

LTCC Materials

CT 700

Low Temperature Cofireable Heratape (DPIS*)

* Development Product Information Sheet

Description:

Heraeus low temperature cofireable tape called HERATAPE® CT 700 is designed to offer an alternative to producing complex multilayer circuits using gold or silver conductors.

Heratape CT 700 is available on reel:

Length: 50 – 150 m
 Width: 320 mm (12.6 inch)
 Thickness: 130 µm, 200 µm, 300 µm
 (5.1 mil, 8 mil, 12 mil).

(Other tape thickness on inquiry)

Compatibility:

Cofireable

	Gold System	Silver System
Inner Layer	TC 7102	TC 7302
Via Fill	TC 7101	TC 7301
Large Area Ground Planes	TC 7103	TC 7303

(Cofireable pastes see also separate overview)

Postfireable

Ag-Pd	TC 7404
Ag	C 1075 SD
Ag-Pt	C1076 SD
Au	C 5007
Resistor	R 8900 T
Overglaze	TO 7003

(Postfireable pastes see also separate overview)

Lamination Conditions:

Stack each printed and dried layer in a confined lamination die, with the dull side up. In order to assist homogeneity, rotate 90 °.

Cofiring Process:

Pressure: 24 – 27 N / mm²
 (3500 psi - 3900 psi)
 Temperature: 60 – 80 °C
 Time: 5 – 10 minutes

Firing Conditions:

Burnout and firing in a programmable box oven with controlled air flow.

Heating rate: 2 – 4 K/min.
 Dwell time at peak temperature: 20 – 30 min.
 Peak temperature: 850 °C – 865 °C
 Cooling rate: approx. 3 – 6 K/min

Burnout and firing in a belt furnace:

Firing cycle including Burnout: 6 – 8 hrs
 Dwell time at peak temperature: 20 – 30 min
 Peak temperature: 850 – 865 °C

Setter for Laminated parts: Al₂O₃ 96%

Unfired Properties

Sheet Density, unfired:

(Typical Data)

1.65 g/cm³

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Fired Physical Properties¹:	(Typical Data)	Fired Electrical Properties¹:	(Typical Data)
Shrinkage:	x, y – axis 14.4 % z – axis 14.9 %	Dielectric Constant:	7.5 – 7.9 (1 kHz, 25 °C)
Fired Density: (Weight - Dimension - Measurement)	> 96 % theoretical (3.2 g / cm ³)	Dissipation Factor: (tanδ x 10 ⁻³)	2.1 (1 kHz, 25 °C)
Water Absorption: (1 hr water boil)	< 0.05 % weight increase	Thermal Conductivity:	4.3 W / m K
Thermal Coefficient of Expansion (25 - 300 °C):	6.7 ppm / K	Insulation Resistance:	>10 ¹³ Ωcm (25 °C)
Flexural Strength:	170 MPa		

- ¹ Cofiring Process,
Lamination pressure: 21 N / mm² (3045 psi)
Firing in a box oven: peak temperature 865 °C,
dwell time 30 min

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The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to-date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for a particular application.

Europe [TH]
W. C. Heraeus GmbH & Co. KG

Circuit Materials Division
Heraeusstr. 12-14
63450 Hanau
Germany
Phone: +49 6181 35-5466
E-Mail: cmdinfo@heraeus.com
Internet: www.4cmd.com

North America
Heraeus Incorporated

Circuit Materials Division
24 Union Hill Road
W. Conshohocken, PA 19428
USA
Phone: +1 610 825-6050
E-Mail: techservice@4cmd.com
Internet: www.4cmd.com

Asia [TH]
Heraeus Materials Technology Taiwan
Ltd
5F-1, 103, Rui-Hu Street
Nei-Hu District
114 Taipei
R.O.C. Taiwan
Phone: +886 2 2627-1111
E-Mail: thomas.wang@heraeus.com.tw