



PIN	CONNECTION
1	Freq adjust (+ve)
2	Fine adjust
3	Freq adjust (-ve)
4	Isolated RF output
5	Isolated RF output
6	+ Supply
7	DO NOT USE
8	-Supply
9	Case

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

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