

Travelling Merchant: _____

DATASHEET

Standard: **T53-Y313-40.00MHz**

P/N: _____

Plot			The Label
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2022.08.24			

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1. Electrical Parameters

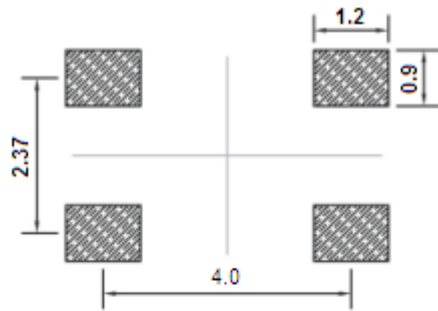
MODEL: T53-Y313-40.00MHz							
Item	Description	Parameters			Unit	Test Condition	
		Min.	Typ.	Max.			
Output	Frequency	40.00			MHz		
	Output Waveform	HCMOS					
	Output Low Voltage			0.4	V	$V_{cc}=3.3V, O_{load}=15\text{ pF}$	
	Output High Voltage	2.97			V	$V_{cc}=3.3V, O_{load}=15\text{ pF}$	
	Duty Cycle	45	50	55	%	@50%	
	Start up Time			3	ms	Stabilization time to +/-0.5ppm of final frequency.	
	Rise / Fall Time (10%~90%)			8	ns	@25°C	
	Load	15			pF		
Frequency Stabilities	Overall Stability	-4.6		+4.6	$\times 10^{-6}$	Including frequency stability vs.temperature tolerance ex factory, aging over 20 years, supply&load variation.	
	Frequency Tolerance vs. Operating Temperature Range	-0.28		+0.28	$\times 10^{-6}$	T_A varied from -40°C to 85°C, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=3.3V, V_c=1.5V, O_{load}=15\text{ pF}$, temperature variable speed less than 2°C per minute.	
	Nominal Frequency Tolerance		-1		+1	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=3.3V, V_c=1.5V$ within 30 days after ex-works.
			-0.5		+0.5	$\times 10^{-6}$	Measurement referenced to frequency before reflow, tested with $T_A=+25^\circ\text{C}, V_{cc}=3.3V, V_c=1.5V, O_{load}=15\text{ pF}$. At least 4 hours of static placement at room temperature is necessary after completion of 2 times reflow.
	Frequency Tolerance vs. Supply Voltage	-0.1		+0.1	$\times 10^{-6}$	measurement referenced to frequency observed $T_A=25^\circ\text{C}, V_{cc}$ varied from 3.13V to 3.47V, $V_c=1.5V$ and $O_{Load}=15\text{ pF}$.	
	Frequency Tolerance vs. Load	-0.1		+0.1	$\times 10^{-6}$	5% load change measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=3.3V, V_c=1.5V, O_{Load}=15\text{ pF}$	
	Holdover	-0.37		+0.37	$\times 10^{-6}$	Including frequency stability over temp. and short term aging in 24h.	
	Short Term			0.1	$\times 10^{-9}$	Allan Deviation (ADEV), $\tau=1$ second, at constant temperature.	



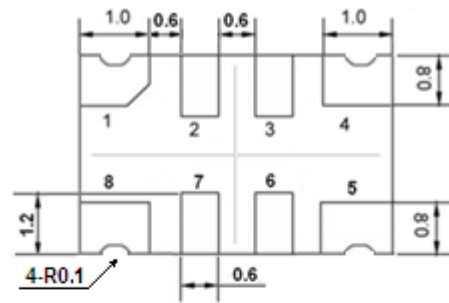
	Aging Tolerance Per Day	-0.02		+0.02	$\times 10^{-6}$	$T_A=25^\circ\text{C}$, $V_{cc}=3.3\text{V}$, $V_c=1.5\text{V}$ and after 1h of operation.
	Aging Tolerance First Year	-1		+1	$\times 10^{-6}$	
	Aging Tolerance 20 Years	-3		+3	$\times 10^{-6}$	
Power Supply	Current Consumption			10	mA	@ 25°C , $V_{cc}=3.3\text{V}$, $V_c=1.5\text{V}$, $O_{load}=15\text{pF}$.
	Supply Voltage	3.13	3.3	3.47	V	
Voltage Control Characteristics	Frequency Tuning Range	-15		-10	$\times 10^{-6}$	$V_c=0.5\text{V}$. measurement referenced to $V_c=1.5\text{V}$.
		-1		+1	$\times 10^{-6}$	$V_c=1.5\text{V}$. measurement referenced to Exactly 40.00MHz.
		+10		+15	$\times 10^{-6}$	$V_c=2.5\text{V}$. measurement referenced to $V_c=1.5\text{V}$.
	Linearity			10	%	
	Slope	Positive				
	Input Impedance	100				K Ω
Phase Noise	Phase Noise @ 25°C		-70	-65	dBc/Hz	10Hz
			-105	-100		100Hz
			-130	-125		1KHz
			-140	-135		10KHz
			-145	-140		100KHz
			-145	-140		1MHz
Environmental Conditions	Operable Temperature	-40		+85	$^\circ\text{C}$	
	Storage Temperature	-55		+105	$^\circ\text{C}$	
	ESD Level	Human Body Model, class2: 2000V to 4000V; ANSI/ESDA/JEDEC JS-001-2010.				
		Machine Model, class B: 200V to 400V; JEDEC JESD22-A115C.				
	Moisture Sensitivity Level	Level 2.				
	Vibration	Test Condition: 0.75mm ;acceleration:10g;10Hz~2000Hz, one cycle per 30 min, test 2 hour. (3 times for each 3 directions X , Y , Z) .IEC 68-2-06 Test Fc.				
Shock	100g; 6ms; half sine wave (3 times for each 3 directions X , Y , Z) ,IEC 68-2-27 Test Ea/Severity 50A.					



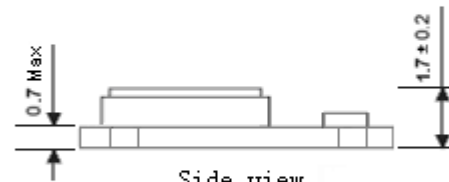
2. Mechanical Structure(mm)



Solder pad layout



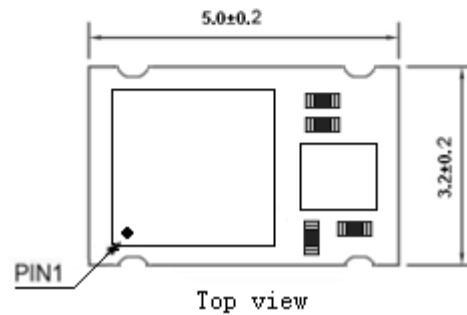
Bottom view



Side view

PIN FUNCTION

PIN	NOTATION	FUNCTION
1	VC	Control Voltage
2,3	NC	Not Connect
4	GND	GND
5	OUTPUT	RF Output
6,7	NC	Not Connect
8	VCC	Supply Voltage



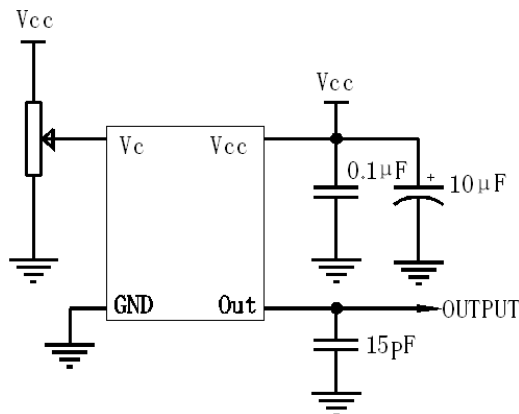
Top view

Note1: Tolerance $\pm 0.1\text{mm}$ without mark

Note2: Referential Weight 0.05g

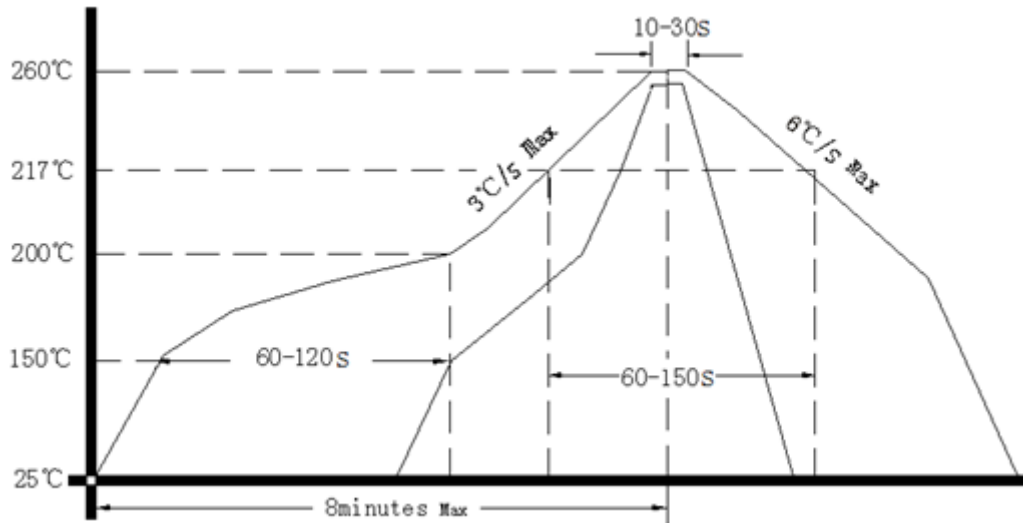
Note3: NC is not connect

3. Test circuit





4. Reflow Soldering Curve (RoHS)



5. Package: Tape & Reel (mm)

