Precision SMD TCXO

7.0 x 5.0 x 1.9mm

AST3TQ

ESD Sensitive

RoHS/RoHS II Compliant

Moisture Sensitivity Level (MSL) – 3

FEATURES:

- Standard available frequencies: 10.00, 12.80, 19.20, 20.00, 25.00, 26.00, 30.72, 38.40 & 40.00MHz
- Standard LVCMOS Output
- Frequency stabilities to include ±100ppb over -40ºC to +85ºC, ±280ppb over –50ºC to +90ºC and ±500ppb over -55ºC to +95ºC operating temperature range
- Excellent Phase Noise, Harmonics and Spurious content
- Typical rms jitter of 400fs @ 40MHz carrier & 1.0ps @ 10MHz carrier over 12kHz to 20MHz BW

APPLICATIONS:

- COTS Military Radios & other Communication Hardware
- WiMax,
- LTE, BTS
- CATV, LAN, LMDS
- GPS Tracking with Hold-Over accuracy
- Test & Measurement Equipment
- Point-to-Point communication networks

STANDARD SPECIFICATIONS:

Maximum Rating

Parameters	Rating
Storage Temperature Range	-55 to +125 °C
Supply Voltage	-0.5 to 6V
ESD, HBM/CDM/MM	4kV/2kV/200V

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Range	10		40	MHz	
Standard Frequencies:	10.00, 12.80, 19.20, 20.00, 25.00, 26.00, 30.72, 38.40, 40.00			MHz	
Initial Frequency Tolerance (@+25°C) at shipping			±0.3	ppm	Relative to carrier
Frequency Stability Options					
-40 °C to +85 °C			±100	ppb	Option "1"
-50 °C to +90 °C			±280	ppb	Option "2" **see note 1**
-55 °C to +95 °C			±500	ppb	Option "5" **see note 2**
Frequency Stability vs. Supply Voltage Change (Vdd±5%):			±100	ppb	
Frequency Stability vs. Load Change (Load±5%):			±200	ppb	
Supply Voltage (Vdd):	+3.135	+3.3	+3.465	V	
Aging (first year @+25 °C):			±1.0	ppm	
Aging (20 years @+25 °C):		±3.0	±4.6	ppm	
Supply Current (Icc)(into 15pF load) :		3.0	4.0	mA	@10MHz carrier
		5.5	7.0		@40MHz carrier
CMOS Output					
V_{OH}	2.4			V	Load=15pF
V_{OL}			0.4	V	Load=15pF
Load:			15	pF	
Duty Cycle:	45		55	%	@(V_{OH}- V_{OL})/2
Rise/Fall Time:			4	ns	Load=15pF
Waveform:		Square Wave			
RMS Jitter (12kHz to 20MHz BW)	0.4		1.3	ps	Carrier dependent
Phase Noise (10MHz carrier frequency @25 °C):			-95	dBc/Hz	Offset @10Hz
			-120		Offset @100Hz
			-140		Offset @ 1k Hz
			-145		Offset @10 kHz
			-150		Offset @100kHz

*Note 1: For 10.000MHz carrier, frequency stability of ±280ppb is only guaranteed over -45°C to +90°C operating temperature range.
*Note 2: For 10.000MHz carrier, option "5" is not available.

REVISED: 01.05.2017

ABRACON LLC
The Power of Linking Together
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7.0 x 5.0 x 1.9mm

OPTIONS & PART IDENTIFICATION: (left blank if standard)

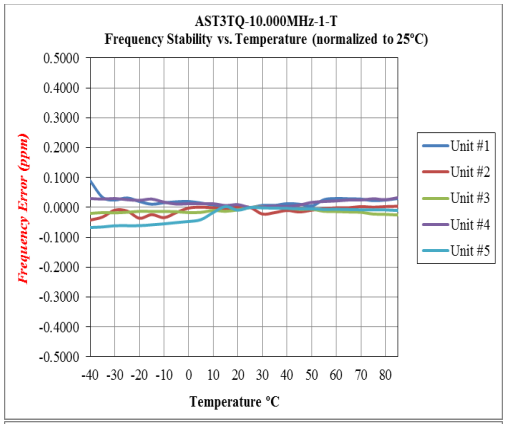
AST3TQ - [ ] MHz - [ ] - [ ]

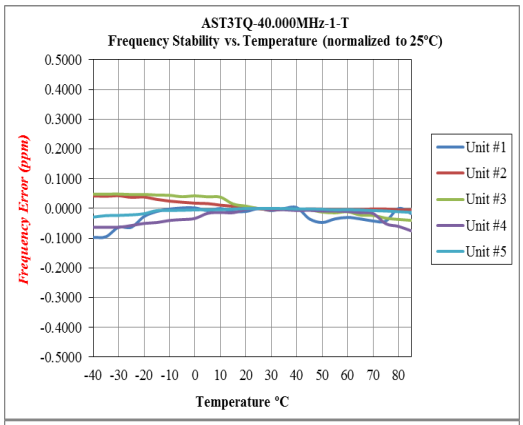
Frequency in MHz	Freq. Stability vs. Operating Temp.	Packaging
Please specify the frequency in MHz. e.g. 19.200MHz	1: ±100ppb over -40 to +85°C	Blank: Bulk
	2: ±280ppb over -50 to +90°C *	T: 500pcs/reel
	5: ±500ppb over -55 to +95°C **	T2: 2000pcs/reel

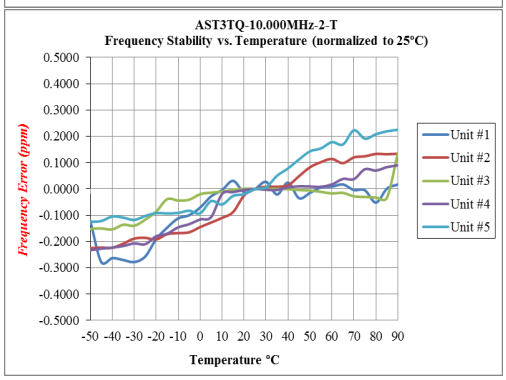
*** Note 1: For 10.000MHz carrier, frequency stability of ±280ppb is only guaranteed over -45°C to +90°C operating temperature range.**

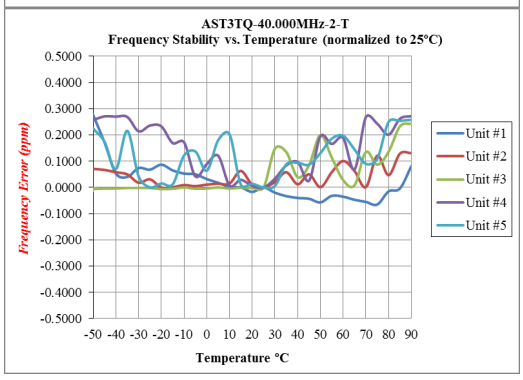
****Note 2: For 10.000MHz carrier, option "5" is not available.**

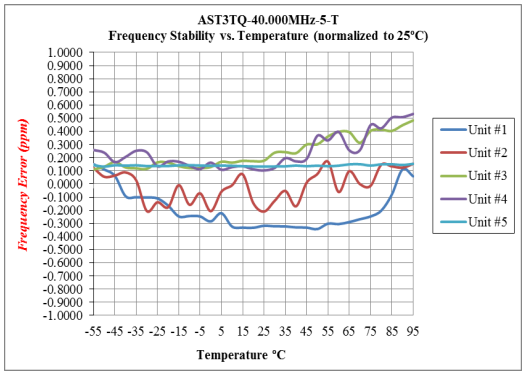
FREQUENCY STABILITY VS. TEMPERATURE











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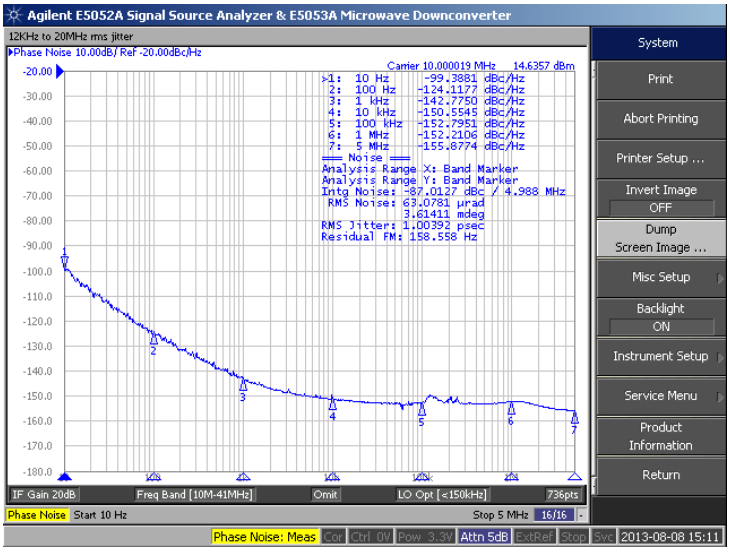
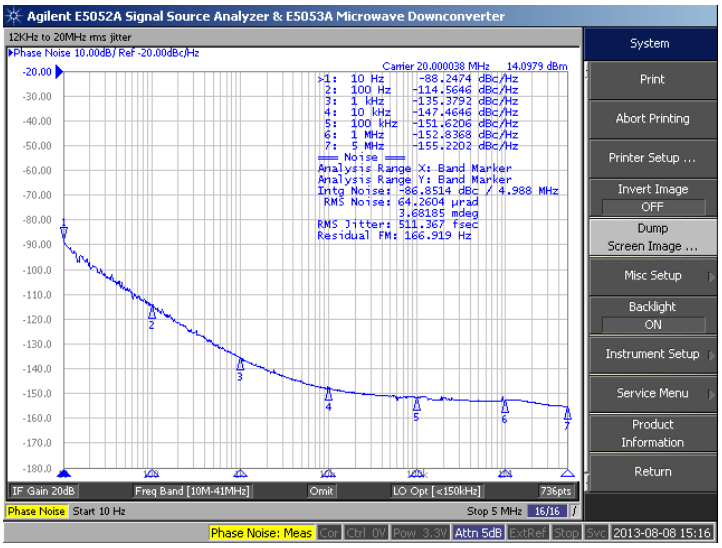
TYPICAL PHASE NOISE

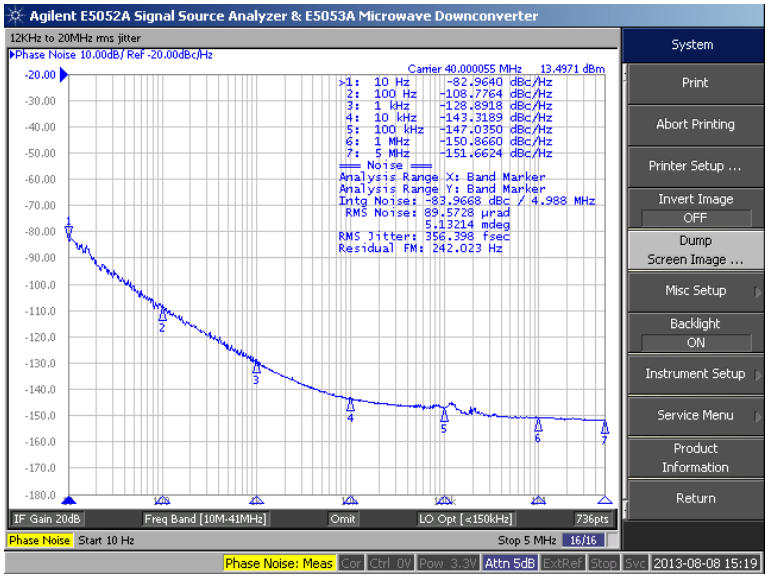
10.00 MHz Carrier



20.00 MHz Carrier



40.00 MHz Carrier



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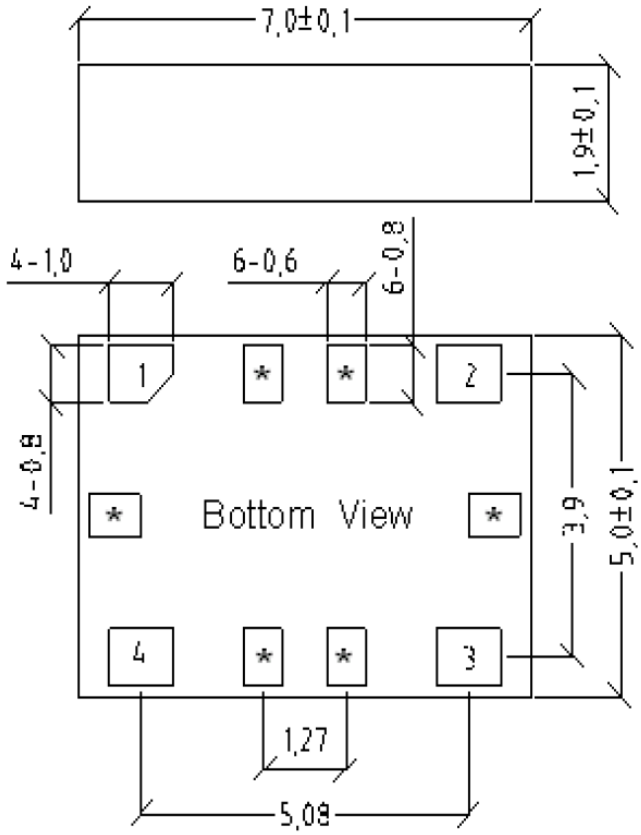
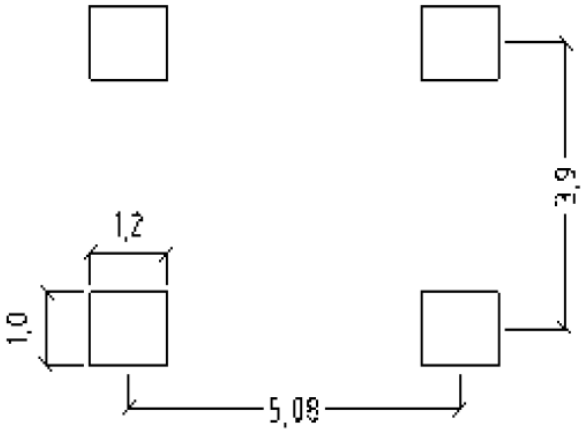
OUTLINE DIMENSION:



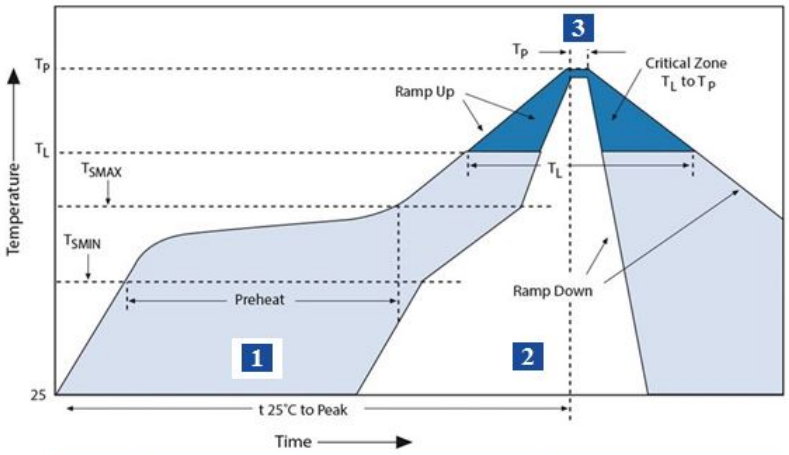
Recommended Land Pattern



Pin	Function
1	NC
2	GND
3	Output
4	Vdd
*	For factory test only

Dimensions: mm

REFLOW PROFILE:



Zone	Description	Temperature	Times
1	Preheat	T_{SMIN} ~ T_{SMAX} 150°C ~ 200°C	60 ~ 120 sec.
2	Reflow	T_L 220°C	60 ~ 150 sec.
3	Peak heat	T_P 260°C	25 sec. MAX

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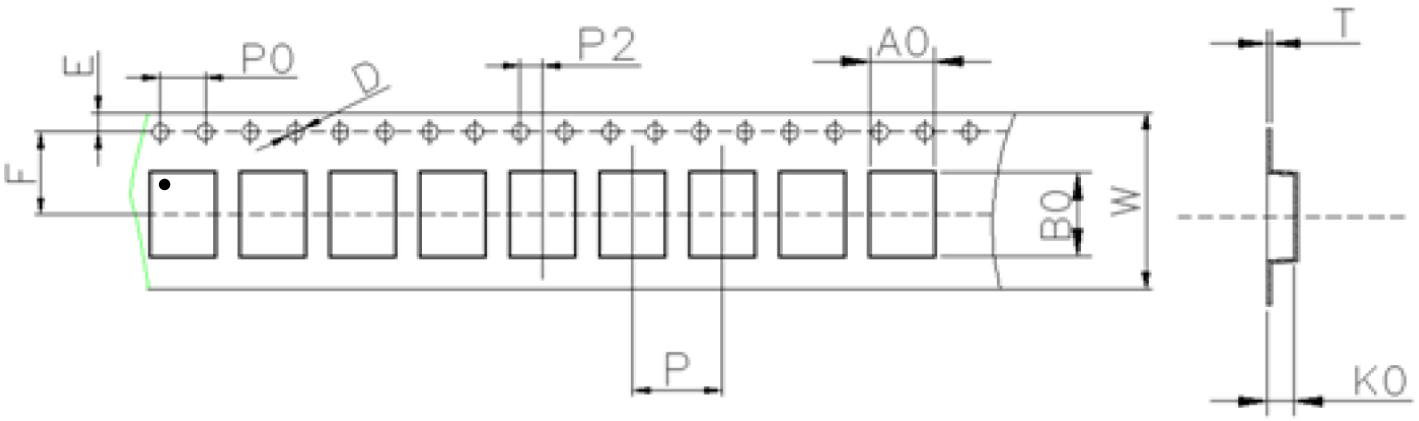
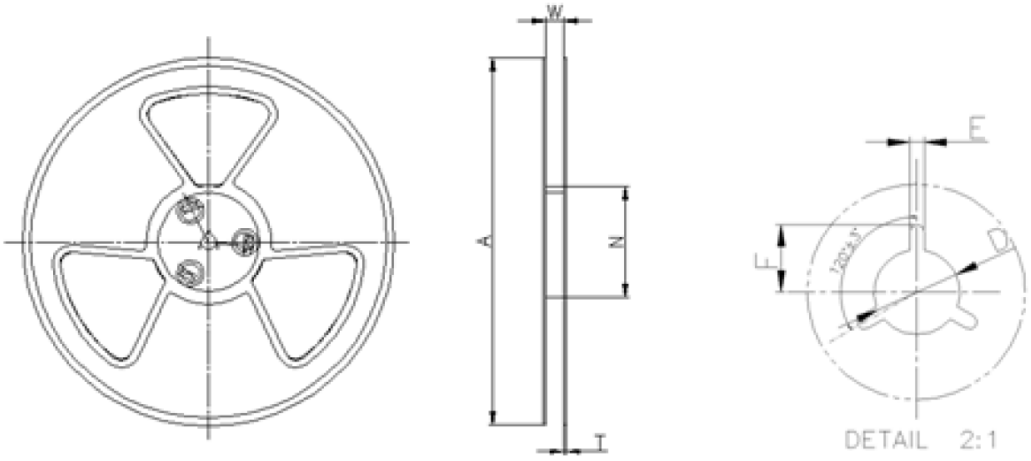
TAPE & REEL:

Packaging:
T: 500pcs/reel
T2: 2000pcs/reel
MSL-3 packaging applies to MOQ=25 units (cut tape) & T and T2.



W	A0	B0	K0	P	F
16.0±0.3	5.7±0.15	7.6±0.15	2.4±0.15	8.0±0.1	7.5±0.1
E	**D**	**P0**	**P2**	**T**	
1.75±0.1	1.5+0.1/-0.0	4.0±0.1	2.0±0.1	0.3±0.05	



W	A	N	T	E	F	D
16.5±0.4	330±0.5	100±0.3	1.8±0.2	2.1±0.3	10.75±0.3	13.5+0.5/-0.2

Dimensions: mm