



## FEATURES:

- Standard available frequencies: 10.00, 12.80, 19.20, 20.00, 25.00, 26.00, 30.72, 38.40 & 40.00MHz
- Standard LVC MOS Output
- Frequency stabilities to include  $\pm 100$ ppb over  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ ,  $\pm 280$ ppb over  $-50^{\circ}\text{C}$  to  $+90^{\circ}\text{C}$  and  $\pm 500$ ppb over  $-55^{\circ}\text{C}$  to  $+95^{\circ}\text{C}$  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 $+125^{\circ}\text{C}$
Supply Voltage	$-0.5$ to $6\text{V}$
ESD, HBM/CDM/MM	$4\text{kV}/2\text{kV}/200\text{V}$

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Range	10		40	MHz	
Standard Frequencies:	10.00 , 12.8 0, 19.2 0, 20.00 , 25.00 , 26.00 , 30.72, 38.4 0, 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” <b>see note 1</b>
-55 °C to +95 °C			±500	ppb	Option “5” <b>see note 2</b>
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 @100 kHz

\*Note 1: For 10.000MHz carrier, frequency stability of  $\pm 280$ ppb is only guaranteed over  $-45^{\circ}\text{C}$  to  $+90^{\circ}\text{C}$  operating temperature range.

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

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7.0 x 5.0 x 1.9mm

### OPTIONS & PART IDENTIFICATION: (left blank if standard)

AST3TQ -  MHz -  -

**Frequency in MHz**  
Please specify the frequency in MHz.  
e.g. 19.200MHz

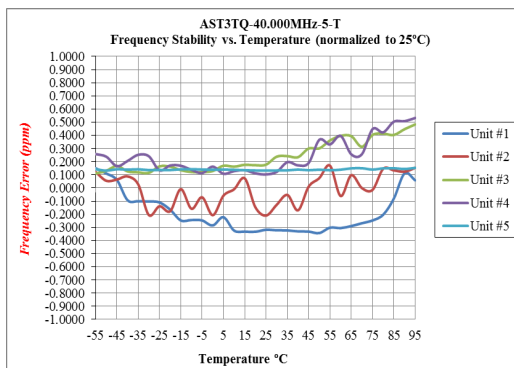
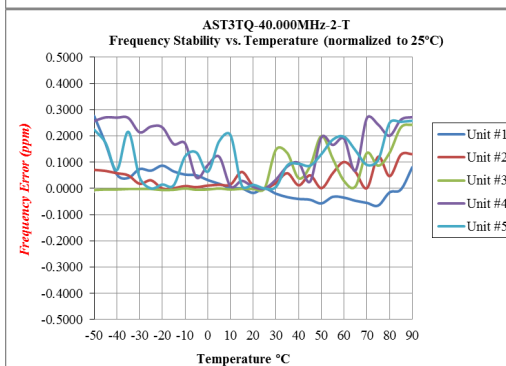
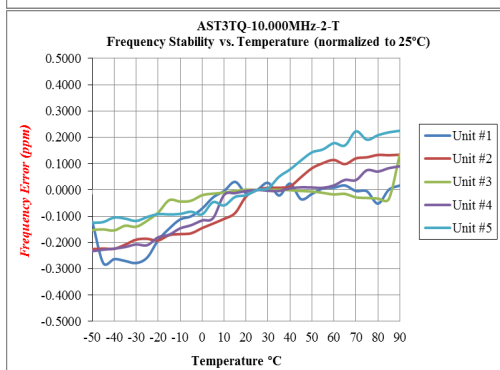
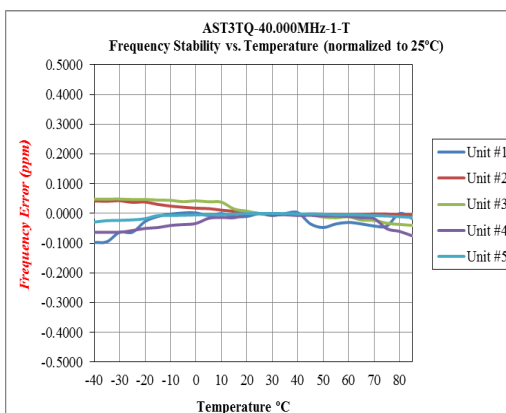
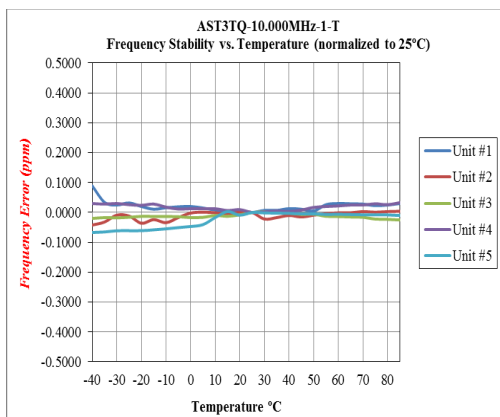
**Freq. Stability vs. Operating Temp.**  
1:  $\pm 100$ ppb over -40 to +85°C  
2:  $\pm 280$ ppb over -50 to +90°C \*  
5:  $\pm 500$ ppb over -55 to +95°C \*\*

**Packaging**  
Blank: Bulk  
T: 500pcs/reel  
T2: 2000pcs/reel

\* Note 1: For 10.000MHz carrier, frequency stability of  $\pm 280$ ppb 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

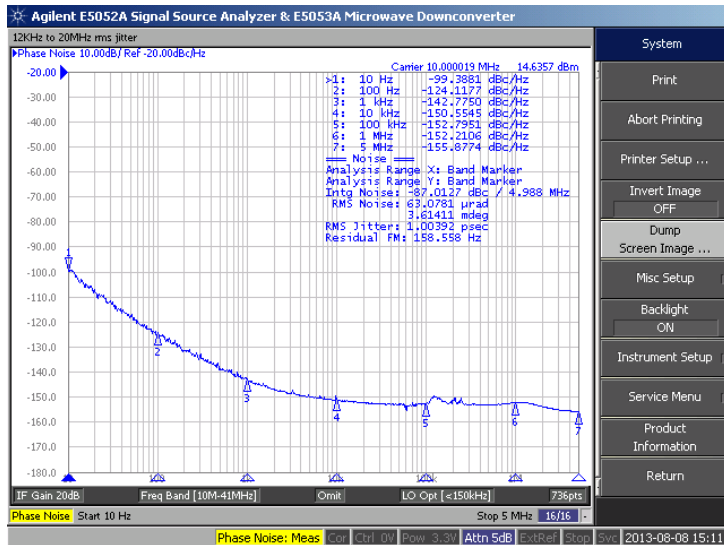


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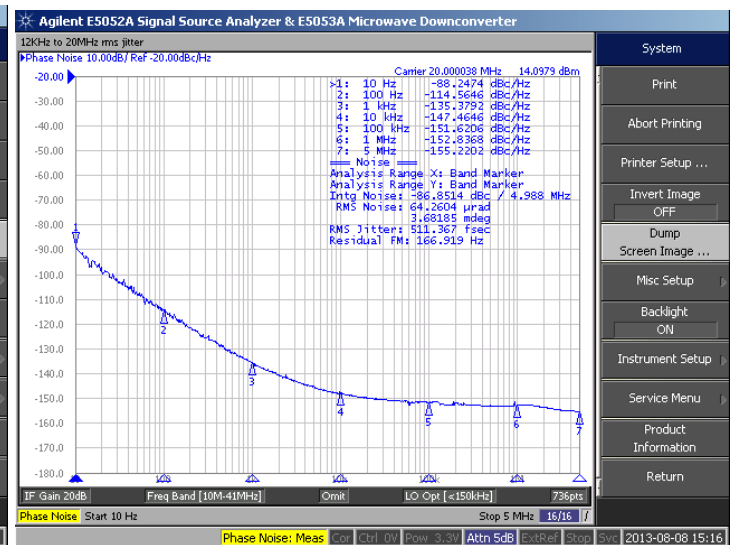


### TYPICAL PHASE NOISE

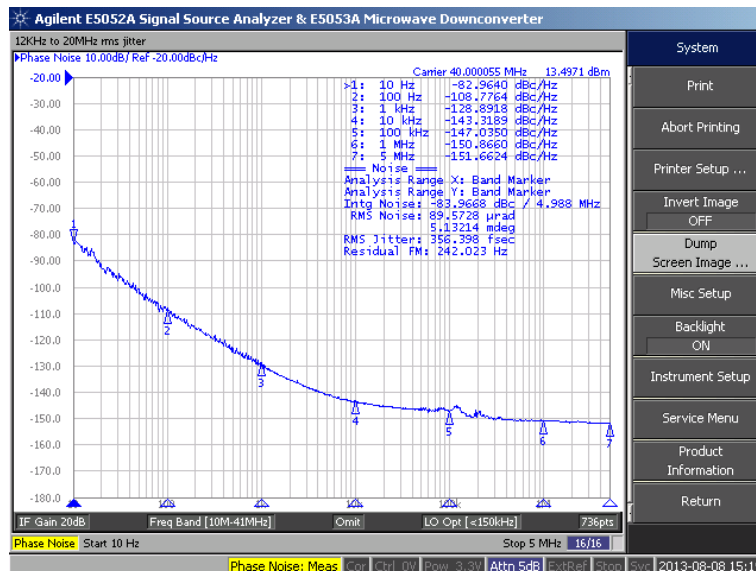
#### 10.00 MHz Carrier



#### 20.00 MHz Carrier



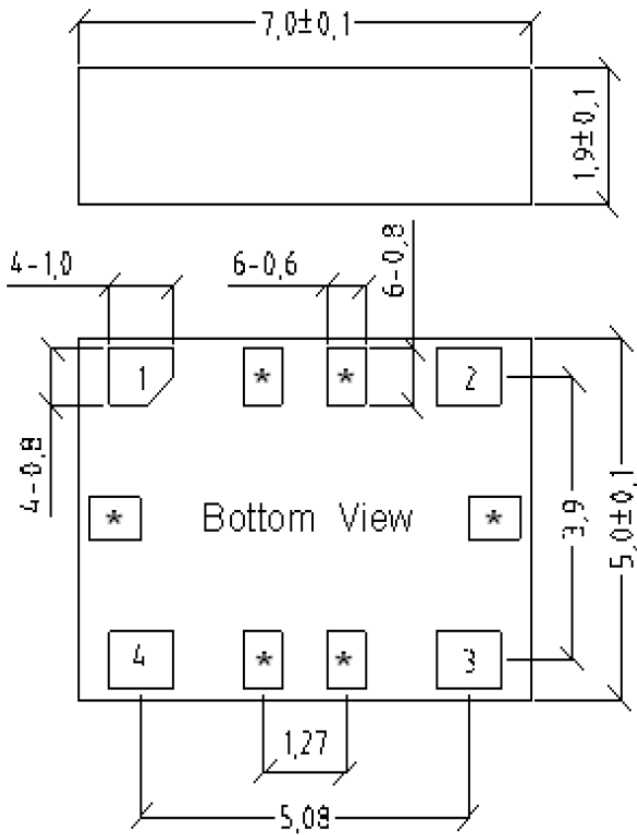
#### 40.00 MHz Carrier



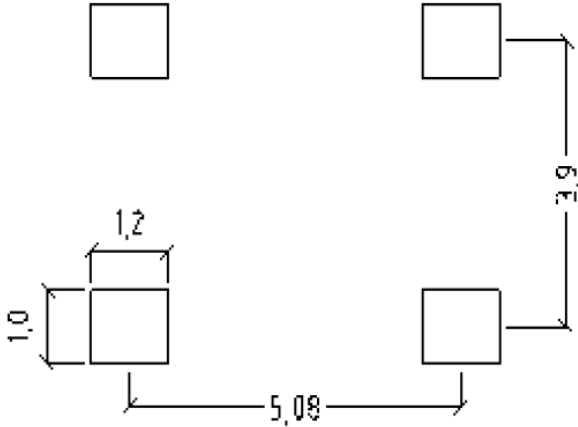


7.0 x 5.0 x 1.9mm

➤ OUTLINE DIMENSION:



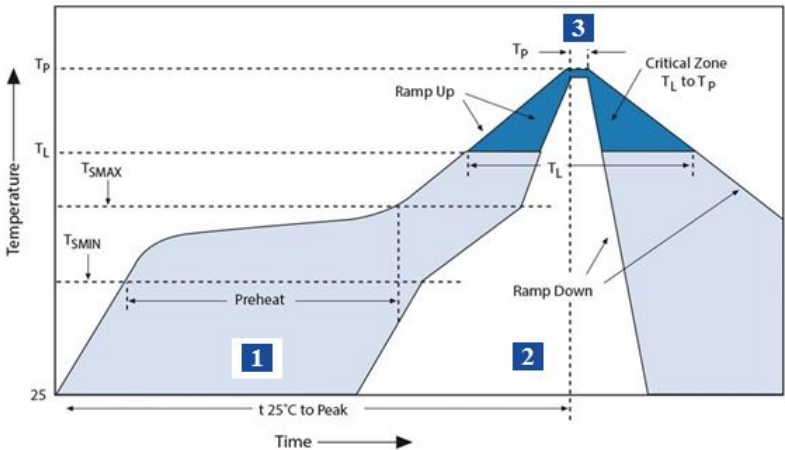
Recommended Land Pattern



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 <sub>S</sub> MIN ~ T <sub>S</sub> MAX 150°C ~ 200°C	60 ~ 120 sec.
2	Reflow	T <sub>L</sub> 220°C	60 ~ 150 sec.
3	Peak heat	T <sub>P</sub> 260°C	25 sec. MAX

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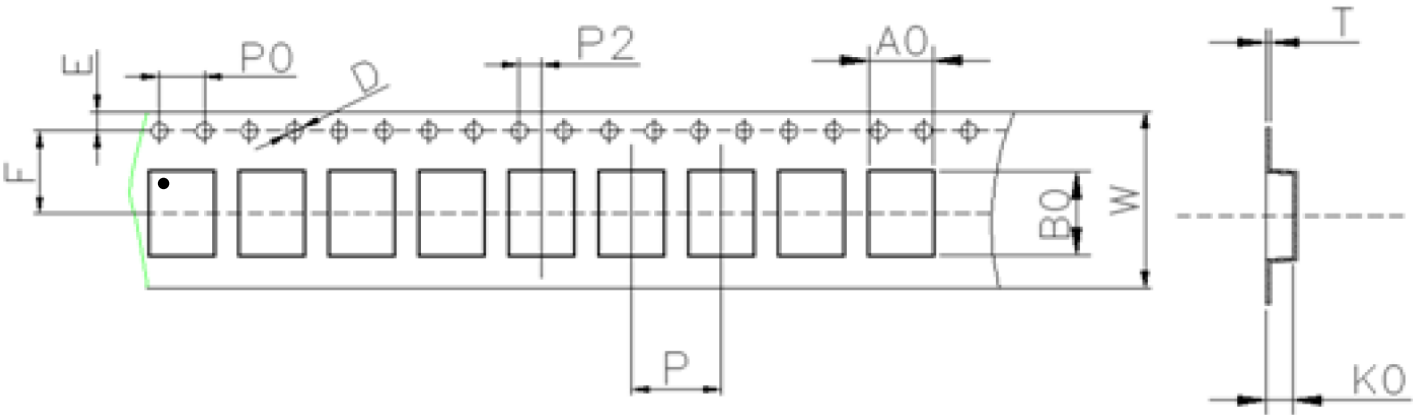
7.0 x 5.0 x 1.9mm

AST3TQ

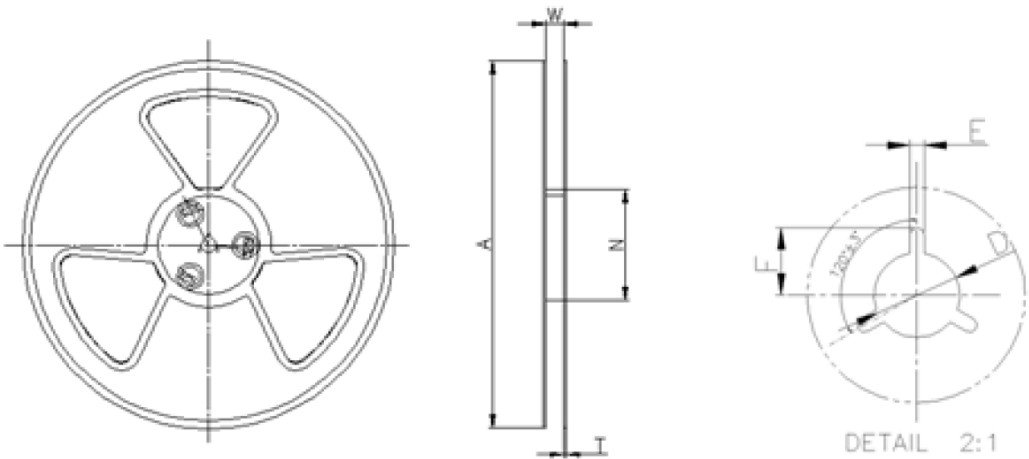
 RoHS/RoHS II Compliant

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

**ATTENTION:** Abracon LLC products are COTS – Commercial-Off-The-Shelf products; suitable for Commercial, Industrial and, where designated, Automotive Applications. Abracon’s products are not specifically designed for Military, Aviation, Aerospace, Life-dependant Medical applications or any application requiring high reliability where component failure could result in loss of life and/or property. For applications requiring high reliability and/or presenting an extreme operating environment, written consent and authorization from Abracon LLC is required. Please contact Abracon LLC for more information.