



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Precision SMD TCXO/VCTCXO

AST3TQ53



ESD Sensitive



RoHS/RoHS II Compliant



5.0 x 3.2 x 2.0mm

Moisture Sensitivity Level (MSL) – 3

FEATURES:

- Standard available frequencies: 10.00, 12.80, 16.384, 19.20, 19.44, 20.00, 24.576, 25.00, 26.00, 30.72, 40.00 MHz
- LVC MOS Output or Clipped Sine Wave output
- Frequency stabilities to include ± 50 ppb, ± 100 ppb and ± 280 ppb over -40°C to $+85^{\circ}\text{C}$ 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°C
Supply Voltage	-0.5 to 6V
Control Voltage	0 to 3V
ESD, HBM/CDM/MM	4kV/2kV/200V

Key Electrical Specifications

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Range	10		40	MHz	
Standard Frequencies	10.00, 12.80, 16.384, 19.20, 19.44, 20.00, 24.576, 25.00, 26.00, 30.72, 40.00			MHz	
Initial Frequency Tolerance (@+25°C) at shipping			± 0.5	ppm	Relative to carrier
Frequency Stability Options (Ref. to Frequency @+25°C)					
-40°C to +85°C			± 50	ppb	Option "5"
-40°C to +85°C			± 100	ppb	Option "1"
-40°C to +85°C			± 280	ppb	Option "2"
Frequency Stability vs. Supply Voltage Change (Vdd $\pm 5\%$)			± 100	ppb	
Frequency Stability vs. Load Change (Load $\pm 5\%$)			± 200	ppb	
Aging (first year @+25°C)			± 1.0	ppm	
Aging (20 years @+25°C)		± 3.0	± 4.6	ppm	
Supply Voltage (Vdd)	+3.135	+3.3	+3.465	V	
Supply Current (Icc)			6.0	mA	No load
Control Port (Applicable for VCTCXO only)					
Control Voltage Range (Vc)	+0.5	+1.5	+2.5	V	
Center Control Voltage (Vc)		+1.5		V	To be with-in ± 500 ppb of Fc @ 25°C (at shipping)
Frequency Tuning Range	± 5	± 7	$< \pm 13$	ppm	
Tuning Slope	Positive				
Linearity			± 1	%	
Port Impedance	100			k Ω	

Precision SMD TCXO/VCTCXO

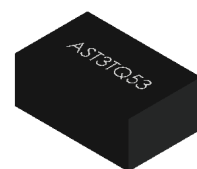
AST3TQ53



ESD Sensitive



RoHS/RoHS II Compliant



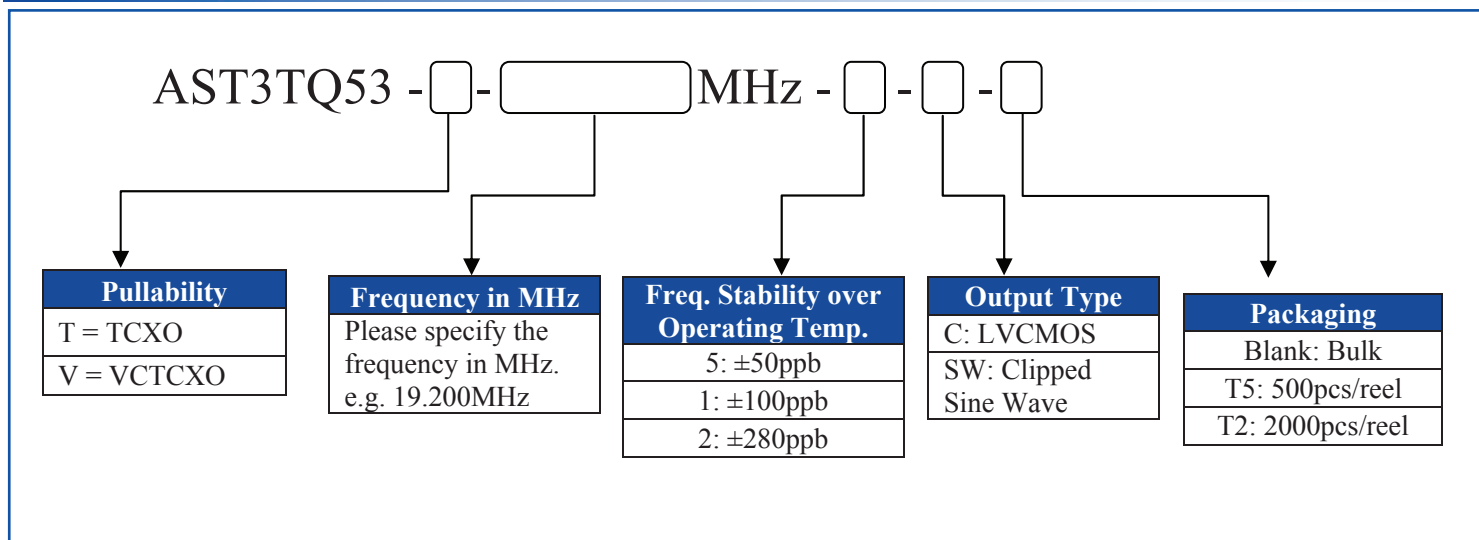
5.0 x 3.2 x 2.0mm

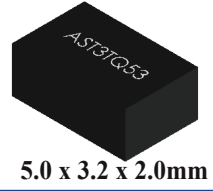
STANDARD SPECIFICATIONS:

(Continued)

Parameters	Minimum	Typical	Maximum	Unites	Notes
Phase Noise (10MHz carrier frequency @25°C):			-95	dBc/Hz	Offset @10Hz
			-120		Offset @100Hz
			-140		Offset @1kHz
			-145		Offset @10kHz
			-150		Offset @100kHz
RMS Jitter (@12kHz~5MHz BW)	0.4		1.3	ps	Carrier Dependent
Clipped Sine Wave					
Output Level	0.8			Vp-p	
Output Load	10kΩ//10pF				
LVC MOS Output (Square Wave)					
V _{OH}	2.4			V	Output Load=15pF
V _{OL}			0.4	V	Output Load=15pF
Output Load			15	pF	
Duty Cycle	45		55	%	@(V _{OH} - V _{OL})/2
Rise/Fall Time			6	ns	Output Load=15pF

PART IDENTIFICATION:





AST3TQ53



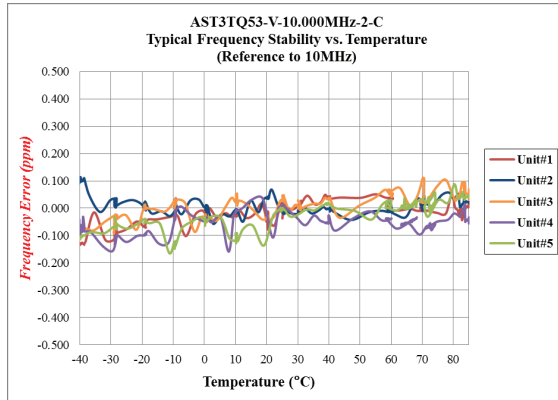
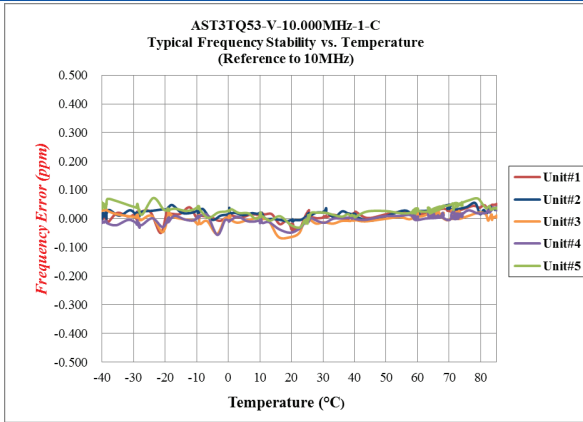
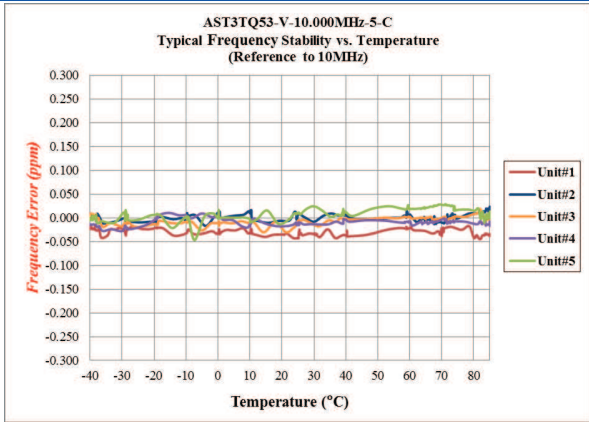
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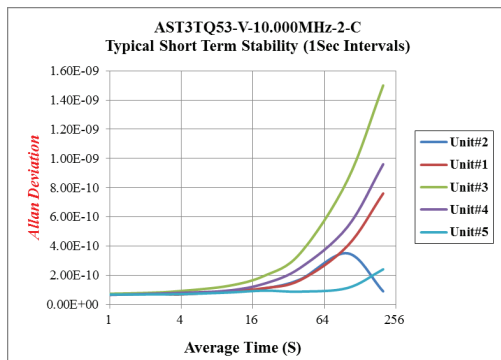
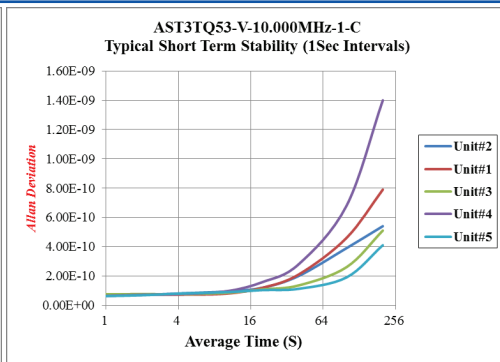
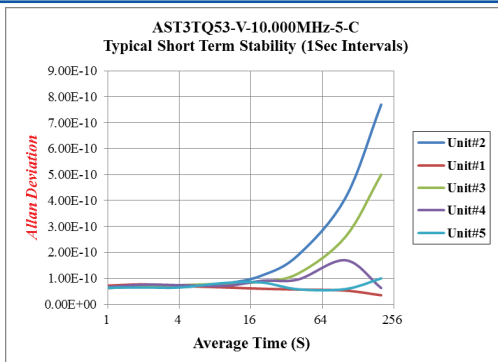
RoHS/RoHS II Compliant

5.0 x 3.2 x 2.0mm

TYPICAL FREQUENCY STABILITY VS. TEMPERATURE

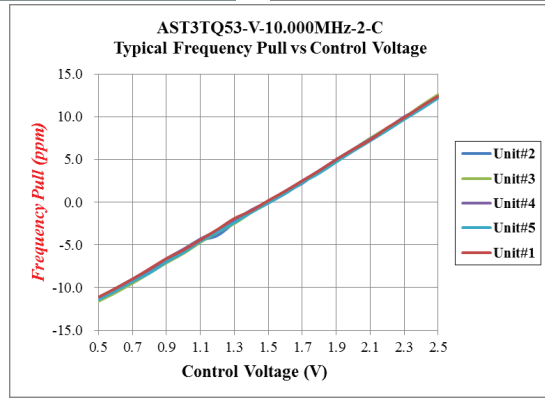
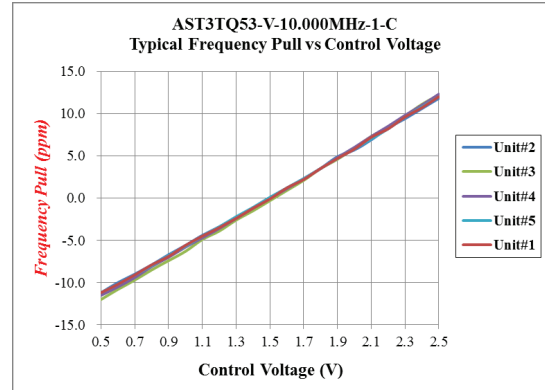
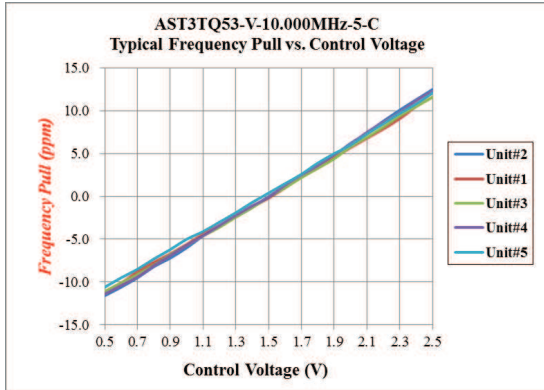


TYPICAL SHORT TERM STABILITY



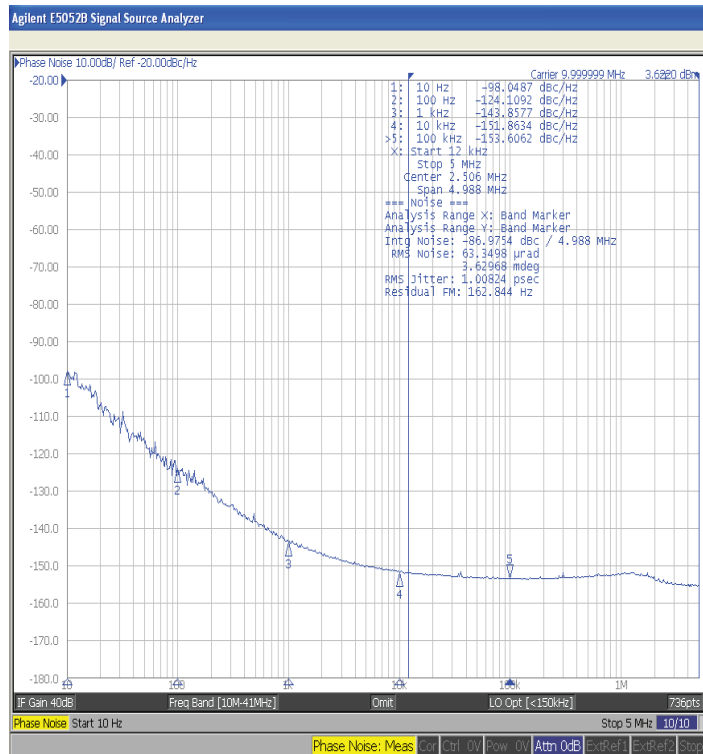


TYPICAL FREQUENCY PULL VS. CONTROL VOLTAGE



TYPICAL PHASE NOISE

10.00 MHz Carrier



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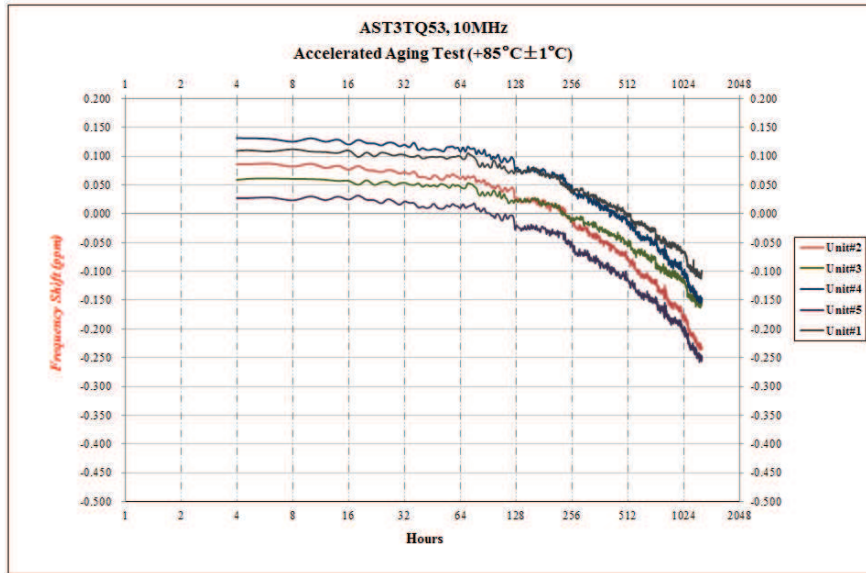


RoHS/RoHS II Compliant



5.0 x 3.2 x 2.0mm

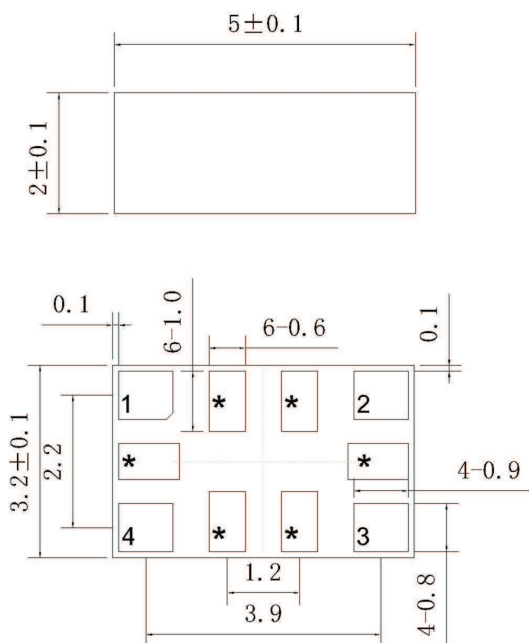
TYPICAL AGING:



Aging Test Conditions	
Series	AST3TQ53
Frequency	10MHz
Acquisition Mode	Cycle
Acquisition Time	1129 hours
Test Temperature	+85°C ± 1°C
Number of Samples	5pcs

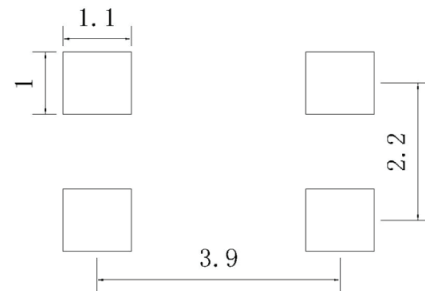
Aging Data			
No.	Aging Time (hrs)	Aging/Day (ppm)	Projected Aging/year (ppm)
#1	1129	-0.0039	-0.3896
#2	1129	-0.0059	-0.5925
#3	1129	-0.0042	-0.4202
#4	1129	-0.0056	-0.5555
#5	1129	-0.0055	-0.5492

OUTLINE DIMENSION:



Dimensions: mm

Recommended Land Pattern



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

Precision SMD TCXO/VCTCXO

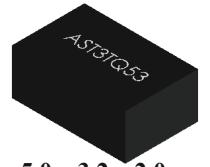
AST3TQ53



ESD Sensitive

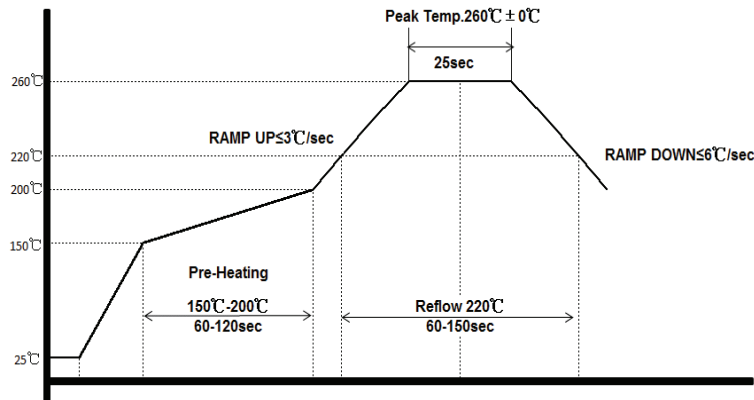


RoHS/RoHS II Compliant



5.0 x 3.2 x 2.0mm

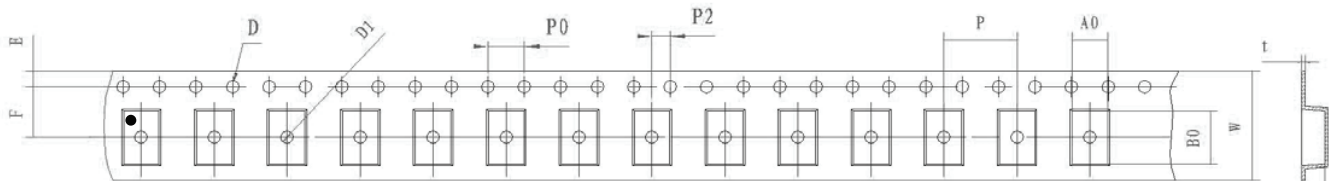
REFLOW PROFILE:



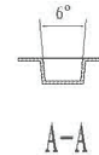
TAPE & REEL:

T5: 500pcs/reel; T2: 2000pcs/reel

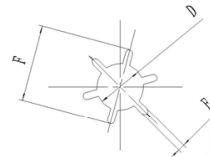
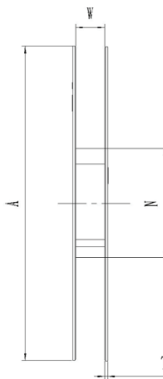
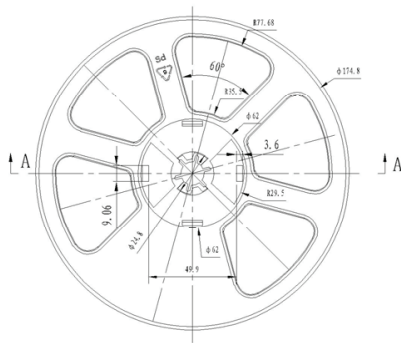
MSL-3 packaging applies to MOQ=25 units (cut tape), T5 & T2.



W	A0	B0	K0	P	F
16.0±0.3	3.7±0.15	5.6±0.15	2.0±0.15	8.0±0.1	7.5±0.1
E	D	D1	P0	P2	t
1.75±0.1	1.5+0.1/-0.0	1.5+0.1/-0.0	4.0±0.1	2.0±0.1	0.3±0.05



B-B



W	A	N	T	E	F	D
16.4±0.3	178±0.5	62±0.4	1.8±0.2	2.0±0.5	21.8±0.8	13.5±0.3

Dimensions: mm

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2 Faraday, Suite# B | Irvine | CA 92618 Revised: 04.02.15

Ph. 949.546.8000 | Fax. 949.546.8001

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