



## 3225 Ceramic SMD Crystals

■ Holder Type: C7 (4 pads 3.2×2.5)

### Frequency Range:

8.00MHz to 150.00MHz

### Features:

- High Reliability & Low Cost Unit
- Tight Stability & Extended Temperature Available
- Lead-free Type
- For automotive applications, please contact our sales representative



Actual Size



## ■ Standard Specifications

| Item                                       | Value                                                   |
|--------------------------------------------|---------------------------------------------------------|
| Frequency Range                            | 8.00 to 150.00MHz                                       |
| Frequency Tolerance                        | ±30ppm (tighter tolerance also available)               |
| Frequency Tolerance over Temperature range | ±50ppm (tighter tolerance also available)               |
| Operating Temperature Range                | -10 °C to +60 °C (other operating range also available) |
| Operable Temperature Range                 | -40 °C to +85 °C                                        |
| Equivalent Series Resistance (ESR)         | Please refer to the ESR Table                           |
| Drive Level                                | 50μW Typ. (200μW Max.)                                  |
| Load Capacitance                           | 8pF (3pF, 4.5pF, 6pF and series also available)         |
| Ageing                                     | ±5ppm/year                                              |

## ■ ESR Table

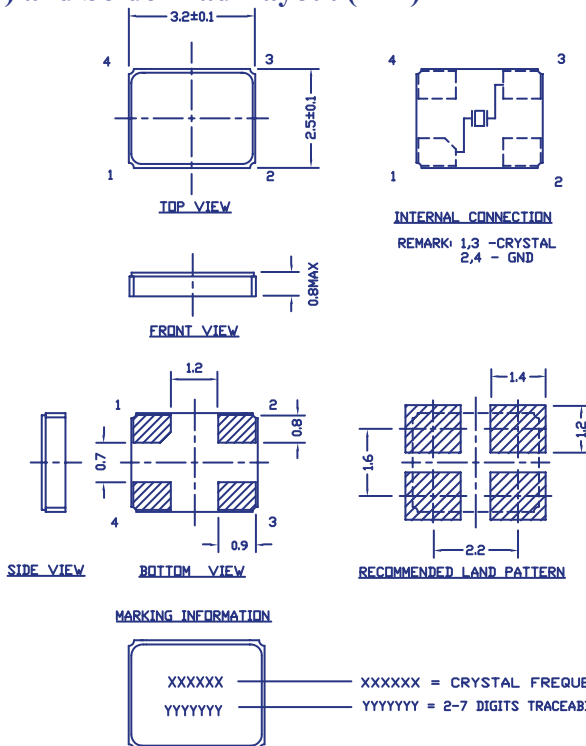
| Frequency Range (MHz) | Mode         | Standard ESR (Ohm) |
|-----------------------|--------------|--------------------|
| 8 to 11               | AT Cut Fund. | 500                |
| 11 to 12              | AT Cut Fund. | 300                |
| 12 to 13              | AT Cut Fund. | 200                |
| 13 to 16              | AT Cut Fund. | 150                |
| 16 to 20              | AT Cut Fund. | 80                 |
| 20 to 22              | AT Cut Fund. | 60                 |
| 22 to 54              | AT Cut Fund. | 50                 |
| 60 to 150             | 3rd Overtone | 300                |

### Note:

1. Manufacturer reserves the right to change the specification and content of this product for improvement without notification.
2. Custom specification is welcome. Please contact our sales representative for further details.
3. If the crystal is intended for applications which have direct impact on human life and properties, and require a high degree of reliability and safety concerns, customers must provide full information such as but not limit to the application, electrical and reliability specification at the inquiry beginning stage.
4. Customers have to agree to the "Guideline for handling crystal units" and "Standard Terms and Condition of Sales" which is printed this catalog before placing orders to our company or our distributors. There are also unpredictable factors such as applied condition, oscillation margin and etc and customers must check them beforehand. In case of queries, please do not fail to send inquiry to our company before ordering.

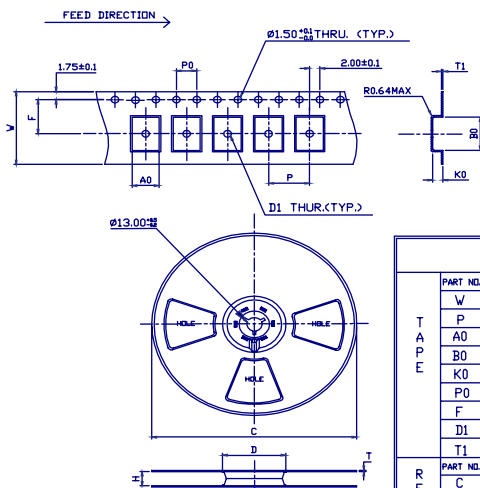
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### ■ Dimensions (mm) and Solder Pad Layout (mm)



Note: #2 & #4 are connected with the cover

### ■ Tape & Reel (mm)



|                  | 8x4.5<br>SMD                              | 7x5<br>SMD                              | 6x3.5<br>SMD                            | 5x3.2<br>SMD                            | 4x2.5<br>SMD                            | 3.2x2.5<br>SMD                         | 2.5x2.0<br>SMD                         |
|------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|----------------------------------------|----------------------------------------|
| T<br>A<br>P<br>E | PART NO. 48065002                         | 48065001                                | 48060036                                | 48065023                                | 48065018                                | 48065011                               | 48065024                               |
|                  | W 16.00 <sup>+0.13</sup> <sub>-0.13</sub> | 16.00 <sup>+0.13</sup> <sub>-0.13</sub> | 16.00 <sup>+0.13</sup> <sub>-0.13</sub> | 12.00 <sup>+0.13</sup> <sub>-0.13</sub> | 12.00 <sup>+0.13</sup> <sub>-0.13</sub> | 8.00 <sup>+0.13</sup> <sub>-0.13</sub> | 8.00 <sup>+0.13</sup> <sub>-0.13</sub> |
|                  | P 8.00±0.1                                | 8.00±0.1                                | 8.00±0.1                                | 8.00±0.1                                | 8.00±0.1                                | 4.00±0.1                               | 4.00±0.1                               |
|                  | A0 4.80±0.1                               | 5.40±0.1                                | 3.75±0.1                                | 3.50±0.1                                | 2.70±0.1                                | 2.80±0.1                               | 2.40±0.1                               |
|                  | B0 8.30±0.1                               | 7.40±0.1                                | 6.20±0.1                                | 5.40±0.1                                | 4.20±0.1                                | 3.60±0.1                               | 2.85±0.1                               |
|                  | K0 1.70±0.1                               | 1.65±0.1                                | 1.20±0.1                                | 1.50±0.1                                | 1.00±0.1                                | 1.25±0.1                               | 1.15±0.1                               |
|                  | P0 4.00±0.1                               | 4.00±0.1                                | 4.00±0.1                                | 4.00±0.1                                | 4.00±0.1                                | 4.00±0.1                               | 4.00±0.1                               |
|                  | F 7.50±0.1                                | 7.50±0.1                                | 7.50±0.1                                | 5.50±0.1                                | 5.50±0.1                                | 3.50±0.1                               | 3.50±0.1                               |
|                  | D1 1.50 <sup>+0.10</sup> <sub>-0.10</sub> | 1.50 <sup>+0.10</sup> <sub>-0.10</sub>  | 1.50 <sup>+0.10</sup> <sub>-0.10</sub>  | 1.50 <sup>+0.10</sup> <sub>-0.10</sub>  | 1.50 <sup>+0.10</sup> <sub>-0.10</sub>  | 1.00 <sup>+0.10</sup> <sub>-0.10</sub> | 1.00 <sup>+0.10</sup> <sub>-0.10</sub> |
|                  | T1 0.30±0.05                              | 0.30±0.05                               | 0.30±0.05                               | 0.30±0.05                               | 0.30±0.05                               | 0.20±0.05                              | 0.25±0.05                              |
| R<br>E<br>E<br>L | PART NO. 48060024                         | 48060050                                | 48065020                                | 48065026                                | 48065020                                | 48065026                               | 48065015                               |
|                  | C Ø178.0±1                                | Ø330±1                                  | Ø178±1                                  | Ø330±1                                  | Ø178±1                                  | Ø330±1                                 | Ø178±1                                 |
|                  | D Ø500±0.5                                | Ø1000±1                                 | Ø600±0.5                                | Ø1000±1                                 | Ø600±0.5                                | Ø1000±1                                | Ø600±0.5                               |
|                  | H 16.5±0.5                                | 16.5±0.5                                | 13.1±0.2                                | 12.5±0.5                                | 13.1±0.2                                | 12.5±0.5                               | 9.5±0.8                                |
|                  | T 1.50±0.2                                | 2.3±0.3                                 | 1.2±0.2                                 | 2.3±0.3                                 | 1.2±0.2                                 | 2.3±0.3                                | 1.2±0.2                                |
|                  | STANDARD PACKING QTY/REEL 1000PCS         | 4000PCS                                 | 1000PCS                                 | 5000PCS                                 | 2000PCS                                 | 5000PCS                                | 3000PCS                                |
|                  | MAXIMUM PACKING QTY/REEL 1300PCS          | 1800PCS                                 | 4600PCS                                 | 5500PCS                                 | 2100PCS                                 | 7600PCS                                | 3800PCS                                |

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