

Specification Sheet For Approval

Series No: JL20260729T01  
Date : 2026/07/29

- ☒ Quartz Crystal
- ☐ Quartz Crystal Oscillator
- ☐ OCXO
- ☐ VCXO
- ☐ M.C.F
- ☐ TCXO / VCTCXO
- ☐ Others -----

Customer

Customer P/N

Product Type

Nominal Frequency

Mercury P/N

Micromodern

-

Crystal --- 49/US ( Dip --- 11.5 \* 5.0 \* 3.6 mm )

13.52127 MHz

HUSG-13.52127-18-20/30I

Customer

Vender

Date :

Date : 2026/07/29

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☒ MSL level1

☐ FQC Test Report

☐ Temperature Stability Test Report

☒ Test Data Of Reliability

☒ Lead Free Approved

Mercury Electronic Industrial Co., Ltd.

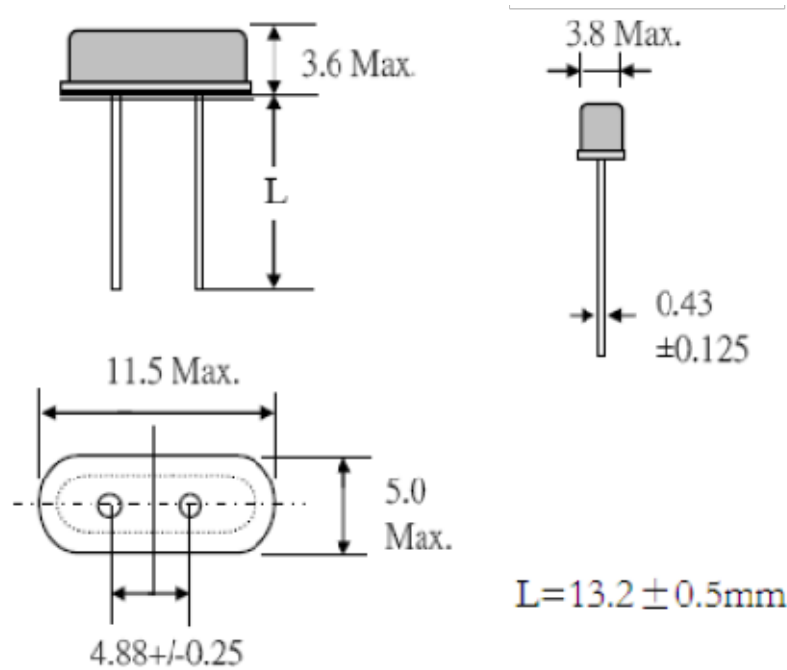
Authorized Signature

Electrical Specification

Series No. : JL20260724k01  
Date : 2026/07/29

|    | Parameters                   | SYM.    | Electrical Spec. |         |      |      | Notes                                 |
|----|------------------------------|---------|------------------|---------|------|------|---------------------------------------|
|    |                              |         | Min.             | Typical | Max. | Unit |                                       |
| 1  | Mercury Part No.             |         | -                |         |      |      | HUSG-13.52127-18-20/30I               |
| 2  | Nominal Frequency            | FL      | 13.521270        |         |      |      | MHz                                   |
| 3  | Holder Type                  |         | -                |         |      |      | 49/US ( Dip --- 11.5 * 5.0 * 3.6 mm ) |
| 4  | Crystal Cut                  |         | -                |         |      |      | AT-Cut                                |
| 5  | Mode of Oscillation          |         | -                |         |      |      | Fundamental Mode                      |
| 6  | Frequency Tolerance          | F_use   | -20              | ~       | 20   | ppm  | at 25°C ± 3°C                         |
| 7  | Frequency Stability          | F_tem   | -30              | ~       | 30   | ppm  | Refer at 25°C                         |
| 8  | Spurious Attenuation         | SPDB    |                  |         | -4   | dB   | -100ppm ~ +7000ppm , 250step          |
| 9  | Equivalent Series Resistance | ESR     |                  | 40.0    |      | Ω    |                                       |
| 10 | Shunt Capacitance            | C0      |                  | 7.0     |      | pF   |                                       |
| 11 | Load Capacitance             | CL      |                  | 18      |      | pF   |                                       |
| 12 | Drive Level                  | DL      |                  | 100     |      | μW   |                                       |
| 13 | Insulation Resistance        | IR      | 500              |         |      | MΩ   | DC 100V ± 15V                         |
| 14 | MaxR                         | RLD2    |                  |         |      | Ω    | 0.01 μW ~ 500 μW , 20 points          |
| 15 | MaxR-MinR                    | DLD2    |                  | 10.0    |      | Ω    | 0.01 μW ~ 500 μW , 20 points          |
| 16 | MaxFR-MinFR                  | FDL2    |                  | 10      |      | ppm  | 0.01 μW ~ 500 μW , 20 points          |
| 17 | Operating Temperature        | T_opr   | -40              | ~       | 85   | °C   |                                       |
| 18 | Storage Temperature          | T_stg   | -55              | ~       | 125  | °C   |                                       |
| 19 | Aging                        | F_aging | -5               |         | 5    | ppm  | First year                            |

Package Dimension ( Unit : mm )



Marking

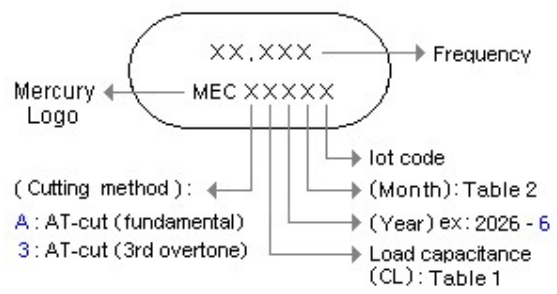


Table 1

|      |     |    |    |    |    |    |    |    |    |    |    |    |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|
| CL   | <10 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| Code | A   | B  | C  | D  | E  | F  | G  | H  | I  | J  | K  | L  |

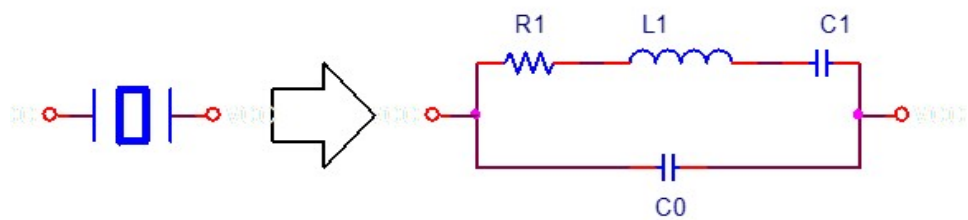
|      |    |    |    |    |    |    |    |    |    |    |    |    |
|------|----|----|----|----|----|----|----|----|----|----|----|----|
| CL   | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
| Code | M  | N  | O  | P  | Q  | R  | S  | T  | U  | V  | W  | X  |

|      |    |    |     |        |
|------|----|----|-----|--------|
| CL   | 33 | 34 | >34 | Series |
| Code | Y  | Z  | a   | b      |

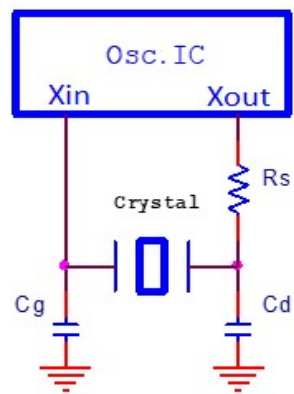
Table 2

|       |      |      |      |      |     |      |      |      |      |      |      |      |
|-------|------|------|------|------|-----|------|------|------|------|------|------|------|
| Month | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
| Code  | A    | B    | C    | D    | E   | F    | G    | H    | I    | J    | K    | L    |

Equivalent Circuit of crystal



Oscillation circuit



## Environmental Specification

### 1. Temperature Test

#### \*Temperature Cycling Test

|             |                                                                               |                                                  |
|-------------|-------------------------------------------------------------------------------|--------------------------------------------------|
| Conditions: | Steps of cycle                                                                | (1)Extreme Cold Temp: -55°C (+0/-10°C) / 15±3min |
|             |                                                                               | (2)Extreme Hot Temp: +125°C (+15/-0°C) / 15±3min |
|             | Number of                                                                     | 10 cycles min                                    |
| Results:    | Frequency and wave form of tested products must remain within specifications. |                                                  |

#### \*Thermal Shock Test

|             |                                                                               |                                 |
|-------------|-------------------------------------------------------------------------------|---------------------------------|
| Conditions: | Temperature -55(+0/-10)°C to 125(+10/-0)°C                                    | Duration of cycle 15 times(min) |
|             | ExTotal Transfer Time < 10 seconds                                            |                                 |
|             | Total Dwell time > 2minutes                                                   |                                 |
|             | Specified Temp reached in < 5 minutes                                         |                                 |
| Results:    | Frequency and wave form of tested products must remain within specifications. |                                 |

#### \*Low Temperature Test

|             |                                                                               |                                |
|-------------|-------------------------------------------------------------------------------|--------------------------------|
| Conditions: | Temperature -50°C ±5°C                                                        | Duration of test 168hours(min) |
| Results:    | Frequency and wave form of tested products must remain within specifications. |                                |

### 2. Accelerated Life Test(Aging Biased)

|             |                                                                               |                                  |
|-------------|-------------------------------------------------------------------------------|----------------------------------|
| Conditions: | Temperature +85 °C±5 °C                                                       | Duration of test 168hours±6hours |
| Results:    | DC Power supply                                                               |                                  |
|             | Frequency and wave form of tested products must remain within specifications. |                                  |

### 3. Salt Spray Test

|            |                                                |                           |
|------------|------------------------------------------------|---------------------------|
| Conditions | Temperature 35 °C                              | Duration of test 24 hours |
|            | NaCl 5%                                        |                           |
| Results:   | There Should be no rust on surface of products |                           |

### 4. Humidity Test

|             |                                                                               |                           |                                 |
|-------------|-------------------------------------------------------------------------------|---------------------------|---------------------------------|
| Conditions: | Temperature: 85°C ±5°C                                                        | Relative humidity:85%±5°C | Duration of test:168 hours(min) |
| Results:    | Frequency and wave form of tested products must remain within specifications. |                           |                                 |

| Mechanical Specification Sheet |                                                                               |                 |
|--------------------------------|-------------------------------------------------------------------------------|-----------------|
| 1.Vibration Test               |                                                                               |                 |
| Conditions:                    | Freq. range: 20~2000Hz Peak to Peak                                           |                 |
|                                | amplitude:1.52mm Peak acceleration:20G(98m/s2)                                |                 |
|                                | 3direction(X,Y,Z),each 20min, 4cycles                                         |                 |
| Results:                       | Frequency and wave form of tested products must remain within specifications. |                 |
| 2.Drop Test                    |                                                                               |                 |
| Conditions:                    | Method of drop                                                                | Free drop       |
|                                | Dropping floor                                                                | Hard wood board |
|                                | Height                                                                        | 75 cm +1/-0cm   |
|                                | Number of drops                                                               | 3 times         |
| Results:                       | Frequency and wave form of tested products must remain within specifications. |                 |