

Helping Customers Innovate, Improve & Grow



Preliminary

Features

6-Pin SMD package
Fast Warm-up
TCXO Replacement for better short term stability

Typical Applications

Base Stations
Test Equipment
Femto Basestation
Military Communication Equipment

Frequency Range
Standard Frequencies

10 MHz – 100 MHz
10; 12.8; 16.384; 19.44; 20.00; 30.72; 38.88; 51.84 MHz

Frequency stabilities¹ [AT Cut Crystal-Standard-10 to 100 MHz]

Parameter	Min	Typ	Max	Units	Operating temperature range	Options ⁵
vs. operating temperature range (Referenced to +25°C)	-100		+100	ppb	-20 ... +70°C	
	-250		+250	ppb	-20 ... +70°C	
	-250		+250	ppb	-40... +85°C	
Parameter	Min	Typ	Max	Units	Condition	
Initial tolerance	-0.5		+0.5	ppm	at time of shipment, nominal EFC	
vs. supply voltage change	-20		+20	ppb	$V_s \pm 5\%$ static	
vs. load change	-20		+20	ppb	Load $\pm 5\%$ static	
vs. aging / day	-10		+10	ppb	after 30 days of operation	
vs aging / year	-300		+300	ppb	$\leq 60\text{MHz}$; after 30 days of operation	
vs. aging / year	-500		+500	ppb	$>60\text{MHz}$; after 30 days of operation	
Warm-up Time			2	minutes	to $\pm 200\text{ppb}$ of final frequency (1 hour reading) @ +25°C	

Frequency stabilities¹ [SC Cut Crystal-Option-10 to 52 MHz]

Parameter	Min	Typ	Max	Units	Operating temperature range	
vs. operating temperature range (Referenced to +25°C)	-30		+30	ppb	-20 ... +70°C	
	-50		+50	ppb	-40... +85°C	
Parameter	Min	Typ	Max	Units	Condition	
Initial tolerance	-0.2		+0.2	ppm	at time of shipment, nominal EFC	
vs. supply voltage change	-10		+10	ppb	$V_s \pm 5\%$ static	
vs. load change	-10		+10	ppb	Load $\pm 5\%$ static	
vs. aging / day	-5.0		+5.0	ppb	after 30 days of operation	
vs aging / year	-100		+100	ppb	$\leq 60\text{MHz}$; after 30 days of operation	
vs. aging / year	-500		+500	ppb	$>60\text{MHz}$; after 30 days of operation	
Warm-up Time			2	minutes	to $\pm 100\text{ppb}$ of final frequency (1 hour reading) @ +25°C	

Options⁵

Supply Voltage (Vs)

Parameter	Min	Typ	Max	Units	Condition
Supply voltage [Standard]	3.135	3.3	3.465	VDC	
Power consumption			2.2	Watts	during warm-up
			0.7	Watts	steady state @ +25°C

RF Output

Parameter	Min	Typ	Max	Units	Condition
Signal [Standard]	HCMOS				
Load		15		pF	with $V_s=3.3\text{V}$ and 15pF load with $V_s=3.3\text{V}$ and 15pF load @ $(V_{oh}-V_{ol})/2$
Signal Level (Vol)			0.4	VDC	
Signal Level (Voh)	2.4			VDC	
Duty cycle	45		55	%	

Frequency Tuning (EFC)

Parameter	Min	Typ	Max	Units	Condition	
Tuning Range	Fixed OCXO; No adjust				Options ⁵	
Tuning Range	±5.0		±12	ppm		with AT cut Crystal
	±1.0		±3	ppm		with SC cut Crystal
Linearity	10%					
Tuning Slope	Positive					
Control Voltage Range	0.0	1.4	2.8	VDC	with Vs=3.3V	

Additional Parameters

Parameter	Min	Typ	Max	Units	Condition
Phase Noise ³			-65	dBc/Hz	1 Hz @ 10 MHz
			-95	dBc/Hz	10 Hz
			-120	dBc/Hz	100 Hz
			-140	dBc/Hz	1 kHz
			-145	dBc/Hz	10 kHz
Weight			8.0	g	
Processing & Packing	Handling & Processing Note				

Absolute Maximum Ratings

Parameter	Min	Typ	Max	Units	Condition
Supply voltage (Vs)			5.5	V	with Vs=5.0VDC
Output Load			50	pF	
Operable temperature range	-55		+85	°C	
Storage temperature range	-55		+125	°C	

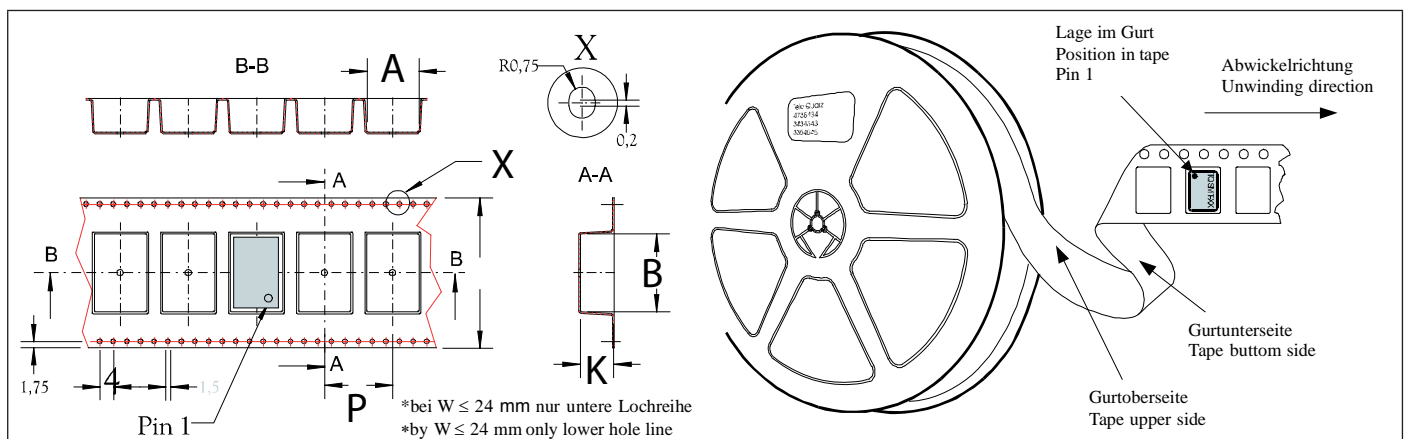
Notes:

- 1 Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
- 2 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)
- 3 Phase noise degrades with increasing output frequency.
- 4 Subject to technical modification.
- 5 Contact factory for availability.

Enclosure

OX-501		
Height "H"	Pin Length "L"	
9,9	N.A	
Pin Connections		
<ol style="list-style-type: none"> 1 Electronic Frequency Control Input (EFC) 2 Enable 3 Ground (Case) 4 RF Output 5 Uref 6 Supply Voltage Input 		

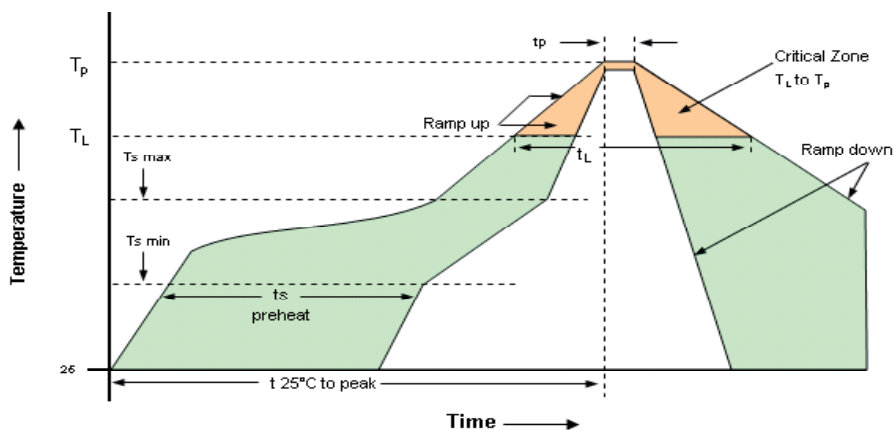
Standard Shipping Methode (For OX-501 Type)



Production tolerance complying DIN IEC 286-3

Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P
Typ OX-501	N.A	N.A	N.A	N.A

Solderprofile:



Profile Feature	Pb-Free Assembly/ Sn-Pb Assembly	Profile Feature	Pb-Free Assembly/ Sn-Pb Assembly
Average ramp-up rate (T_L to T_p)	3°C/second max.	Time 25°C to Peak Temperature	8 minutes max.
Preheat -Temperature Min T_{smin} -Temperature Max T_{smax} -Time (min to max) t_s	150°C 200°C 60-180 seconds	Time maintained above -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
T_{smax} to T_L -Ramp-up Rate	3°C/second max		
Time maintained above -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds	Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Peak Temperature (T_p)	max 260°C	Ramp-down Rate	6°C/ second max

Note: All temperatures refer to topside of the package, measured on the package body surface.

How to order this product:

Use this worksheet to forward the following information to your factory representative :										
Model	Height	-	Supply Voltage Code	RF Output Code	Temperatur Range	-	Stability	Frequency Control	-	Frequency
OX-501	0	-	B	A	E	-	108	0	-	10MHz

Model Code:
501: SMD Version

Height:
0: 9,9 mm

Supply Voltage Code:
E: 3,3 V

RF Output Code:
A: HCMOS

Temperature Range:
E: -40...+85°C
J: -20...+70°C
P: 0...+50°C

Frequency Control:
0: No Tuning
1: ±5.0...±12 ppm
2: ±1.0...±3.0 ppm

Stability Code:
258: ±25ppb
508: ±50ppb
107: ±100ppb
257: ±250ppb