

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

# DATASHEET

Standard:           **T53-M513-19.20MHz**          P/N: \_\_\_\_\_  
\_\_\_\_\_

Plot			The Label
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2020.03.13			

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### Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2020.03.13

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## 1. Electrical Parameters

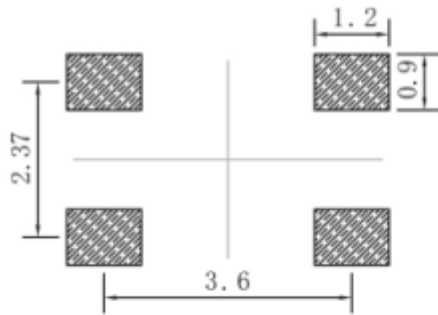
MODEL: T53-M513-19.20MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	19.20			MHz	
	Output Waveform	Clipped Sine Wave				
	Vp-p	0.8			V	
	Start-up time			1	ms	Time taken for output to reach 90% of specified output level.
	Load	10KΩ//10pF				
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.25		+0.25	$\times 10^{-6}$	$T_A$ varied from $-10^{\circ}\text{C}$ to $85^{\circ}\text{C}$ , measurement referenced to frequency observed with $f_{\text{ref}}=(f_{\text{max}}+f_{\text{min}})/2$ , $V_{\text{cc}}=2.85\text{V}$ , $V_{\text{c}}=1.5\text{V}$ , $O_{\text{load}}=10\text{K}\Omega//10\text{pF}$ , temperature variable speed less than $1^{\circ}\text{C}$ per minute.
	Frequency slope	-0.05		+0.05	$\times 10^{-6}/^{\circ}\text{C}$	Minimum of one frequency reading every $2^{\circ}\text{C}$ over the operating temperature range.
	Nominal Frequency Tolerance	-1		+1	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , $V_{\text{cc}}=2.85\text{V}$ , $V_{\text{c}}=1.5\text{V}$ within 30 days after ex-works.
	Reflow Shift	-1		+1	$\times 10^{-6}$	Two consecutive reflows as per attached profile after 2 hours relaxation at $25^{\circ}\text{C}$ .
	Frequency Tolerance vs. Supply Voltage	-0.05		+0.05	$\times 10^{-6}$	measurement referenced to frequency observed $T_A=25^{\circ}\text{C}$ , $V_{\text{cc}}$ varied from 2.71V to 2.99V, $V_{\text{c}}=1.5\text{V}$ and $O_{\text{Load}}=10\text{K}\Omega//10\text{pF}$ .
	Frequency Tolerance vs. Load	-0.05		+0.05	$\times 10^{-6}$	10% load change measurement referenced to frequency observed with $T_A=25^{\circ}\text{C}$ , $V_{\text{cc}}=2.85\text{V}$ , $V_{\text{c}}=1.5\text{V}$ and $O_{\text{Load}}=10\text{K}\Omega//10\text{pF}$ .
	Aging Tolerance 24 hours	-0.02		+0.02	$\times 10^{-6}$	$T_A=25^{\circ}\text{C}$ , $V_{\text{cc}}=2.85\text{V}$ , $V_{\text{c}}=1.5\text{V}$ and after 1h of operation.
	Aging Tolerance 1 month	-0.2		+0.2	$\times 10^{-6}$	
	Aging Tolerance 1 Year	-1		+1	$\times 10^{-6}$	
	Aging Tolerance 3 Years	-2		+2	$\times 10^{-6}$	



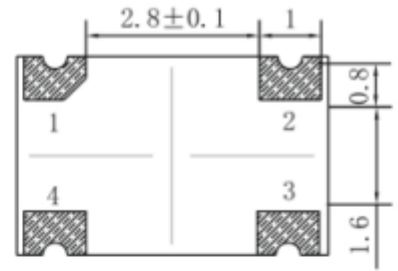
Power Supply	Supply Current			3.5	mA	@25°C, V <sub>cc</sub> =2.85V, V <sub>c</sub> =1.5V, O <sub>Load</sub> =10KΩ//10pF.
	Supply Voltage	2.71	2.85	2.99	V	
Voltage Control	Frequency tuning range	-10		-4.5	× 10 <sup>-6</sup>	V <sub>c</sub> =0.5V. measurement referenced to V <sub>c</sub> =1.5V.
		-1		+1	× 10 <sup>-6</sup>	V <sub>c</sub> =1.5V. measurement referenced to Exactly 19.20MHz.
		+4.5		+10	× 10 <sup>-6</sup>	V <sub>c</sub> =2.5V. measurement referenced to V <sub>c</sub> =1.5V.
	Linearity			10	%	
	Slope	Positive				
	Gain transfer(Kv)		6			ppm/V
Phase Noise	Phase Noise		-68			1Hz
			-95			10Hz
			-118			100Hz
			-141			1KHz
			-155			10KHz
			-156			100KHz
Environmental Conditions	Operable Temperature	-10		+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 3.				
	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				



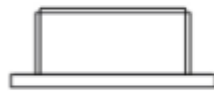
## 2. Mechanical Structure(mm)



Solder pad layout



Bottom view



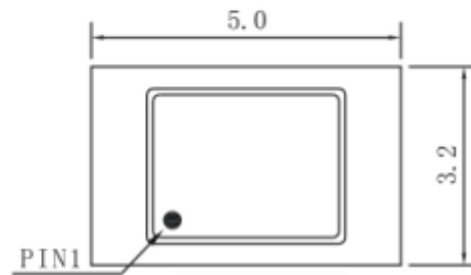
Right view



Side view

### PIN FUNCTION

PIN	FUNCTION
1	Vc
2	GND
3	OUTPUT
4	VCC

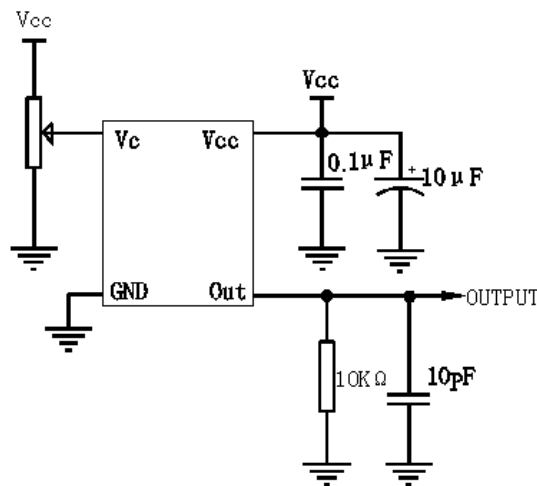


Top view

Note1: Tolerance  $\pm 0.2\text{mm}$  without mark

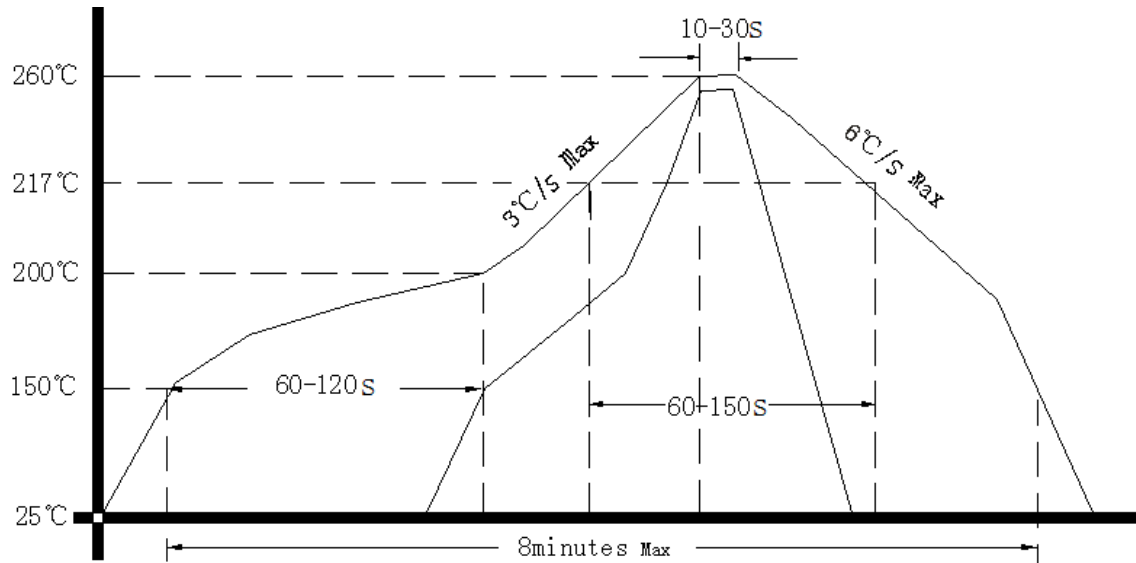
Note2: Referential weight 0.05g

## 3. Test Circuit





#### 4. Reflow Soldering Curve (RoHS)



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

