




**SPECIFICATION SHEET**

|                                |   |
|--------------------------------|---|
| <b>SPECIFICATION SHEET NO.</b> | Q0201- XY25M00000S418   |
| <b>DATE</b>                    | Feb. 01, 2023   |
| <b>REVISION</b>                | A1  |
| <b>DESCRIPTION</b>             | MHz SMD Crystal, Seam Seal, L1.6*W1.2*H0.4mm, 4 pads, CM11 series<br>36.0000000MHz, Tolerance +/-10ppm, Load Capacitor 16pF,<br>Frequency stability +/-15ppm @Operating Temp. Range -40°C ~+85°C,<br>ESR 80 ohm Max, Reflow Profile Condition 260 °C Max.<br>Tape/Reel, 3000pcs/Reel<br>RoHS/RoHS III compliant |
| <b>CUSTOMER</b>                |   |
| <b>CUSTOMER PART NUMBER</b>    |   |
| <b>CROSS REF. PART NUMBER</b>  |   |
| <b>ORIGINAL PART NUMBER</b>    | TGS CM11 36M0A10-16-15-40-80 TLF  |
| <b>PART CODE</b>               | XY36M00000S416  |

|                         |   |  |   |
|-------------------------|---|--|---|
| <b>VENDOR APPROVE</b>   |   |  |   |
| Issued/Checked/Approved |  |  |  |
| DATE: Feb. 01, 2023     |   |  |   |

|                         |  |
|-------------------------|--|
| <b>CUSTOMER APPROVE</b> |  |
|                         |  |
| DATE:                   |  |
| 2/1/2023                |  |

**MHZ SMD CRYSTAL 1612 TYPE 4 PADS**

**MAIN FEATURE**

- Extra SMD Package, Seam Sealed Ceramic-Metal, 4pads
- 1612 Type, L1.6\*W1.2\*H0.4mm, 4 Pads,
- Low cost, High precision, High frequency stability
- Reflow Profile Condition 260 °C Max.
- Cross more competitors part
- RoHS/RoHS III compliant



**APPLICATION**

- Bluetooth, wireless communication set
- Communication Electronics

**PART CODE GUIDE**

**RFQ**

[Request For Quotation](#)

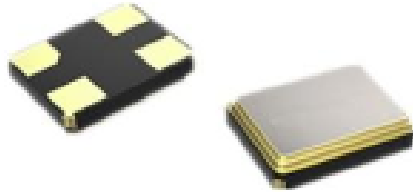
| XY | 36M00000 | S | 416 |
|----|----------|---|-----|
| 1  | 2        | 3 | 4   |

- 1) XY: Part family Code for SMD Crystal, 1612 Type, L1.6\*W1.2\*H0.4mm, 4 Pads (CM11)
- 2) 36M00000: Frequency range code for 36.000MHz
- 3) S: SMD type, Package Tape/Reel, 3000pcs/Reel
- 4) 416: Specification code for original part No.: **TGS CM11 36M0A10-16-15-40-80 TLF**

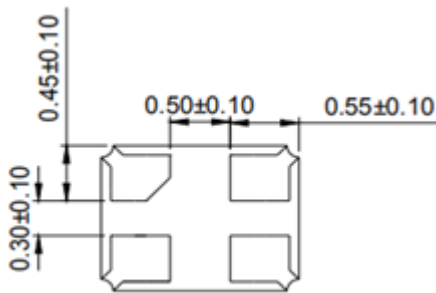
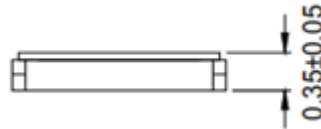
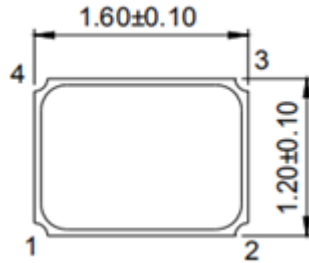
**MHZ SMD CRYSTAL 1612 TYPE 4 PADS**

**DIMENSION (Unit: mm)**

Image for reference



CM11



**Marking 1**

Line 1: Frequency Range

or

**Marking**

Internal Control Code

**Connection**

#1 In/Out

#2 Ground

#3 Out/In

#4 Ground

**Recommend Solder pattern**



**MHZ SMD CRYSTAL 1612 TYPE 4 PADS**
**ELECTRICAL PARAMETERS**

| Parameter                            | Part No. Symbol         | Units  | Value                   |         |      | Condition             |
|--------------------------------------|-------------------------|--|-------------------------|---------|------|-----------------------|
|                                      |                         |  | Min.                    | Typical | Max. |                       |
| Original Manufacturer                | TGS                     | TGS Crystals                                     |                         |         |      |                       |
| Holder Type                          | CM11                    | SMD Crystal, 1612 Type, L1.6*W1.2*H0.4mm, 4 Pads |                         |         |      |                       |
| Frequency Range                      | 36M0                    | MHz  | 36.0                    |         |      |                       |
| Mode of Oscillation                  | A                       | AT Fundamental                                   |                         |         |      |                       |
| Frequency Tolerance                  | 10                      | ppm  | -10                     |         | +10  | @25°C                 |
| Load Capacitance                     | -16                     | pF   | 16                      |         |      |                       |
| Stability over Operation Temperature | -15                     | ppm  | -15                     |         | +15  |                       |
| Operation Temperature                | -40                     | °C   | -40                     |         | +85  |                       |
| Storage Temperature                  |                         | °C   | -55                     |         | +125 |                       |
| Equivalent Series Resistance (ESR)   | -80                     | Ω  |                         |         | 80   |                       |
| Drive Level                          |                         | μW   |                         |         | 100  |                       |
| Shunt Capacitance (C0)               |                         | pF   | 0                       |         | 7.0  |                       |
| Motional Capacitance (C1)            |                         | fF   | N/A                     |         |      |                       |
| DLD2                                 |                         | Ω  | N/A                     |         |      |                       |
| FLD2                                 |                         | ppm  | N/A                     |         |      |                       |
| RDL2                                 |                         | Ω  | N/A                     |         |      |                       |
| SPDB                                 |                         | dB   | N/A                     |         |      |                       |
| Aging                                |                         | ppm/year   |                         |         | ±3   | @1 <sup>st</sup> year |
| Insulation Resistance                |                         | MΩ   | 500                     |         |      | @100VDC<br>± 15VDC    |
| Others                               | Package                 | T  | Tape/Reel, 3000pcs/Reel |         |      |                       |
|                                      | RoHS Status             | LF   | RoHS III compliant      |         |      |                       |
|                                      | Add Value               |  | -                       |         |      |                       |
|                                      | Internal Control Code * |  | Internal Control code   |         |      |                       |

Note: 1) Original Part Number: **TGS CM11 36M0A10-16-15-40-80 TLF**

2) \* Internal Control Code- 2 letter or digits; Blank: N/A

2/1/2023

**MHZ SMD CRYSTAL 1612 TYPE 4 PADS**

**RELIABILITY**

| Test Items                             | Test Method And Conditions  | Reference Documents                       |
|--|---|---|
| High Temperature High Humidity Storage | Temperature: 85°C±3°C<br>Relative Humidity:85%RH<br>Time: 96 Hours  | JIS C5023                                 |
| High Temperature Storage               | Temperature: 125°C±3°C<br>Time: 96 Hours.   | MIL-STD-883E<br>Method 1005.8             |
| Low Temperature Storage                | Temperature: -40°C±3°C<br>Time: 96 Hours.   | MIL-STD-883E<br>Method 1013               |
| Thermal Shock                          | Temperature 1: -55°C±5°C<br>Temperature 2: 85°C±5 °C<br>Temperature change between T1 and T2 5 min<br>10cycles maintain T1 and T2 for 30 minutes each cycle | MIL-STD-202F<br>Method 107<br>Condition A |
| Resistance to Solder Heat              | Solder Temperature: 260°C±5°C<br>Time: 10±1 Seconds   | MIL-STD-202F<br>Method 210E               |
| Solderability                          | The solder pot temperature is 245±5°C , dwell time 5±0.5sec   | J-STD-002B                                |
| Drop Test                              | 3 Times Free Fall from 50cm height table to 3cm thickness hard wood board   | J-STD-002B                                |
| Mechanical Shock                       | Half sine wave,1000 G<br>3 Times for all 3 directions(X,Y Z)  | MIL STD 202F<br>Method 213B               |
| Vibration                              | Frequency Range: 10Hz ~ 55Hz<br>Amplitude: 0.75mm<br>2 Hours in each direction, total 6 Hours   | MIL-STD-883E<br>Method 2007.3             |
| Leakage Test                           | Take measurements with a helium Leakage detector<br>Leakage Rate≤1×10 <sup>-3</sup> Pa cm <sup>3</sup> /s   | MIL-STD-883E                              |

**MHZ SMD CRYSTAL 1612 TYPE 4 PADS**

**SUGGESTED REFLOW PROFILE (For Reference Only)**

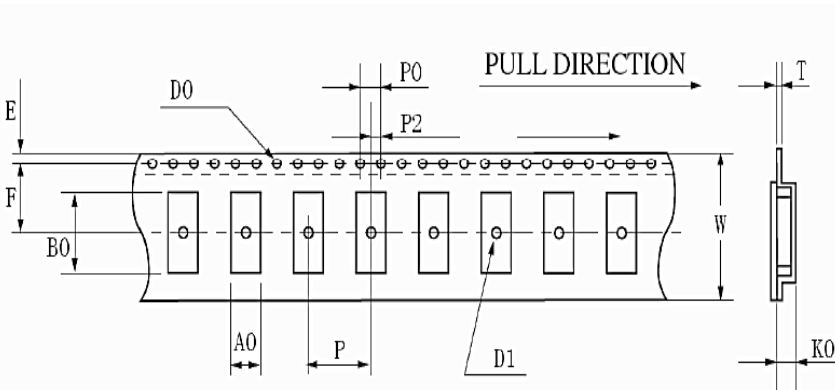


|   |                                    |                   |
|---|------------------------------------|-------------------|
| <b>Profile Feature</b>  |                                    | Pb-Free Assembly  |
| <b>Average Ramp-up Rate (Ts Max to Tp)</b>                        |                                    | 3°C/second Max    |
| <b>Preheat</b>  | <b>Temperature Min (Ts Min.)</b>   | 125°C             |
|   | <b>Temperature Max (Ts Max.)</b>   | 200°C             |
|   | <b>Time (ts Min. to ts Max.)</b>   | 60 ~ 180 seconds  |
| <b>Time maintained above</b>                                      | <b>Temperature (T<sub>L</sub>)</b> | 217°C             |
|   | <b>Time (t<sub>L</sub>)</b>        | 60 ~ 150 seconds  |
| <b>Peak/Classification Temperature (T<sub>p</sub>)</b>            |                                    | 260 °C            |
| <b>Time within 5°C of actual Peak Temperature (t<sub>p</sub>)</b> |                                    | 20 ~ 40 seconds   |
| <b>Ramp-down rate</b>   |                                    | 6 °C /Second Max. |
| <b>Time 25 °C to Peak Temperature</b>                             |                                    | 8 minutes Max.    |
| <b>Suggest reflow times</b>                                       |                                    | 3 Times Max.      |

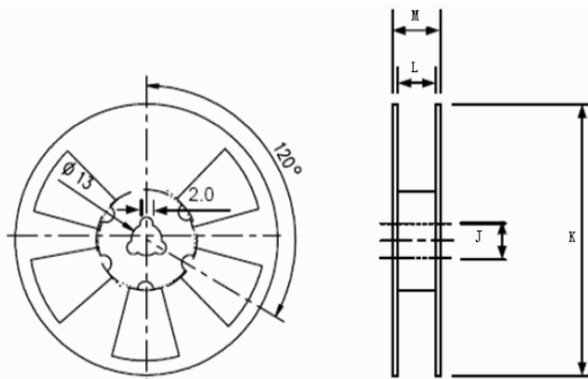
**MHZ SMD CRYSTAL 1612 TYPE 4 PADS**

**TAPE/REEL (Unit: mm)**

All Devices are packed in accordance with EIA standard RS-481-2 and specifications, 3000pcs/Reel



|    |             |
|----|-------------|
| W  | 8.00+/-0.2  |
| E  | 1.75+/-0.1  |
| F  | 3.5+/-0.05  |
| T  | 0.25+/-0.05 |
| P  | 4.0+/-0.1   |
| P0 | 4.0+/-0.1   |
| P2 | 2.0+/-0.1   |
| D0 | Ø1.55+0.05  |
| D1 | Ø1.0+0.05   |
| A0 | 1.2+/-0.1   |
| K0 | 0.70+/-0.1  |
| B0 | 1.85+/-0.1  |



| DIMENSIONS | J  | K   | L | M    | pcs/Reel (unit:mm)                         |
|------------|----|-----|---|------|--|
|            | 13 | 178 | 8 | 11.5 | Standard Reel Quality is 3,000pcs per reel |

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