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Nippon Electric Glass Co., Ltd.

Nippon Electric Glass Develops Lead-Free Glass Tubes for Diode Encapsulation which Enables Low-Temperature Sealing at 630°C

Nippon Electric Glass Co., Ltd. (head office: Otsu, Shiga, Japan; President: Masayuki Arioka) has developed lead-free glass tubes (NL-18) designed for encapsulating diode and other chips. Samples will be shipped sequentially for use with diodes and various other applications.

Background of Product Development

Glass tubes made by lead glass have been widely used for diode encapsulation purposes. Lead glass offers excellent acid resistance and electrical characteristics, and enables low-temperature sealing necessary to avoid semiconductor device degradation caused by heat during encapsulation. However, each year stricter environmental regulations are enforced such as the RoHS Directive applicable to electric and electronic products and the End-of-Life Vehicles (ELV) Directive. Lead glass used in electric and electronic products is presently exempted from these regulations. Nevertheless, leading electrical and electronics manufacturers have been increasingly demanding the supply of environmentally friendly (green) materials pursuant to their respective environmental regulations.

Nippon Electric Glass has been active in shifting to green materials to respond to the above-mentioned market needs and to be in line with rising environmental awareness in society. Our solution is the successful development, ahead of our competitors, of diode encapsulation glass tubes completely free of environmentally hazardous substances such as lead, halogen-based substances, and antimony. The newly developed product enables low-temperature sealing at a level comparable with conventional lead glass and has excellent acid resistance and electrical characteristics.

NL-18 Product Outline

1. Standard Dimensions

   Outside diameter: 1.78 mm; Inside diameter: 0.86 mm; Overall length: 3.81 mm (Several other types available)

2. Features

   [1] Green material (No environmentally hazardous substances)

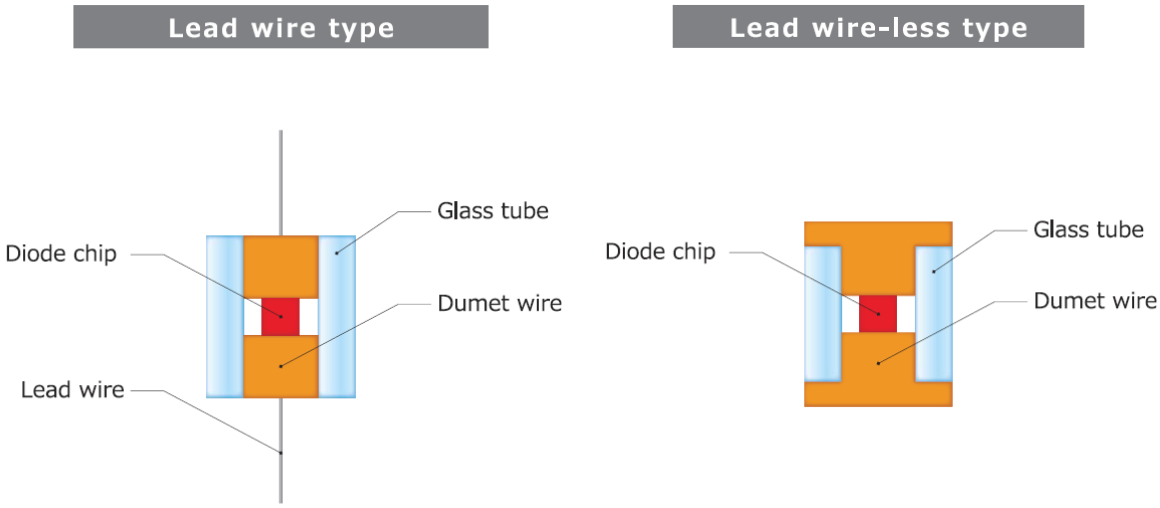
   Glass composition contains no lead, halogen-based substances, or antimony.

   [2] Low-temperature sealing

   Enables encapsulation at a temperature (630°C) comparable with conventional lead glass.

   [3] Workability

   Suitable on production lines similar to those using conventional lead glass, the newly developed product does not impair workability or performance.

Lead-Free Glass Tubes for Diode Encapsulation

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