



## Features

- Temperature stability down to 1ppb
- Twin RF outputs available
- Oven alarm option on D9 connector
- Custom options available

## Standard Models

Freq	Specification	Ageing per day	Temperature stability	Part No
5.0MHz	HCD220/DRFND	$\pm 1 \times 10^{-9}$	$\pm 1 \times 10^{-8}$ -20+70°C	MA05197
5.0MHz	HCD220/FTFND	$\pm 2 \times 10^{-10}$	$\pm 3 \times 10^{-9}$ -20+70°C	MA05621
10.0MHz	HCD220/DRFNA	$\pm 1 \times 10^{-9}$	$\pm 1 \times 10^{-8}$ -20+70°C	MA05622
10.0MHz	HCD220/FTFNA	$\pm 2 \times 10^{-10}$	$\pm 3 \times 10^{-9}$ -20+70°C	MA01842

## Ordering Information

Product name + option code + frequency

eg: **HCD220/DRFND 10.0MHz**

**HCD220/FTFNA 5.0MHz**

Option code X (eg HCD220/X) denotes a custom specification.

## Specifications

Parameters	Product	Option Codes
	HCD220	
<b>Frequency range:</b> 5.0 ~ 16.0MHz	■	
<b>Ageing per day (at despatch):</b> $< \pm 1 \times 10^{-9}$ $< \pm 2 \times 10^{-10}$ $< \pm 1 \times 10^{-10}$ (<10MHz only)	■ ■ □	D F G
<b>Frequency stability:</b> $< \pm 2 \times 10^{-8}$ per year $< \pm 1 \times 10^{-9}$ per 10% change in $V_{DD}$ $< \pm 5 \times 10^{-10}$ per 10% change in load	■ ■ ■	
<b>Short term stability:</b> $< \pm 5 \times 10^{-12}$ over 1 sec (5.0MHz) $< \pm 1 \times 10^{-11}$ over 1 sec (10.0MHz)	■ ■	
<b>Temperature stability:</b> $< \pm 1 \times 10^{-8}$ $< \pm 5 \times 10^{-9}$ $< \pm 3 \times 10^{-9}$ $< \pm 1 \times 10^{-9}$	■ □ ■ □	R S T V
<b>Operating temperature range:</b> 0 to +50°C -10 to +60°C -20 to +70°C -40 to +70°C	□ □ ■ □	A C F G
<b>Storage temperature range:</b> -40 to +90°C	■	
<b>Output waveform:</b> Sine wave, 7dBm ( $\pm 1$ dBm) into 50Ω Other options from 3 to +13dBm	■ □	specify
<b>Frequency adjustment:</b> $\pm 5 \times 10^{-7}$ (typ) over +0.5 to +8V (sufficient for 10 years ageing min) Stabilised +8V supply provided Mechanical $\pm 5 \times 10^{-7}$	■ ■	
<b>Supply voltage (<math>V_{DD}</math>):</b> +12V ( $\pm 0.5$ V) +24V ( $\pm 0.5$ V) Other options from 12~30V	■ ■ □	N T specify
<b>Power consumption:</b> 5.0W max at switch on 2.0W typ when stabilised at 25°C	■ ■	
<b>Warm up:</b> $< \pm 1 \times 10^{-8}$ after 12mins at +25°C	■	
<b>Phase noise (@ 10.0MHz):</b> $< -130$ dBc/Hz @ 10Hz $< -140$ dBc/Hz @ 100Hz $< -155$ dBc/Hz @ 1kHz $< -158$ dBc/Hz @ 10kHz $< -160$ dBc/Hz @ 50kHz	■ ■ ■ ■ ■	
<b>External connectors:</b> D9 D9 + single SMA D9 + twin SMA Other (BNC, single or twin SMB/C/MCX)	■ □ □ □	D A G specify
<b>Harmonics:</b> $< -30$ dB wrt carrier	■	
<b>Shock:</b> IEC 68-2-27 Test Ea 50G for 11ms	■	
<b>Vibration:</b> IEC 68-2-06 Test Fc 10-55Hz, 1.5mm. 55-500Hz, 10G	■	

■ Standard. □ Optional - Please specify required codes when ordering