

Travelling Merchant: \_\_\_\_\_

# DATASHEET

Standard:     **T53-Y513-16.384MHz**    

P/N: \_\_\_\_\_

Plot			The Label
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2024.12.26			

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## 1. Electrical Parameters

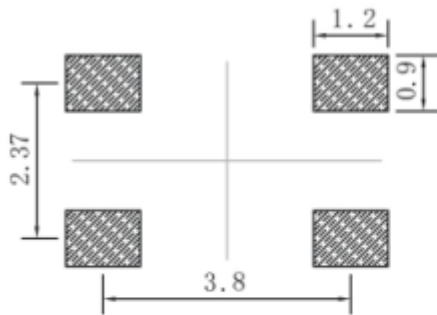
MODEL: T53-Y513-16.384MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	16.384			MHz	
	Output Waveform	Clipped Sine Wave				
	Vp-p	0.8			V	
	Load	10KΩ//10pF				
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.28		+0.28	$\times 10^{-6}$	$T_A$ varied from $-40^{\circ}\text{C}$ to $85^{\circ}\text{C}$ , measurement referenced to frequency observed with $f_{\text{ref}}=(f_{\text{max}}+f_{\text{min}})/2$ , $V_{\text{cc}}=3.3\text{V}$ , $V_c=1.65\text{V}$ , $O_{\text{load}}=10\text{K}\Omega//10\text{pF}$ , temperature variable speed less than $2^{\circ}\text{C}$ per minute.
	Nominal Frequency Tolerance	-1		+1	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^{\circ}\text{C}$ , $V_{\text{cc}}=3.3\text{V}$ , $V_c=1.65\text{V}$ at time of shipment.
	Frequency Tolerance vs. Supply Voltage	-0.2		+0.2	$\times 10^{-6}$	measurement referenced to frequency observed $T_A=25^{\circ}\text{C}$ , $V_{\text{cc}}$ varied from 3.135V to 3.465V, $V_c=1.65\text{V}$ and $O_{\text{Load}}=10\text{K}\Omega//10\text{pF}$ .
	Frequency Tolerance vs. Load	-0.2		+0.2	$\times 10^{-6}$	5% load change measurement referenced to frequency observed with $T_A=25^{\circ}\text{C}$ , $V_{\text{cc}}=3.3\text{V}$ , $V_c=1.65\text{V}$ and $O_{\text{Load}}=10\text{K}\Omega//10\text{pF}$ .
	Aging Tolerance Per Day	-0.02		+0.02	$\times 10^{-6}$	$T_A=25^{\circ}\text{C}$ , $V_{\text{cc}}=3.3\text{V}$ , $V_c=1.65\text{V}$ and after 1h of operation.
	Aging Tolerance 1 Year	-1		+1	$\times 10^{-6}$	
Power Supply	Supply Current			2	mA	@ $25^{\circ}\text{C}$ , $V_{\text{cc}}=3.3\text{V}$ , $V_c=1.65\text{V}$ , $O_{\text{Load}}=10\text{K}\Omega//10\text{pF}$ .
	Supply Voltage	3.135	3.3	3.465	V	



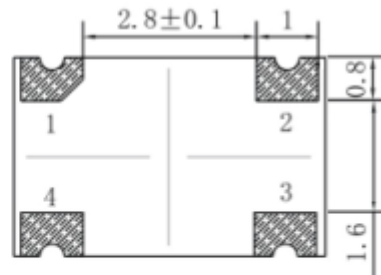
Voltage Control	Frequency tuning range	-10	-5	$\times 10^{-6}$	$V_c=0.65V$ . measurement referenced to $V_c=1.65V$ .
		-0.5	+0.5	$\times 10^{-6}$	$V_c=1.65V$ . measurement referenced to Exactly 16.384MHz.
		+5	+10	$\times 10^{-6}$	$V_c=2.65V$ . measurement referenced to $V_c=1.65V$ .
	Linearity		10	%	
	Input Impedance	100			K $\Omega$
Phase Noise	Phase Noise @25°C		-90		10Hz
			-115		100Hz
			-135		1KHz
			-152		10KHz
			-155		100KHz
			-155		1MHz
Environmental Conditions	Operable Temperature	-40	+85	°C	
	Storage Temperature	-55	+105	°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.				
Full Package Storage	Relative humidity (%)	20% ~70%			
	Temperature (°C)	-10~35°C			



## 2. Mechanical Structure(mm)



Solder pad layout



Bottom view



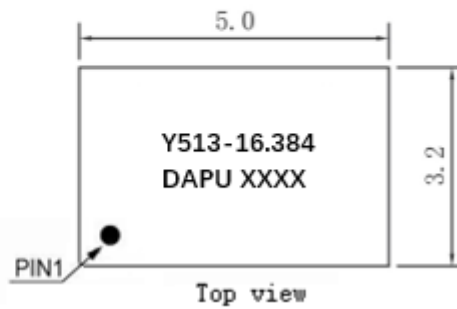
Right view



Side view

### PIN FUNCTION

PIN	NOTATION	FUNCTION
1	VC	Control Voltage
2	GND	GND
3	OUTPUT	RF Output
4	VCC	Supply Voltage



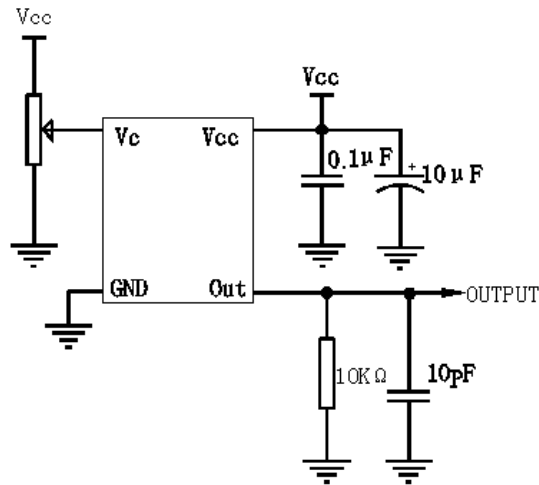
Top view

**Note1:** Tolerance  $\pm 0.3\text{mm}$  without mark

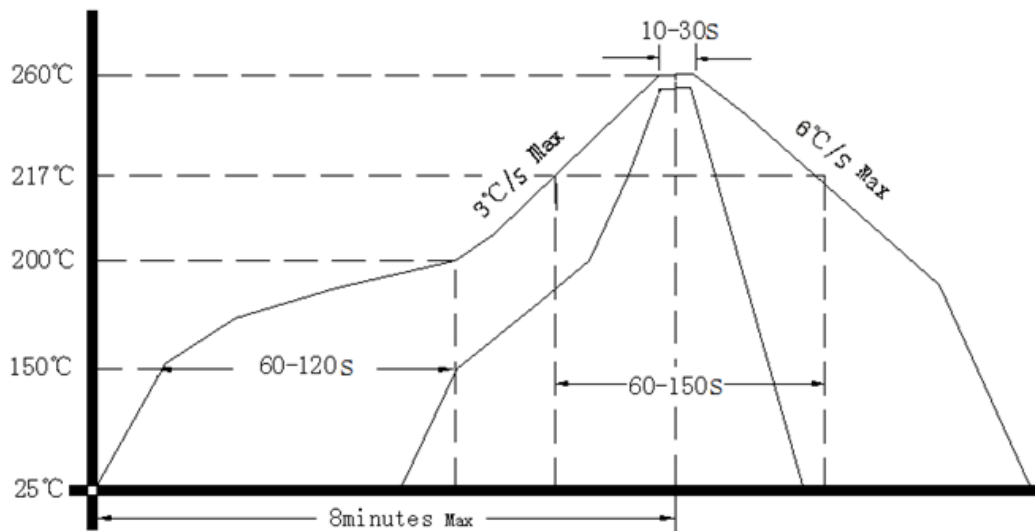
**Note2:** The first two xx representative: year  
After two xx representative: week



### 3. Test Circuit



### 4. Reflow Soldering Curve (RoHS)



### 5. Package: Tape & Reel (mm)

