

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

# DATASHEET

Standard:           **T53-Y311-19.20MHz**          

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

| Plot             |         |          | The Label              |
|------------------|---------|----------|------------------------|
| Drew             | Audited | Approved | Stamp, please! Thanks! |
|                  |         |          |                        |
| Date: 2019.10.12 |         |          |                        |

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### Table of amendment

| Version | Revision contents | Prepared by  | Revised date |
|---------|-------------------|--------------|--------------|
| 1.0     | The first issued  | <i>Amway</i> | 2019.10.12   |
|         |                   |              |              |
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## 1. Electrical Parameters

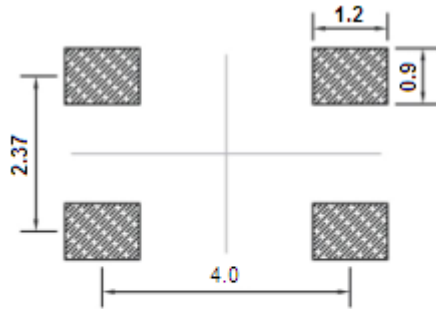
| MODEL: T53-Y311-19.20MHz |  |            |      |       |                  |   |
|--------------------------|--|------------|------|-------|------------------|---|
| Item                     | Description  | Parameters |      |       | Unit             | Test Condition  |
|                          |  | Min.       | Typ. | Max.  |                  |   |
| Output                   | Frequency  | 19.20      |      |       | MHz              |   |
|                          | Output Waveform  | HCMOS      |      |       |                  |   |
|                          | Output Low Voltage   |            |      | 0.33  | 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%  |
|                          | Rise / Fall Time<br>(10%~90%)                                |            |      | 8     | ns               | @25°C   |
|                          | Start-up Time  |            |      | 5     | ms               |   |
|                          | Load   | 15         |      |       | pF               |   |
| Frequency<br>Stabilities | Frequency<br>Tolerance vs.<br>Operating<br>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<br>Tolerance                               | -0.5       |      | +0.5  | $\times 10^{-6}$ | 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.  |
|                          | Frequency Tolerance<br>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<br>vs. Load                              | -0.1       |      | +0.1  | $\times 10^{-6}$ | 10% load change measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=3.3V, V_c=1.5V, O_{Load}=15\text{ pF}$  |
|                          | Aging Tolerance<br>Per Day                                   | -0.02      |      | +0.02 | $\times 10^{-6}$ | $T_A=25^\circ\text{C}, V_{cc}=3.3V, V_c=1.5V$ and after 1h of operation.  |
|                          | Aging Tolerance<br>1 Year                                    | -1         |      | +1    | $\times 10^{-6}$ |   |
| Power<br>Supply          | Current<br>Consumption                                       |            |      | 5     | mA               | @25°C, $V_{cc}=3.3V, V_c=1.5V, O_{load}=15\text{ pF}$ .   |
|                          | Supply Voltage   | 3.13       | 3.3  | 3.47  | V                |   |



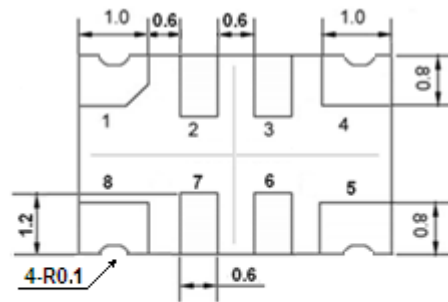
|                                 |  |   |      |      |                  |  |
|---------------------------------|--|---|------|------|------------------|--|
| Voltage Control Characteristics | Frequency Tuning Range   | -15   |      | -5   | $\times 10^{-6}$ | $V_c=0.5V$ . measurement referenced to $V_c=1.5V$ .      |
|                                 |  | -1  |      | +1   | $\times 10^{-6}$ | $V_c=1.5V$ . measurement referenced to Exactly 19.20MHz. |
|                                 |  | +5  |      | +15  | $\times 10^{-6}$ | $V_c=2.5V$ . measurement referenced to $V_c=1.5V$ .      |
|                                 | Linearity  |   |      | 10   | %                |  |
|                                 | Slope  | Positive  |      |      |                  |  |
|                                 | Input Impedance  | 100   |      |      |                  | K $\Omega$   |
| Phase Noise                     | Phase Noise @25°C  |   | -92  | -85  | dBc/Hz           | 10Hz   |
|                                 |  |   | -117 | -110 |                  | 100Hz  |
|                                 |  |   | -136 | -130 |                  | 1KHz   |
|                                 |  |   | -150 | -147 |                  | 10KHz  |
|                                 |  |   | -153 | -150 |                  | 100KHz   |
| 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; ANSI/ESDA/JEDEC JS-001-2010.  |      |      |                  |  |
|                                 | 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. |   |      |      |                  |  |



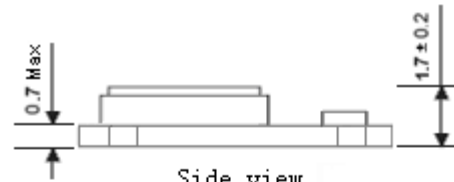
## 2. Mechanical Structure(mm)



Solder pad layout



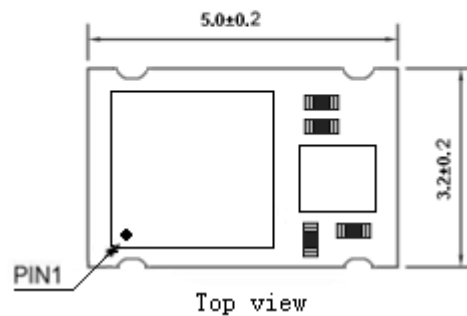
Bottom view



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  |



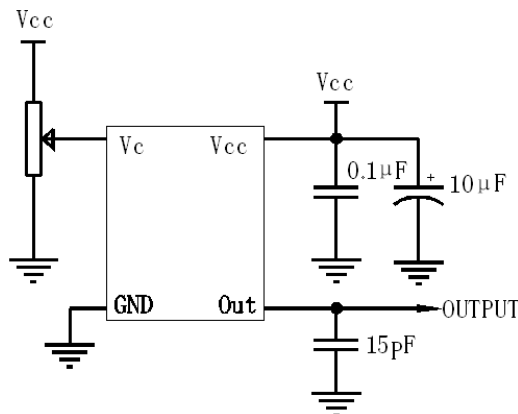
Top view

**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)

