Amphenol Sensors

Delivering Value-Add Sensors

ASTG Distributor Training

Glass Encapsulated NTC Thermistor with Metallurgical Bond – Type GE

THERMOMETRICS TELAIRE NOVA SENSOR

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Glass Encapsulated NTC Thermistor with Metallurgical Bond – Type GE

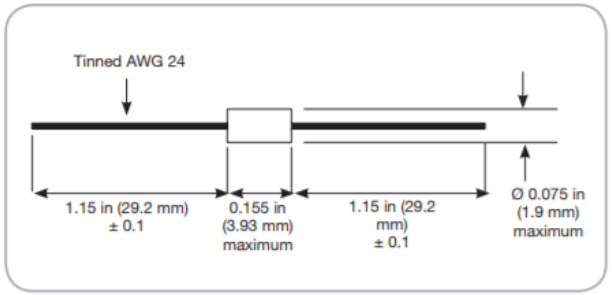
Transportation Industrial Medical Pharmaceutical

Training Topic

Overview of Amphenol Advanced Sensors Glass Encapsulated (GE) Series DO-35 and MELF package Thermistors

Overview

Highlight the metallurgical bond advantages
Discuss the benefits
Review typical applications

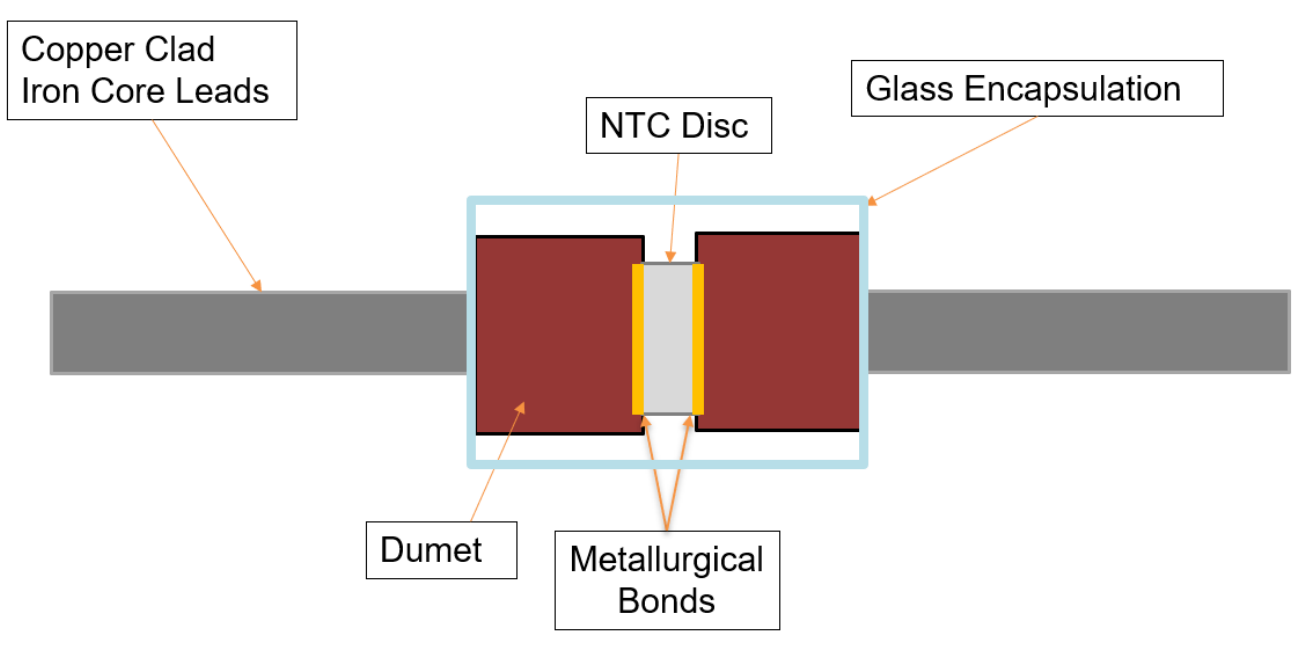


NTC Type GE dimensions

Glass Encapsulated NTC Thermistor with Metallurgical Bond – Type GE

- Glass Encapsulated (GE) DO-35 package
- Leads are metallurgical bonded to thermistor element for improved reliability
- The operating range is typically -58°F to 400°F (-50°C to 204°C)
- GE Series has a time constant of 7 seconds
- Has a standard resistance tolerance +/-10% @ 77°F (25°C)

Glass Encapsulated NTC Thermistor with Metallurgical Bond – Type GE



Glass Encapsulated NTC Thermistor with Metallurgical Bond – Type GE

Advantages of Metallurgical Bond

- Creates a electrical and physical joint between the NTC disk and Dumet lead
- Increased robustness against intermittent and open circuit failures
- Well Suited for severe environments where thermal shock and severe vibration are encountered
- Increase ultrasonic welding process capability since the GE series NTC can withstand higher energy impulses compared to competitive parts.

Glass Encapsulated NTC Thermistor with Metallurgical Bond – Type GE

- Accurate Temperature Measurement
  - Automotive
  - Telecom
  - HVAC
  - White Goods
- Temperature Sensing
  - Household appliances
  - Electronic Ranges in Ovens,
  - Industrial Products
    - Pharmaceuticals
    - Chemicals
    - Components

THERMOMETRICS
A COMMITMENT TO EXCELLENCE

Product Spotlight

Type GE - Glass-Encapsulated NTC Thermistor with Metallurgical Bond

Thermometrics Series of Glass-Encapsulated NTC Thermistors offer our proven NTC thermistors in a DO-35 diode style glass-encapsulated package. The glass body provides a hermetic seal, voltage isolation and excellent stability over a wide temperature range. They are designed for accurate temperature measurement in various applications, including automotive, telecom, industrial, pharmaceutical, food, chemical and white goods.

Metallurgical Bond

What sets Type GE apart, not only from the rest of our Glass DO-35 Series, but also from the competition, is the metallurgical bond between the lead wires and NTC thermistor element. This bond creates an electrical and physical connection between the two, thus ensuring:

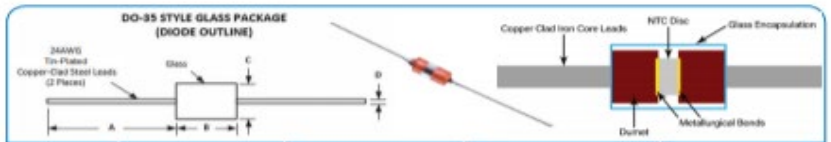
- Increased robustness against intermittent and open circuit failures.
- Resistance to severe vibration and thermal shock.
- Capability to withstand higher energy impulses, such as those encountered in ultrasonic welding processes.

Features

- Metallurgical bond between lead wires and NTC thermistor element for improved reliability and performance
- Rugged glass body for voltage insulation and excellent stability
- Resistant to corrosive atmospheres and harsh environments
- Operating Range: -58°F to 400°F (-50°C to 204°C), expandable to 300°C with optional nickel leads
- Time Constant: 7 seconds
- Standard Resistance Tolerance: ±10% @ 77°F (25°C)
- RoHS and REACH Compliant

Applications

- **Automotive:** Temperature sensing for fluids, air and battery, engine and transmission components
- **Industrial:** Temperature sensing for boilers, water heaters, HVAC, chemicals, food and batteries
- **Home Appliances:** Temperature sensing for appliances, such as rice cookers, ranges, ovens and coffee makers



Type	A Min. (mm)	B Max. (mm)	C Max. (mm)	D Nominal (mm)
GE	1.15 (29)	0.16 (4.0)	0.075 (1.9)	0.02 (0.5)

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www.amphenol-sensors.com

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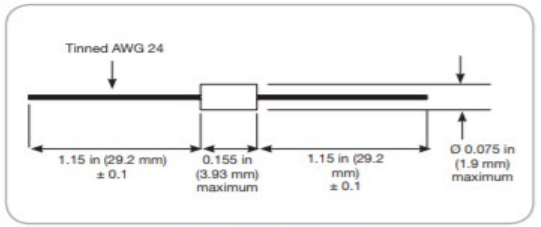
https://www.amphenol-sensors.com/en/component/edocman/492-thermometrics-product-spotlight-glass-diode-ntc-thermistors-product-spotlight/download?Itemid=8472%20%27

Type GE Specifications

Glass encapsulated DO-35 package

Options

- For reel taping
- Nickel leads for welding
- Other resistances in the range 250 Ω to 5 MΩ
- Other tolerances, tolerances at other temperatures
- Alternative leads lengths, lead materials
- Can be expanded to 572°F (300°C) with nickel leads



NTC Type GE dimensions

Data

- Standard resistance tolerance: ±10% @ 77°F (25°C)
- Dissipation constant: 3.0 mW/K
- Time constant: 7 seconds
- Operating range: -58°F to 400°F (-50°C to 204°C
- Lead Wires metallurgically bonded to thermistor element for improved reliability

Ro@25°C (Ω)	Material System	Beta 25/85	Type Number
250	GE5.5*	2983	AL03006-165.9-55-G1
500	GE5.5*	2983	AL03006-331.8-55-G1
1K	GE7.3	3499	AL03006-624-73-G1
2K	GE7.3	3499	AL03006-1248-73-G1
2786	GE10.1	4102	AL03006-1576-101-G1
3K	GE7.6	3553	AL03006-1847-76-G1
4K	GE7.6	3553	AL03006-2463-76-G1
5K	GE7.6	3553	AL03006-3079-76-G1
10K	GE9.7A	3992	AL03006-5818-97-G1
20K	GE9.8	3974	AL03006-11.7K-98-G1
30K	GE9.8	3974	AL03006-17.53K-98-G1
50K	GE9.7B	3952	AL03006-29.1K-97-G1
100K	GE9.7B	3952	AL03006-58.2K-97-G1
200K	GE12.3	4365	AL03006-111.3K-123-G1
500K	GE13.8	4567	AL03006-269.8K-138-G1
1M	GE14.5	4661	AL03006-535K-145-G1
5M	GE16.4	4848	AL03006-2.6M-164-G1

*maximum operating temperature 302°F (150°C)

https://www.amphenol-sensors.com/en/component/edocman/114-diode-datasheet/download?Itemid=8472%20%27

Glass Encapsulated NTC Thermistor with Metallurgical Bond – Type GE

Summary

- Metallurgical Bonded NTC construction with proven reliability
- Time constant: 7 seconds
- Standard Resistance Tolerance +/- 10% @ 25°C
- Catalog and customized options possible