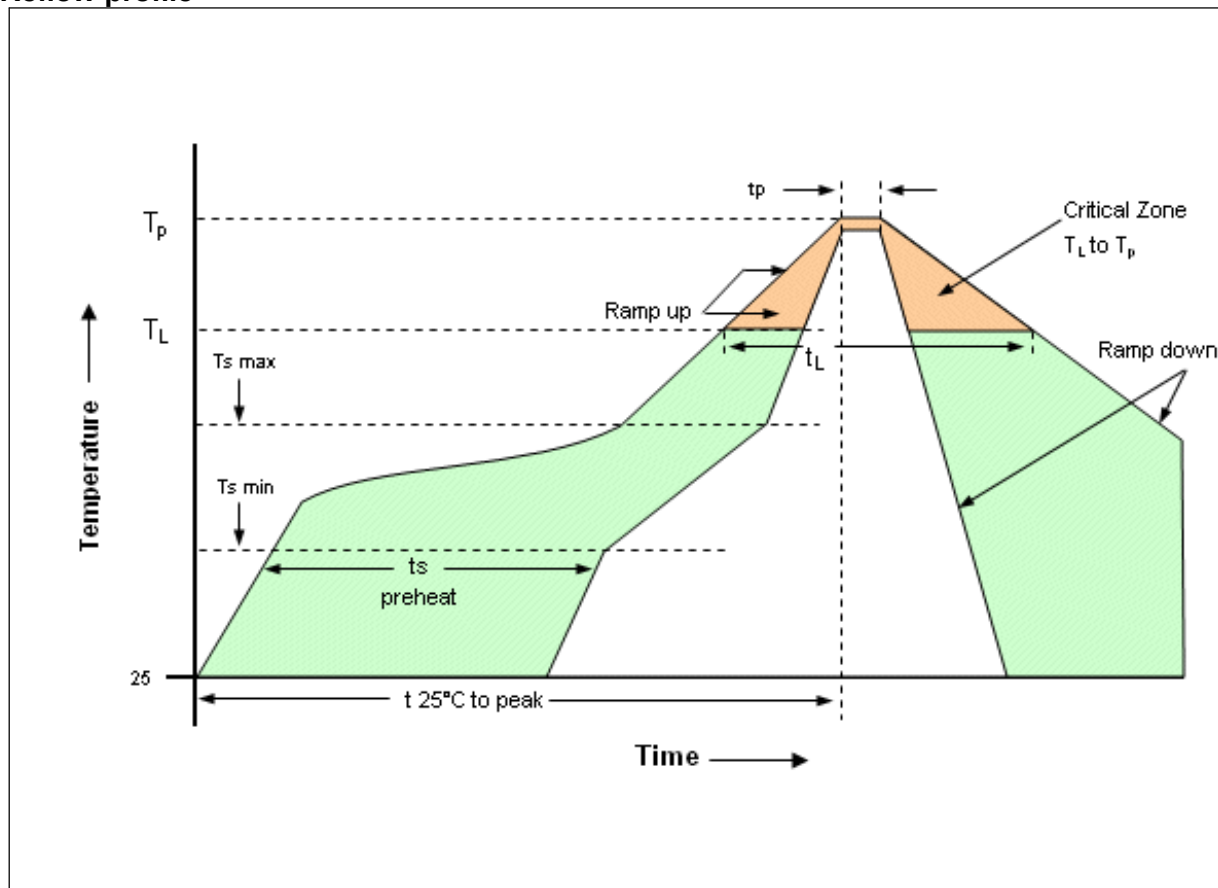
Pin Connections

- Pin 1: I.C. ($\Rightarrow$ do not connect)
- Pin 2: N.C.
- Pin 3: Vs (supply voltage)
- Pin 4: RF-Output
- Pin 5-6: N.C.
- Pin 7: GND (Case)

Marking

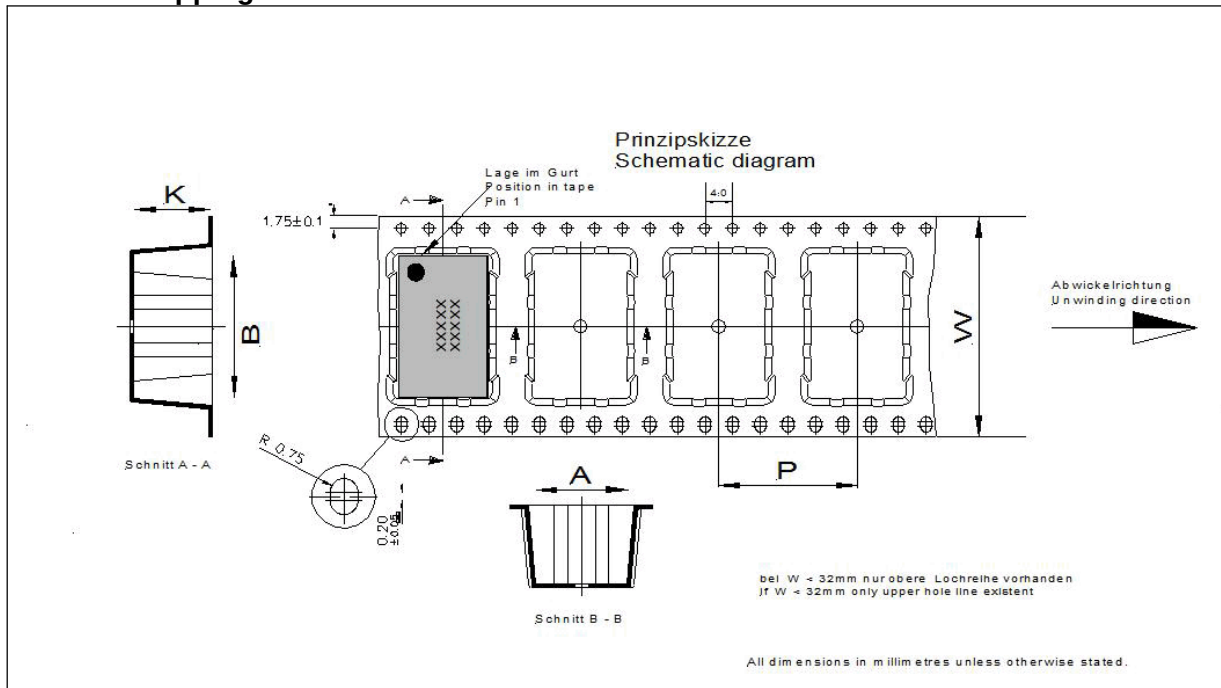
OX-2221-EAE-1080
20,000 MHz
Ser.No. AYYWW *
* pin-1 marking

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



Tape width W [mm]	Quantity per meter	Quantity per reel	P [mm]	A [mm]	B [mm]	K [mm]
44	35.7	175	28	22.5	25.9	12.8

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.

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