



# Vishay Vitramon MLCC End Termination

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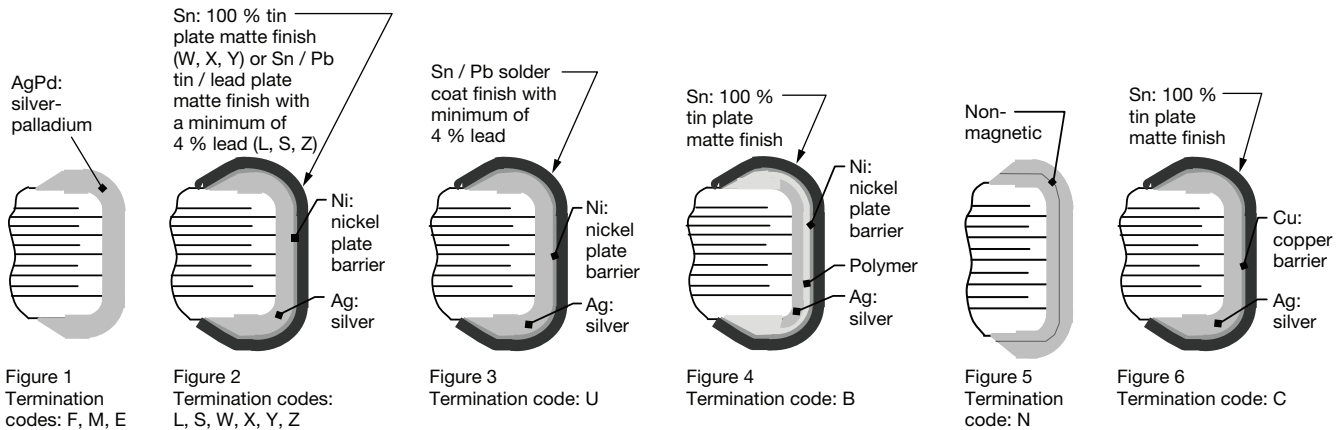


Figure 1  
Termination codes: F, M, E

Figure 2  
Termination codes: L, S, W, X, Y, Z

Figure 3  
Termination code: U

Figure 4  
Termination code: B

Figure 5  
Termination code: N

Figure 6  
Termination code: C

| TERMINATION CODE FROM PART NUMBERING   | TERMINATION DEFINITION   | ACCEPTED ASSEMBLY METHODS                                       |
|--|--|---|
| F, M <sup>(3)</sup>                    | Fired, thick film, silver / palladium  | Conductive epoxy / reflow solder <sup>(5)</sup>                 |
| E <sup>(2)</sup>                       | Fired, thick film, silver / palladium  | Conductive epoxy  |
| N                                      | Fired, thick film, non magnetic material   | Conductive epoxy  |
| C <sup>(6)</sup>                       | Copper with an outer layer of 100 % tin plate matte finish for multi-solder mounting   | Wave solder <sup>(1)</sup> / reflow solder / vapor phase reflow |
| W <sup>(3)</sup> , X, Y <sup>(3)</sup> | Fired, thick film silver, covered by 100 % nickel barrier plate with an outer layer of 100 % tin plate matte finish for multi-solder mounting                                  | Wave solder <sup>(1)</sup> / reflow solder / vapor phase reflow |
| L, S <sup>(7)</sup> , Z <sup>(3)</sup> | Fired, thick film silver, cover by 100 % nickel barrier plate with an outer layer of tin / lead plate matte finish with a minimum of 4 % lead for multi-solder mounting        | Wave solder <sup>(1)</sup> / reflow solder / vapor phase reflow |
| U <sup>(4)</sup>                       | Fired, thick film silver, cover by 100 % nickel barrier plate with an outer layer of tin / lead plate finish matte with a minimum of 4 % lead for solder coat                  | Wave solder <sup>(1)</sup> / reflow solder / vapor phase reflow |
| B                                      | Fired, thick film silver, cured thick film polymer silver, covered by 100 % nickel barrier plate with an outer layer of 100 % tin plate matte finish for multi-solder mounting | Wave solder <sup>(1)</sup> / reflow solder / vapor phase reflow |

**Notes**

- (1) Case sizes 1111, 1210 to 1812 with a thickness > 0.049" (1.24 mm) and case sizes 1825 and larger should NOT be wave soldered.
- (2) Termination code "E" is for conductive epoxy assembly, contact [mlcc@vishay.com](mailto:mlcc@vishay.com) for availability.
- (3) CDR, DSCC, and MIL-PRF-123 part numbers only.
- (4) CDR "U" termination code: Base metallization-barrier metal-solder coated (tin/lead alloy, with a minimum of 4 % lead). Solder has a melting point of + 200 °C or less. Solder coat thickness is a minimum of 60 microinches.
  - Solder iron techniques are not recommended. For more information on soldering visit [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034).
  - Contact [mlcc@vishay.com](mailto:mlcc@vishay.com) with respect to specific part number requirements.
- (5) Terminations code "F" and "M" may exhibit high wetting angles and lower fillet heights as compared to barrier plate terminations such as X-term. Contact [mlcc@vishay.com](mailto:mlcc@vishay.com) with respect to specific requirements.
- (6) For "C" termination solder coverage should be at least 90 % of the terminal critical areas in soldering.
- (7) MIL-PRF-123 part numbers only.



### Vishay Vitramon MLCC End Termination

| MLCC END TERMINATION PHYSICAL CHARACTERISTICS |                            |                    |                                  |                                  |                                     |   |                 |
|---|----------------------------|--------------------|----------------------------------|----------------------------------|-------------------------------------|---|-----------------|
| P/N TERM CODE                                 | THICK FILM END TERMINATION |                    | BARRIER TERMINATION              | TERMINATION FINISH               |                                     |   |                 |
|   | MATERIAL                   | THICKNESS (INCHES) | Ni PLATE THICKNESS (MICROINCHES) | Sn PLATE THICKNESS (MICROINCHES) | Sn/Pb PLATE THICKNESS (MICROINCHES) | Sn/Pb SOLDER COAT THICKNESS (MICROINCHES) | CONTENT OF LEAD |
| F, M  | Ag / Pd                    | 0.001 min.         | n/a                              | n/a                              | n/a                                 | n/a                                       | n/a             |
| E   | Ag / Pd                    | 0.001 min.         | n/a                              | n/a                              | n/a                                 | n/a                                       | n/a             |
| N   | Ag / Pd                    | 0.0012 min.        | n/a                              | n/a                              | n/a                                 | n/a                                       | n/a             |
| C   | Ag                         | 0.001 min.         | n/a                              | 100 min.                         | n/a                                 | n/a                                       | n/a             |
| W, X, Y                                       | Ag                         | 0.001 min.         | 50 min.                          | 100 min.                         | n/a                                 | n/a                                       | n/a             |
| L, S, Z                                       | Ag                         | 0.001 min.         | 50 min.                          | n/a                              | 100 min.                            | n/a                                       | 4 % min.        |
| U   | Ag                         | 0.001 min.         | 50 min.                          | n/a                              | n/a                                 | 60 min.                                   | 4 % min.        |
| B   | Polymer                    | 0.003 min.         | 50 min.                          | 100 min.                         | n/a                                 | n/a                                       | n/a             |

**Notes**

- Element definition: Ag = silver, Pd = palladium, Ni = nickel, Sn = tin, Pb = lead
- n/a = not applicable