

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

# DATASHEET

Standard:     **T21-Q519-19.20MHz**    

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

| Plot             |         |          | The Label              |
|------------------|---------|----------|------------------------|
| Drew             | Audited | Approved | Stamp, please! Thanks! |
|                  |         |          |                        |
| Date: 2022.01.19 |         |          |                        |

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**Table of amendment**

| Version | Revision contents  | Prepared by  | Revised date |
|---------|--|--------------|--------------|
| 1.0     | The first issued   | <i>Amway</i> | 2021.11.11   |
| 1.1     | The "Supply Voltage" changed                               | <i>Amway</i> | 2021.11.18   |
| 1.2     | The "vs. Temperature Range" "Mechanical Structure" changed | <i>Amway</i> | 2022.01.19   |
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## 1. Electrical Parameters

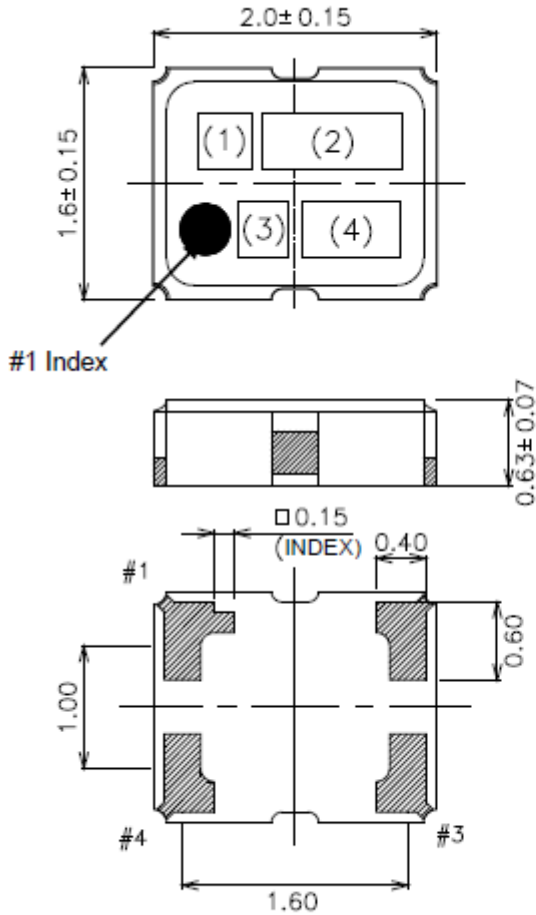
| MODEL: T21-Q519-19.20MHz |  |                   |      |                  |   |  |
|--------------------------|--|-------------------|------|------------------|---|--|
| Item                     | Description                            | Parameters        |      |                  | Unit  | Test Condition   |
|                          |  | Min.              | Typ. | Max.             |   |  |
| Output                   | Frequency                              | 19.20             |      |                  | MHz   |  |
|                          | Output Waveform                        | Clipped Sine Wave |      |                  |   |  |
|                          | Vp-p                                   | 0.8               |      |                  | V   |  |
|                          | Start up time                          |                   |      | 2                | ms  | More than 90% of final output voltage  |
|                          | Load                                   | 10KΩ//10pF        |      |                  |   |  |
| Frequency Stabilities    | Frequency Tolerance                    | -1.5              |      | +1.5             | $\times 10^{-6}$  | @25°C, 2H, after 2times reflow soldering, based on nominal frequency.  |
|                          | vs. Temperature Range                  | -0.5              |      | +0.5             | $\times 10^{-6}$  | T <sub>A</sub> varied from -30°C to 85°C, measurement referenced to frequency observed with f <sub>ref</sub> =(f <sub>max</sub> +f <sub>min</sub> )/2, V <sub>cc</sub> =3.3V, O <sub>load</sub> =10KΩ//10pF, temperature variable speed less than 2°C per minute.  |
|                          |  | -1                |      | +1               | $\times 10^{-6}$  | T <sub>A</sub> varied from -40°C to -30°C, measurement referenced to frequency observed with f <sub>ref</sub> =(f <sub>max</sub> +f <sub>min</sub> )/2, V <sub>cc</sub> =3.3V, O <sub>load</sub> =10KΩ//10pF, temperature variable speed less than 2°C per minute. |
|                          | Frequency Tolerance vs. Supply Voltage | -0.2              |      | +0.2             | $\times 10^{-6}$  | 5% Voltage change measurement referenced to frequency observed T <sub>A</sub> =25°C, and O <sub>Load</sub> =10KΩ//10pF.  |
|                          | Frequency Tolerance vs. Load           | -0.2              |      | +0.2             | $\times 10^{-6}$  | 10% load change measurement referenced to frequency observed with T <sub>A</sub> =25°C, V <sub>cc</sub> =3.3V, and O <sub>Load</sub> =10KΩ//10pF.  |
| Aging Tolerance 1 Year   | -1                                     |                   | +1   | $\times 10^{-6}$ | T <sub>A</sub> =25°C, V <sub>cc</sub> =3.3V, and after 1h of operation. |  |
| Power Supply             | Operating Current                      |                   |      | 1.5              | mA  | @25°C, V <sub>cc</sub> =3.3V.  |
|                          | Supply Voltage                         | 1.71              |      | 3.465            | V   | Support 1.8V, 2.8V, 3.3V   |



|                             |   |  |  |      |        |         |
|-----------------------------|---|--|--|------|--------|---------|
| Phase Noise                 | Phase Noise<br>@25°C  |  |  | -61  | dBc/Hz | 1Hz     |
|                             |   |  |  | -90  |        | 10Hz    |
|                             |   |  |  | -117 |        | 100Hz   |
|                             |   |  |  | -138 |        | 1KHz    |
|                             |   |  |  | -145 |        | 10KHz   |
|                             |   |  |  | -154 |        | 100 KHz |
|                             |   |  |  | -155 |        | 1 MHz   |
| Environmental<br>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<br>Level   | Level 2.   |  |      |        |         |
|                             | Vibration   | Test Condition: 0.75mm ;acceleration:10g;10Hz~2000Hz, one cycle per 30 min,<br>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<br>Test Ea/Severity 50A. |  |  |      |        |         |
| Full Package<br>Storage     | Relative humidity (%)   | 20% ~70%   |  |      |        |         |
|                             | Temperature (°C)  | -10~35°C   |  |      |        |         |



## 2. Mechanical Structure(mm)



### Pin Connections

| Pin No. | Connection      |
|---------|-----------------|
| #1      | GND             |
| #2      | GND             |
| #3      | Output          |
| #4      | V <sub>CC</sub> |

### Marking

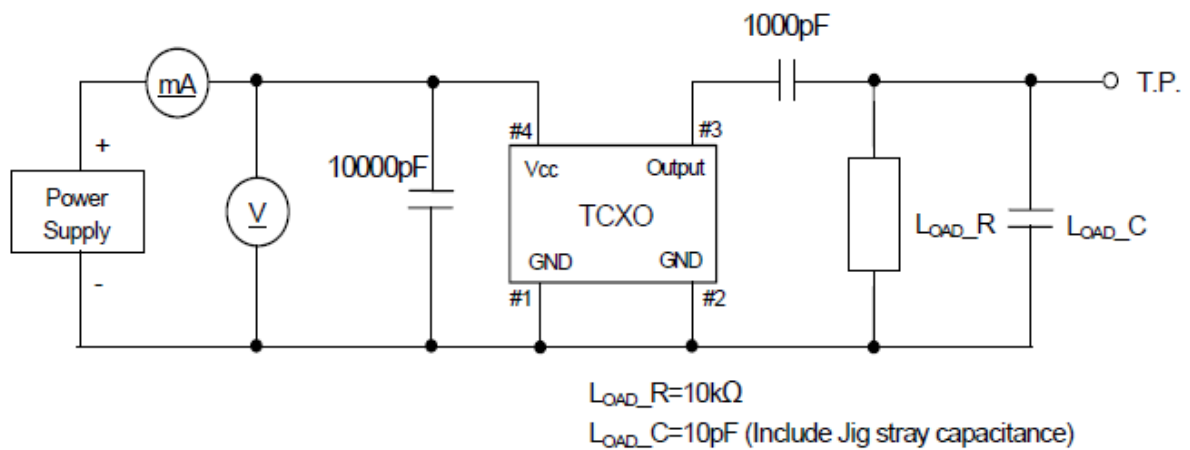
|                |   |
|----------------|---|
| (1) Model code | BD  |
| (2) Frequency  | 19.2 (MHz, 3digits)                                 |
| (3) Logo       | D   |
| (4) Date code  | Year (1digit) +Week (2digits)<br>e.g.2014/1/1 → 401 |

unit: mm

Dimensional Tolerance: ±0.15

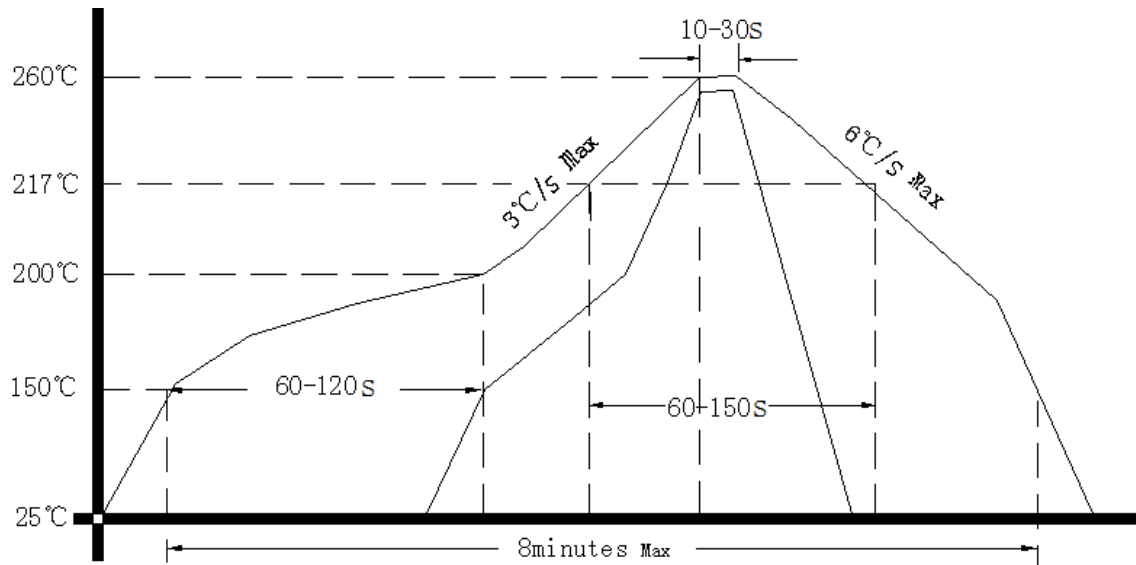
(Unless otherwise noted)

## 3. Test Circuit





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



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

