# HCD

HCD 666

Features

- Fast warm up
- Temperature stability down to 3ppb
- Single 12V supply (15V ~ 30V optional)
- Standard European pin-out
- Custom options available

Standard Models

The table below shows the most common models; in most cases selecting one of these will ensure best combination of price, performance and availability.

Product Code	Freq	Ageing per day	Temp stability
HCD666/FTFN	5.0MHz	$< 2 \times 10^{-10}$	$< 3 \times 10^{-9}$ -20+70°C
HCD666/FTFN	10.0MHz	$< 2 \times 10^{-10}$	$< 3 \times 10^{-9}$ -20+70°C
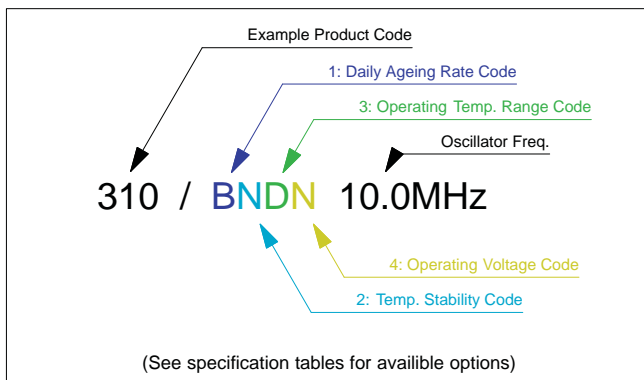
Parameters HCD666		Standard / Optional	Code
Frequency range:	5.0 ~ 20.0MHz	Standard	
Ageing per day (at dispatch):	$< 1 \times 10^{-9}$	Optional	D
	$< 5 \times 10^{-10}$	Optional	E
	$< 2 \times 10^{-10}$	Standard	F
	$< 1 \times 10^{-10}$	Optional	G
Frequency stability:	$< 2 \times 10^{-8}$ per year	Standard	
	$< 1 \times 10^{-9}$ per 10% change V_{DD}	Standard	
	$< 5 \times 10^{-10}$ per 10% change load	Standard	
Temperature stability:	$< 1 \times 10^{-8}$	Optional	R
	$< 5 \times 10^{-9}$	Optional	S
	$< 3 \times 10^{-9}$	Standard	T
Operating temperature range:	0 to +50°C	Optional	A
	-10 to +60°C	Optional	C
	-20 to +70°C	Standard	F
	-40 to +70°C	Optional	G
Storage temp:	-40 to +90°C	Standard	
Output waveform:	CMOS / TTL compatible	Standard	
Frequency adjustment:	$\pm 5 \times 10^{-7}$ (typ) over +0.5 to +7.0V (sufficient for 10 years ageing min) Stabilised +7.0V supply provided	Standard	
Supply Voltage (V_{DD}):	+12.0V (±0.5V)	Standard	N
	+15.0V (±0.5V)	Optional	P
	Other options from 12 - 30V	Optional	specify
Power consumption:	10.0W max at switch on	Standard	
	1.3W typ when stabilised at 25°C	Standard	
Warm up:	$< \pm 1 \times 10^{-8}$ after 8mins at +20°C	Standard	
Allan deviation (ADEV), 1sec:	$< 5 \times 10^{-13}$ (5.0MHz)	Standard	
	$< 1 \times 10^{-12}$ (10.0MHz)	Standard	
Close-in phase noise (@5MHz):	< -110dBc/Hz @1Hz, < -135 @10Hz	Standard	
	< -123dBc/Hz @1Hz, < -140 @10Hz	Optional	Z
	< -150dBc/Hz @ 100Hz	Standard	
Close-in phase noise (@10MHz):	< -95dBc/Hz @1Hz, < -130 @10Hz	Standard	
	< -108dBc/Hz @1Hz, < -135 @10Hz	Optional	Z
	< -145dBc/Hz @ 100Hz	Standard	
Far-out phase noise (all frequencies):	< -155dBc/Hz @ 1kHz	Standard	
	< -157dBc/Hz @ 10kHz	Standard	
	< -157dBc/Hz @ 100kHz	Standard	
Harmonics:	< -30dB wrt carrier	Standard	

Example Product Code

- 1: Daily Ageing Rate Code
- 3: Operating Temp. Range Code
- Oscillator Freq.

310 / BNDN 10.0MHz

- 4: Operating Voltage Code
- 2: Temp. Stability Code

(See specification tables for availible options)

Pin	Connection
1	Freq. adjustment
2	Ref. voltage out
3	Supply
4	RF output
5	Ground & case

Bottom view

Scale 1:1, All Dimensions, mm