

Travelling Merchant: _____

DATASHEET

Standard: **T53-F513-16.384MHz**

P/N: _____

| Plot | | | The Label |
|------------------|---------|----------|------------------------|
| Drew | Audited | Approved | Stamp, please! Thanks! |
| | | | |
| Date: 2020.03.23 | | | |

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1. Electrical Parameters

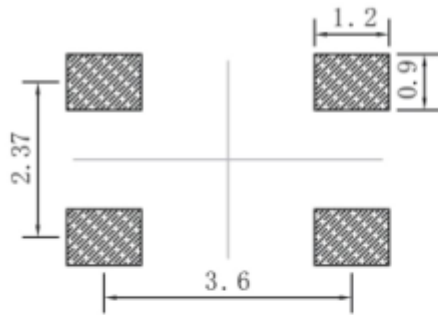
| MODEL: T53-F513-16.384MHz | | | | | | |
|---------------------------|---|-------------------|------|-------|------------------|--|
| Item | Description | Parameters | | | Unit | Test Condition |
| | | Min. | Typ. | Max. | | |
| Output | Frequency | 16.384 | | | MHz | |
| | Output Waveform | Clipped Sine Wave | | | | |
| | Vp-p | 0.8 | | | V | |
| | Load | 10KΩ//10pF | | | | |
| Frequency Stabilities | Frequency Tolerance vs. Operating Temperature Range | -0.5 | | +0.5 | $\times 10^{-6}$ | T_A varied from -30°C to 85°C , measurement referenced to frequency observed with $f_{\text{ref}}=(f_{\text{max}}+f_{\text{min}})/2$, $V_{\text{cc}}=3.3\text{V}$, $V_{\text{c}}=1.5\text{V}$, $O_{\text{load}}=10\text{K}\Omega//10\text{pF}$, temperature variable speed less than 2°C per minute. |
| | Nominal Frequency Tolerance | -1 | | +1 | $\times 10^{-6}$ | Measurement referenced to frequency observed with $T_A=25^{\circ}\text{C}$, $V_{\text{cc}}=3.3\text{V}$, $V_{\text{c}}=1.5\text{V}$ within 30 days after ex-works. |
| | Frequency Tolerance vs. Supply Voltage | -0.2 | | +0.2 | $\times 10^{-6}$ | measurement referenced to frequency observed $T_A=25^{\circ}\text{C}$, V_{cc} varied from 3.13V to 3.47V, $V_{\text{c}}=1.5\text{V}$ and $O_{\text{Load}}=10\text{K}\Omega//10\text{pF}$. |
| | Frequency Tolerance vs. Load | -0.2 | | +0.2 | $\times 10^{-6}$ | 2% load change measurement referenced to frequency observed with $T_A=25^{\circ}\text{C}$, $V_{\text{cc}}=3.3\text{V}$, $V_{\text{c}}=1.5\text{V}$ and $O_{\text{Load}}=10\text{K}\Omega//10\text{pF}$. |
| | Aging Tolerance Per Day | -0.02 | | +0.02 | $\times 10^{-6}$ | $T_A=25^{\circ}\text{C}$, $V_{\text{cc}}=3.3\text{V}$, $V_{\text{c}}=1.5\text{V}$ and after 1h of operation. |
| | Aging Tolerance 1 Year | -1 | | +1 | $\times 10^{-6}$ | |
| Power Supply | Supply Current | | | 10 | mA | @ 25°C , $V_{\text{cc}}=3.3\text{V}$, $V_{\text{c}}=1.5\text{V}$, $O_{\text{Load}}=10\text{K}\Omega//10\text{pF}$. |
| | Supply Voltage | 3.13 | 3.3 | 3.47 | V | |



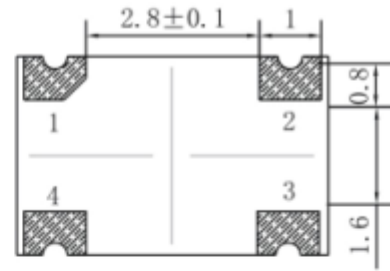
| | | | | | | |
|--------------------------|--|--|------|------|------------------|---|
| Voltage Control | Frequency tuning range | | | -10 | $\times 10^{-6}$ | $V_c=0.5\text{ V. measurement referenced to } V_c=1.5\text{V.}$ |
| | | -1 | | +1 | $\times 10^{-6}$ | $V_c=1.5\text{V. measurement referenced to Exactly } 16.384\text{MHz.}$ |
| | | +10 | | | $\times 10^{-6}$ | $V_c=2.5\text{V. measurement referenced to } V_c=1.5\text{V.}$ |
| | Linearity | | | 10 | % | |
| | Slope | Positive | | | | |
| | Input Impedance | 100 | | | | K Ω |
| Phase Noise | Phase Noise @25°C | | -85 | -80 | dBc/Hz | 10Hz |
| | | | -115 | -110 | | 100Hz |
| | | | -130 | -125 | | 1KHz |
| | | | -148 | -143 | | 10KHz |
| | | | -150 | -145 | | 100KHz |
| | | | -150 | -145 | | 1MHz |
| Environmental Conditions | Operable Temperature | -30 | | +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)



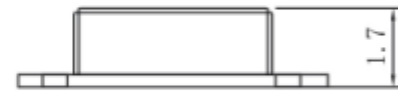
Solder pad layout



Bottom view



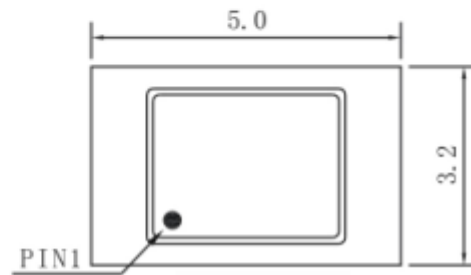
Right view



Side view

PIN FUNCTION

| PIN | FUNCTION |
|-----|----------|
| 1 | VC |
| 2 | GND |
| 3 | OUTPUT |
| 4 | VCC |



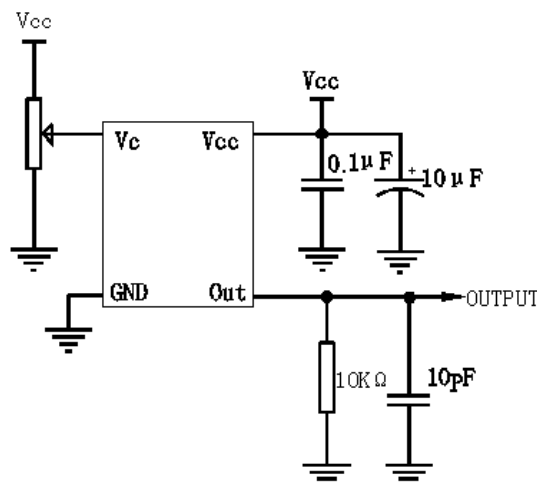
Top view

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

Note2: Referential weight 0.05g

Note3: NC is not connect

3. Test Circuit





4. Reflow Soldering Curve (RoHS)



5. Package: Tape & Reel (mm)

