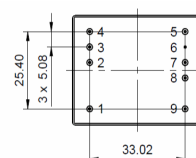


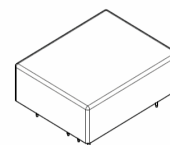
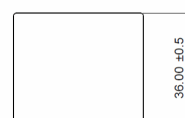
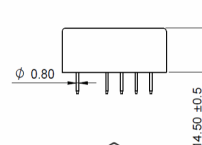
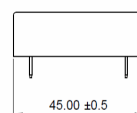
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Outline (mm)



Pin Connections  
 1. Do Not Connect 6. GND  
 2. Lock Indication 7. 1PPS Input  
 3. TXD 8. 1PPS Output  
 4. RXD 9. 10MHz Output  
 5. +Vs



### Description

- The ICPT-1 is a Rubidium clock designed using the Coherent Population Trap method housed in a 9 Pin through-hole metal case. ICPT-1 offers good short term stability, tight tolerance and low power consumption.
- Features:
  - Precise Timing Synchronisation
  - +3.3V DC Input
  - Low Power Consumption
  - 1PPS Output
- Benefits:
  - Lower Size, Weight and Power Than Traditional Microwave Based Rb Oscillators
  - Excellent Short Term Stability
  - External 1PPS Synchronisation
- Applications:
  - Ideal for synchronisation of or as reference for satellite & secure communications, navigation systems and in financial, utility, security and communications timing applications.

### Frequency Parameters

- Frequency 10.0MHz
- Frequency Tolerance  $\pm 0.05$ ppb
- Tolerance Condition @ 25°C
- Ageing  $\pm 0.03$ ppb max per day @ 25°C
- Frequency Stability (Temperature varied across the operating temperature range, measurement referenced to frequency observed with  $f_{ref} = (f_{max} + f_{min})/2$ ):  $\pm 0.5$  ppb typical
- Retrace:  $\pm 0.5$ ppb max

### Electrical Parameters

- Supply Voltage 3.3V  $\pm 0.15$ V
- 1PPS Input (Pin 7):
  - Synchronisation:  $\pm 50$ ns max
- Power Consumption (@ 25°C):
  - Warm-Up: 8.25W typ, 9W max
  - Steady State: 1.65W typ, 2W max
- Warm-Up Time: 5 mins typ to  $\pm 0.5$  ppb @ 25 °C
- Lock Indicator: Pin 2 is high (3.3V) when out of lock and low (0V) when locked

### Sales Office Contact Details:

UK: +44 (0)1460 270200  
 USA: +1.760.318.2824

Email: [info@iqdfrequencyproducts.com](mailto:info@iqdfrequencyproducts.com)  
 Web: [www.iqdfrequencyproducts.com](http://www.iqdfrequencyproducts.com)

**Frequency Adjustment**

- Digital Frequency Adjustment:  
±100ppb max scale  
1ppt resolution

**Operating Temperature Ranges**

- -45 to 70°C

**Output Details**

- Output Compatibility CMOS
- Drive Capability 15pF
- The above applies to 10MHz output (Pin 9) and 1PPS output (Pin 8)

**Output Control**

- 1PPS signal and frequency adjustment can be controlled via RS-232 data communication interface:  
57600 Baud 8N1

For details please refer to ICPT-1 programming manual.

**Noise Parameters**

- Short Term Stability (ADEV) typ:  
1s 0.9E-10  
10s 5.0E-11  
100s 2.0E-11
- Phase Noise 10MHz Output (typ)  
-70dBc/Hz @ 1Hz  
-95dBc/Hz @ 10Hz  
-120dBc/Hz @ 100Hz  
-140dBc/Hz @ 1kHz  
-145dBc/Hz @ 10kHz  
-150dBc/Hz @ 100kHz  
-155dBc/Hz @ 1MHz

**Environmental Parameters**

- Storage Temperature Range: -55 to 85°C
- Humidity: 75% (Non Condensing)

**Manufacturing Details**

- Please ensure that a sufficient air gap is maintained between the ICPT- 1 and the PCB at all times
- No copper should be place directly under the ICPT-1
- 1PPS input line cannot be left floating, please add a pull down resistor to GND e.g.100kΩ

**Compliance**

- RoHS Status (2015/863/EU) Compliant
- REACH Status Non-Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

**Packaging Details**

- Pack Style: Bulk Bulk pack  
Pack Size: 1

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