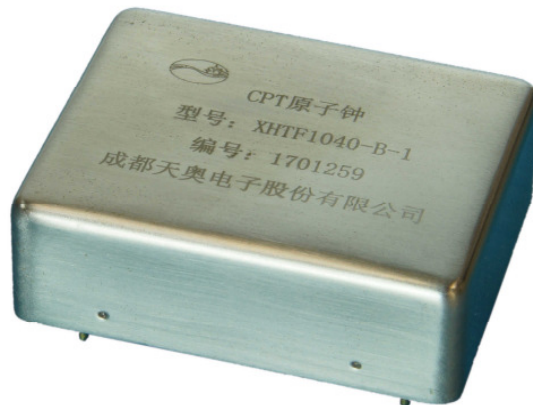


Specification	AXCPT1040	Rev.: 2	Date: 2018-11-27
---------------	-----------	---------	------------------

Oscillator type: **Smallest Miniature Atomic Clock in 45 x 36 mm Package**

Features:

- Smallest Miniature Atomic Clock
- Coherent Population Trap (CPT) Technology for High Reliability
(No vacuum cavity needed – No long-term leakage issues)
- Very low power consumption <1.5 W Steady-state
- Replacement for Microsemi CSAC (Chip-Scale Atomic Clock) SA.45s
- RS-232 Communication and optional external 1 PPS synchronisation
- Applications: UMTS, LTE, 5G, CDMA, WiMAX etc.
- Equivalent to ELECSYN XHTF1040



Ordering Code

Model	Option 1 [External 1PPS Synchronisation]	Revision	Frequency [MHz]
AXCPT1040	ES	Rev.2	10.000

Example: AXCPT1040_Rev.2 – 10.000 MHz

Parameter	min.	typ.	max.	Unit	Condition
Nominal output frequency	10.000			MHz	
Frequency stability					
Initial tolerance at delivery @ +25°C			±0.05	ppb	
vs. operating temperature range		±0.05	±1.00	ppb	steady state
Long term (aging) per day			±0.03	ppb	after 30 days operation
Long term (aging) per month			±0.30	ppb	after 30 days operation
Retrace @ +25°C			±0.05	ppb	1 h after 24 hrs OFF
Frequency adjustment range					
Digital Frequency Control (DFC)	±10			ppb	RS-232 interface (Note 2)
RF output					
Signal waveform	LVCMOS				
Load R _L	15			pF	
Phase noise		-90 -120 -140 -145		dBc/Hz dBc/Hz dBc/Hz dBc/Hz	@ 10 Hz @ 100 Hz @ 1 kHz @ 10 kHz
Short-term stability (ADEV)		2·10 ⁻¹¹ 7·10 ⁻¹¹ 2·10 ⁻¹¹	3·10 ⁻¹⁰ 1·10 ⁻¹⁰ 3·10 ⁻¹¹		@ τ = 1 sec @ τ = 10 sec @ τ = 100 sec
Warm-up time @ +25°C			5	min	Time to lock
1 PPS output					
Signal waveform	LVCMOS				
Load R _L	15			pF	
1 PPS reference input	Option 1 (External synchronisation)				
Signal waveform	LVCMOS				
Input impedance	>10 kOhm / 4 pF				
Lock Detect		0	0.5	V	Locked
	2.5	3.3		V	Not locked
Supply voltage V_S	3.2	3.3	3.5	V	
Power consumption (steady state)		4.0	6.0	W	
Power consumption (warm-up)		1.5	1.8	W	
Operating temperature range	-40		+70	°C	
Enclosure (see drawing) (WxDxH)	45.0x36.0x14.5			mm	
Drawing number	AXZ10.01122.01				
Weight		43	50	g	
MTBF	100,000			hrs	

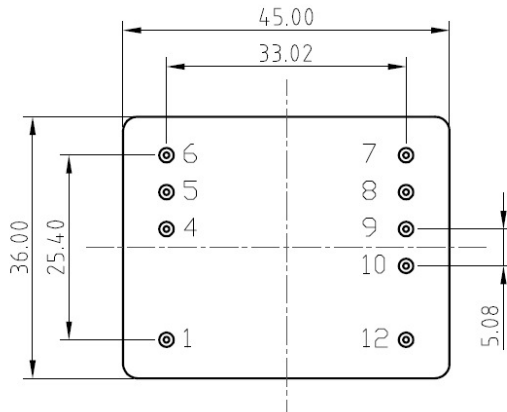
Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Please consult factory for programming manual

Absolute Maximum Ratings

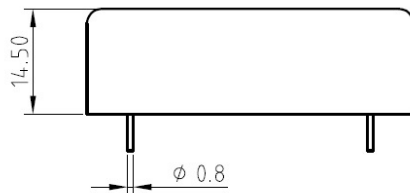
Parameter	min.	max.	Unit	Condition
Supply Voltage V _S	-0.5	V _S + 10%	V	V _S to GND
Storage Temperature	-55	+85	°C	

Enclosure drawing



Pin connections:

Pin #	Symbol	Function
1	N.C.	No Connection
4	LD	Lock Detect
5	TX	Serial Transmit RS-232
6	RX	Serial Receive RS-232
7	V _s	Supply Voltage
8	GND	Ground
9	1PPS IN	External 1PPS Input (Option)
10	1PPS OUT	1PPS Output
12	RF OUT	10 MHz Output



Handling and Testing

Parameter	Procedure		Source
Handling and Testing	Application Note AXAN-011		www.axtal.com
Processing	Application Note AXAN-012		www.axtal.com
Parameter	Procedure		Condition
Electrostatic discharge (ESD)			
THD devices	IEC60749-26	HBM	2000 V
SMD devices	IEC60749-27	MM	200 V
Washable	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
RoHS- Compliant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Data sheet is for information purposes only and may be subject to modifications or may be discontinued without notice.

Revision History

Rev.	Drawing	Date [dd.mm.yyyy]	Remarks	Author	Checked
1	D0	30.10.2018	First issue	HH	ME
2	Do	27.11.2018	Typical PN und ADEV updated, minor changes	HH	HH