

Precision SMD TCXO/VCTCXO

AST3TQ-28



ESD Sensitive



RoHS/RoHS II Compliant



7.0 x 5.0 x 1.9mm

Moisture Sensitivity Level (MSL) – 3

FEATURES:

- Standard available frequencies: 10.00, 12.80, 15.36, 16.32, 16.384, 19.20, 19.44, 20.00, 25.00, 26.00, 30.72 & 40.00 MHz
- Standard LVC MOS Output
- Frequency stability of ± 280 ppb (± 0.28 ppm) over -40°C to $+85^{\circ}\text{C}$
- Excellent Phase Noise, Harmonics & 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:

Parameters	Rating
Storage Temperature Range	-55 to $+125^{\circ}\text{C}$
Supply Voltage	-0.5 to 6V
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, 12.80, 15.36, 16.32, 16.384, 19.20, 19.44, 20.00, 25.00, 26.00, 30.72 and 40.00			MHz	
Initial Frequency Tolerance (@+25°C) at shipping			±0.3	ppm	Relative to carrier
Frequency Stability Options					
-40°C to +85°C			±280	ppb	
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
LVCMOS Output (Square wave)					
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:			6	ns	Load=15pF
RMS Jitter (12kHz to 20MHz BW)	0.4		1.3	ps	Carrier dependent
Control Port					Applicable for VCTCXO only
Voltage Range (Vc)	0.50		+2.50	V	
Frequency Pull	±7.00	±10.00	±12.00	ppm	(Vc = 1.5V±1.0V)
Center Control Voltage (Vc)		+1.50			To be with-in ±500 ppb of Fc @ 25°C
Port Impedance	100			kΩ	
Phase Noise (10MHz carrier frequency @25°C):			-95	dBc/Hz	Offset @10Hz
			-120		Offset @100Hz
			-140		Offset @1kHz
			-145		Offset @10kHz
			-150		Offset @100kHz

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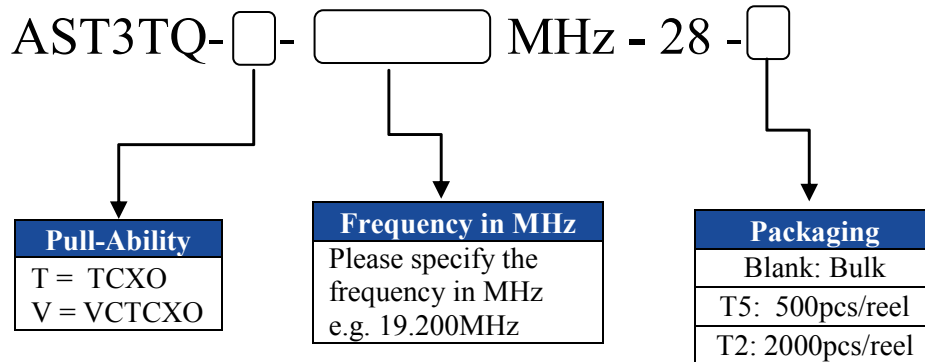
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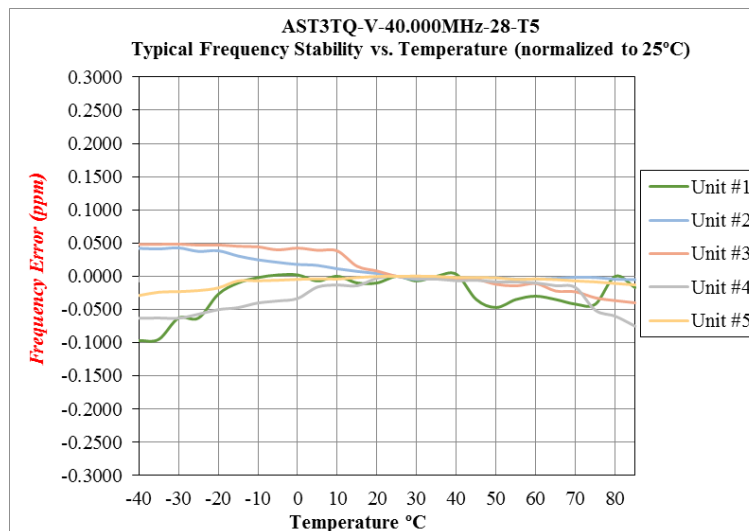
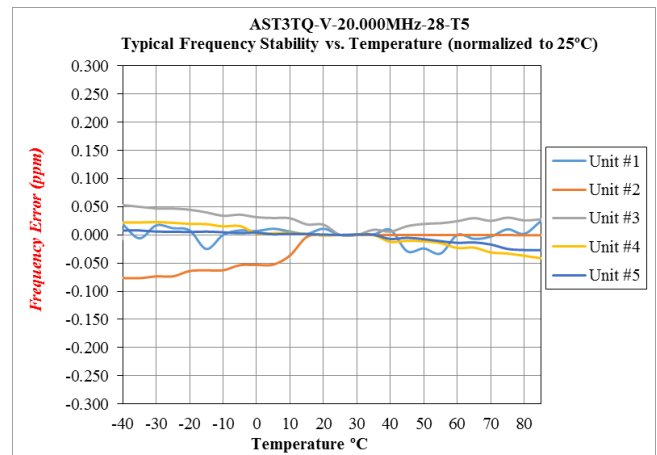
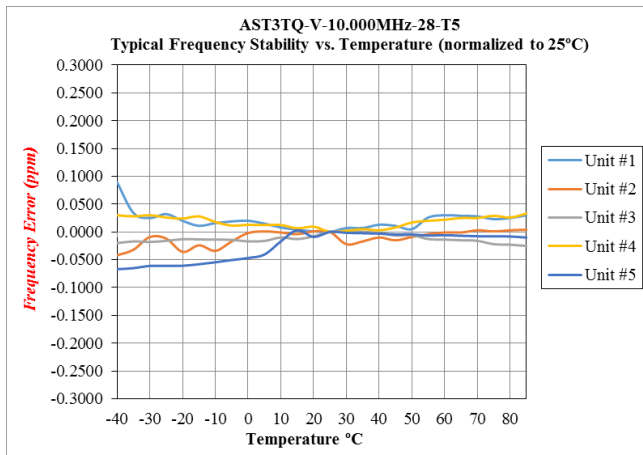
Revised: 09.18.14



OPTIONS & PART IDENTIFICATION: (left blank if standard)



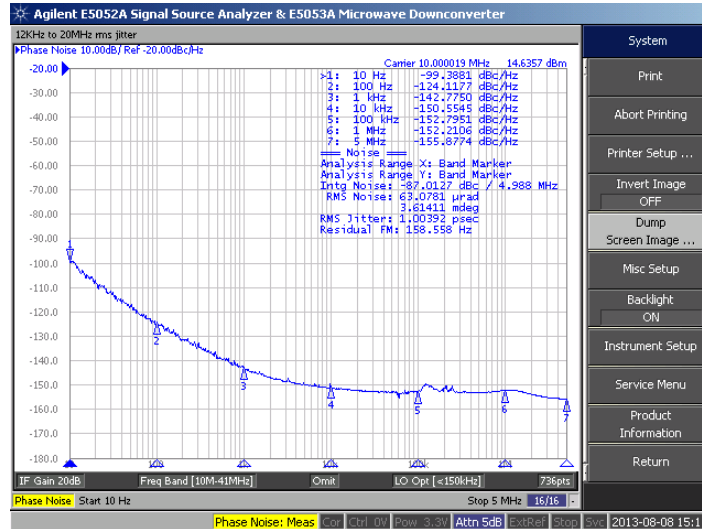
FREQUENCY STABILITY VS. TEMPERATURE



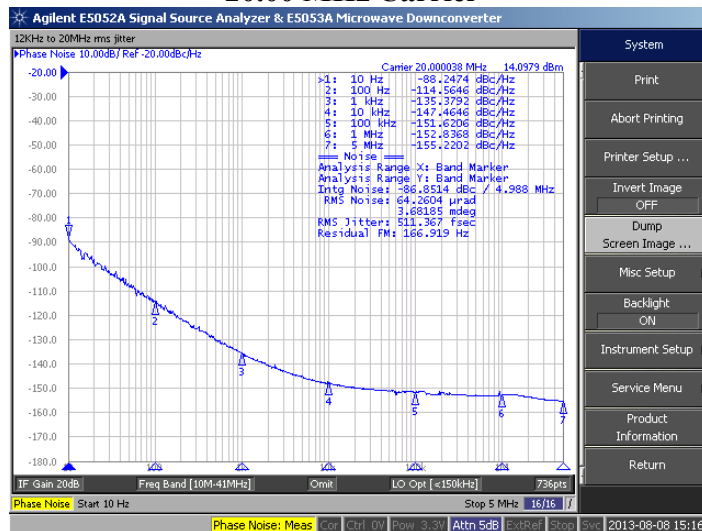


TYPICAL PHASE NOISE

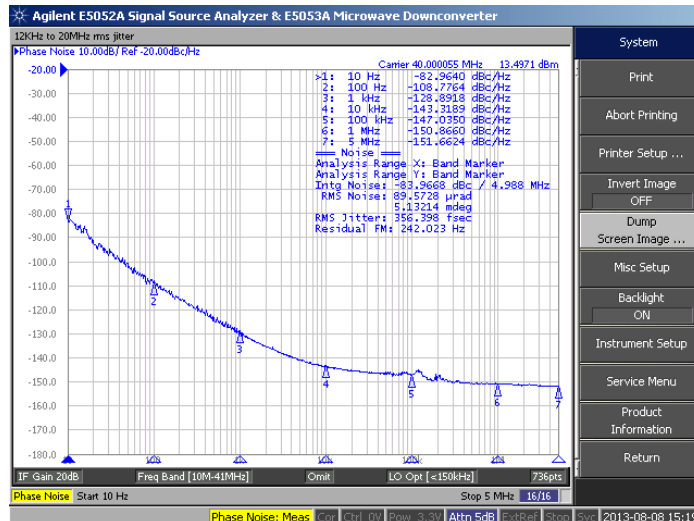
10.00 MHz Carrier

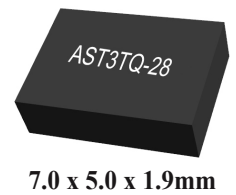


20.00 MHz Carrier



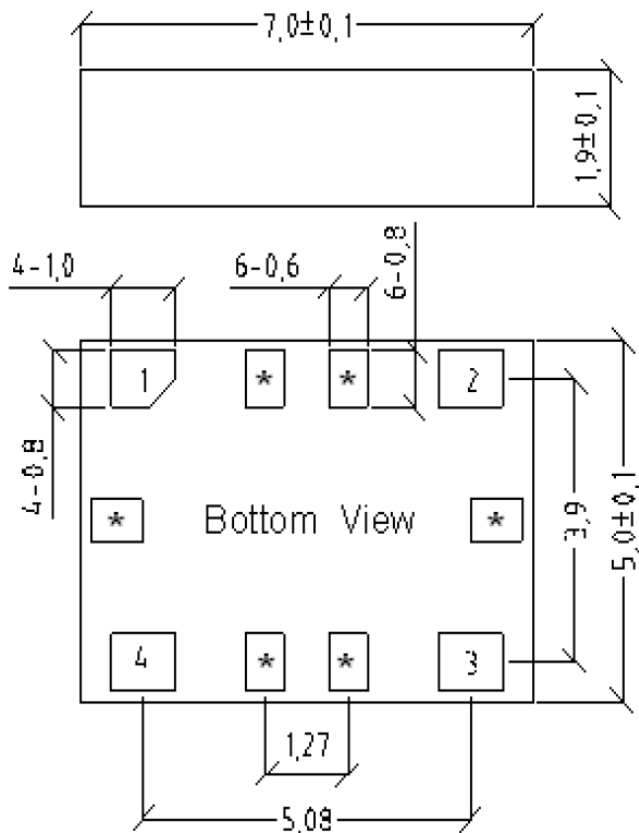
40.00 MHz Carrier



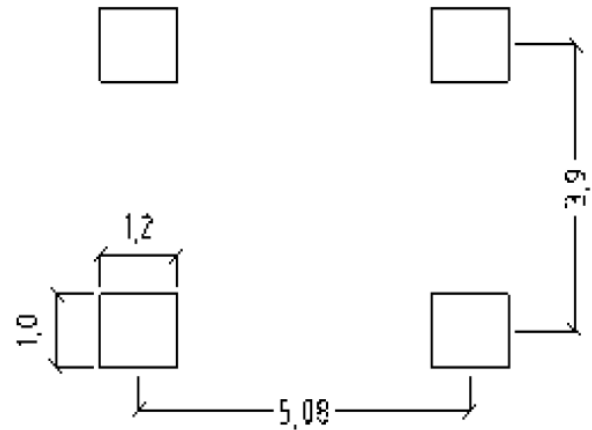


7.0 x 5.0 x 1.9mm

OUTLINE DIMENSION:



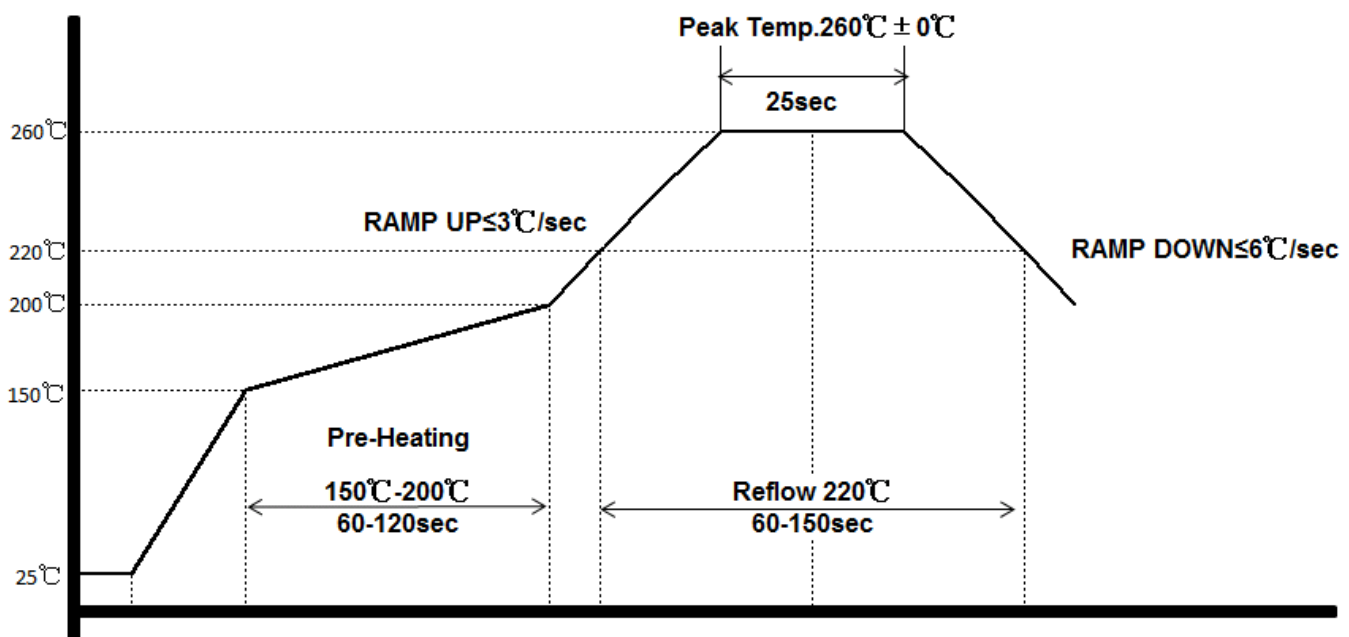
Recommended Land Pattern



Pin	Function
1	NC (for TCXO) Vc (for VCTCXO)
2	GND
3	Output
4	Vdd
*	For factory test only

Dimensions: mm

REFLOW PROFILE:





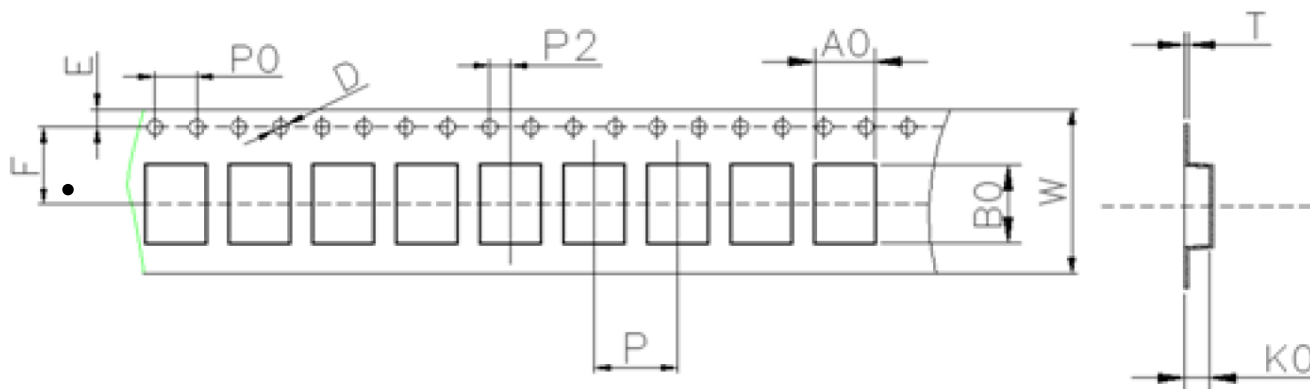
TAPE & REEL:

Packaging:

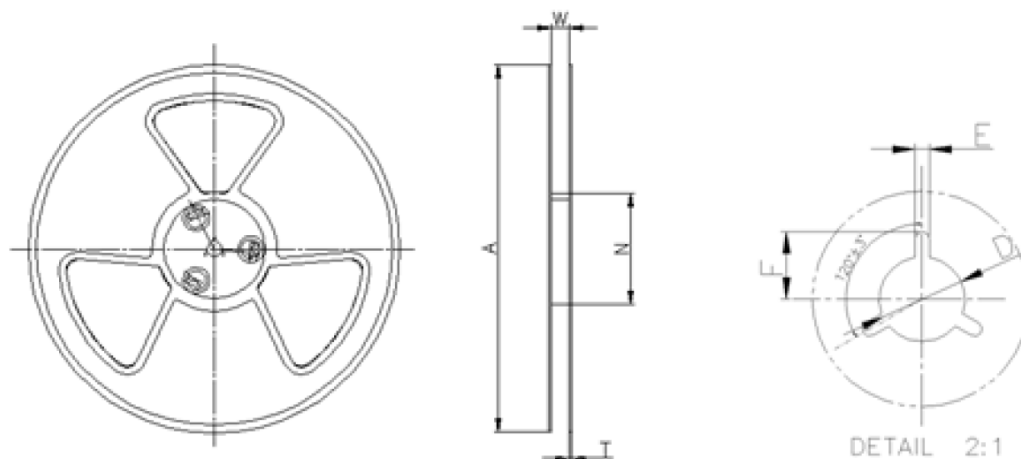
T5: 500pcs/reel

T2: 2,000pcs/reel

MSL-3 packaging applies to MOQ=50 units (cut tape) & T5 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

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