ISSUE 13; September 2014 - RoHS 2011/65/EU

Description

- Sub 1ppm performance TCXO manufactured for us by Rakon utilising their Pluto™ ASIC technology, a single chip oscillator and analogue compensation circuit operating over an extended temperature range. Its ability to function down to a supply voltage of 2.4V and low power consumption make it particularly suitable for mobile applications.
- -1A No ref voltage, ageing adj option
- -1B No ref voltage, no freq adj option
- -2A Ref voltage = 2.2V, ageing adj option
- -3A Ref voltage = 2.7V, ageing adj option
- -4A Ref voltage = 4.7V, ageing adj option

Frequency Parameters

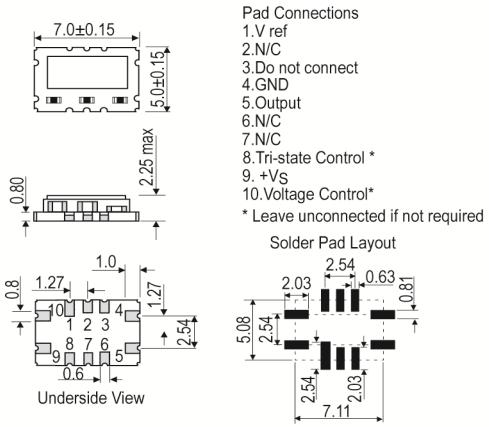
Frequency	10.0MHz to 40.0MHz
Frequency Stability	±0.30ppm to ±2.50ppm
Ageing	±2ppm max in 1st year (See Note 2)

Electrical Parameters

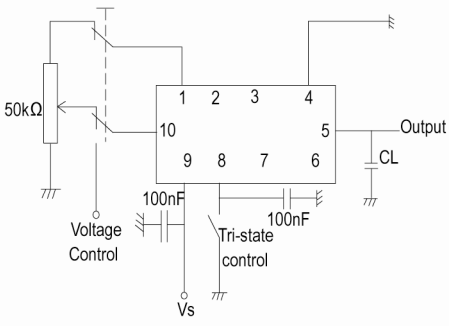
- Supply Voltage 5.0V ±10%
- Supply Current: 1+Frequency(MHz)*1.2*{Load(pF) +30}*10–3mA
- Supply voltages in the range 2.4V to 6.0V available to order, please contact our sales offices
- Optional reference voltage output on pad 1, suitable for potentiometer supply or DAC reference:
  1. No output (standard option)
  2. 2.2V, for Min. VS>2.4V
  3. 2.7V, for Min. VS>3.0V
  4. 4.2V, for Min. VS>4.5V

  Maximum load current (mA) = Vref/10
- For manual frequency adjustment connect an external 50kΩ potentiometer between pad 1 (Reference Voltage) and pad 4 (GND) with wiper connected to pad 10 (Voltage Control). Please specify reference voltage as part of the ordering code.

Outline (mm) -1A = No ref voltage, ageing adj option



Test Circuit



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Frequency Adjustment

- Pulling ±10ppm min (See note 1)
- Three options with external Voltage Control applied to pad 10:
- A. Ageing Adjustment:
  >±5ppm, frequency <20MHz
  >±7ppm, frequency >20MHz
- B. No frequency adjustment initial calibration @ 25°C < ±1.0ppm
- C. High Pulling ±10ppm to ±50ppm can be available depending on frequency and stability options (please contact our sales offices)
- Linearity: <1%
- Slope: Positive
- Input Resistance: >100kΩ
- Modulation Bandwidth: >2kHz
- Voltage Control Range:
  Without reference voltage: 2.5V±1V
  With reference voltage: Vc = 0V to Vref
- Ageing:
  ±1ppm maximum in 1st year, frequency <20MHz
  ±3ppm maximum for 10 years (including the 1st year), frequency <20MHz
  ±2ppm maximum in 1st year, frequency ≥20MHz
  ±5ppm maximum for 10 years (including the 1st year), frequency ≥20MHz
- After Reflow: ±1ppm max

Operating Temperature Ranges

- 0 to 50°C
- 0 to 70°C
- -20 to 70°C
- -30 to 75°C
- -40 to 85°C

Output Details

- Output Compatability Clipped Sinewave
- Load: 10kΩ // 10pF, AC-coupled

Output Control

- Tri-state Operation:
  Logic '1' (>60% Vs) to pad 8 enables output
  Logic '0' (<20% Vs) to pad 8 disables output
  When at logic '0' the output stage is disabled for all output options, but the oscillator and compensation circuit are still active (current consumption <1mA)

Output Levels

- Vpk-pk > 0.8V

Noise Parameters

- Phase Noise Typical (@ 13.0MHz):

Offset	dBc/Hz
10Hz	-95
100Hz	-120
1kHz	-135
10kHz	-140
100kHz	-145

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Environmental Parameters

- Storage Temperature Range: –55 to 125°C
- Shock: IEC 60068-2-27, Test Ea: 1500G acceleration for 6ms, 3 shocks in each of 3 mutually perpendicular planes
- Vibration: IEC 60068-2-6, Test Fc, Procedure B4: 10Hz-60Hz, 1.5mm displacement, 60-2000Hz at 98.1m/s², 30mins in 3 mutually perpendicular planes at 1 oct/min
- Solderability: MIL-STD-202, Method 208, Category 3

Ordering Information

- Frequency*
  Model*
  Reference Voltage + Frequency Adjustment Options*
  Output
  Frequency Stability (over operating temperature range)*
  Operating Temperature Range*
  Supply Voltage
  (*minimum required)
- Example
  10.0MHz CFPT-9005-1A
  Clipped Sine ±1.0ppm -20 to 70C 5.0V
- Note: Certain frequency stability / temperature range combinations may not be available for all frequencies.

Compliance

- RoHS Status Compliant
- REACh Status Compliant
- MSL Rating (JDEC-STD-033): 1

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
  Pack Size: 1,000
- Pack Style: Bulk Loose in bulk pack
  Pack Size: 10

Electrical Specification - maximum limiting values 5.0V ±10%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
10.0MHz	40.0MHz	0 to 70	±0.3	-	-	-
		-20 to 70	±0.5	-	-	-
		-30 to 75	±1.0	-	-	-
		-40 to 85	±1.0	-	-	-

This document was correct at the time of printing; please contact your local sales office for the latest version.
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