

## LTCC Materials

### CT 702



### Low Temperature Cofireable Heratape (DPIS\*)

**\* Development Product Information Sheet**

**Description:**

Heraeus low temperature cofireable ceramic tape (LTCC) called HERATAPE® CT 702 is designed to offer an alternative to producing complex multilayer circuits using gold or silver conductors.

Heratape CT 702 is available on reel:

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

(Other tape thickness on inquiry)

**Compatibility:**

**Cofireable**

	Gold System	Silver System
Inner Layer	TC 7102	TC 7303
Via Fill	TC 7101	TC 7301
		TC 7304
Large Area Ground Planes	TC 7103	TC 7303

**Postfireable**

Ag-Pd	TC 7404
Ag	C 1075 SD
Ag-Pt	C 1076 SD
Au	C 5756
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°.

Pressure: 24 – 27 N / mm<sup>2</sup>  
 (3500 psi - 3900 psi)  
 Temperature: 60 – 80 °C  
 Time: 5 – 10 minutes

**Co-firing Process and 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** Al<sub>2</sub>O<sub>3</sub> 96%

**Unfired Properties**

Sheet Density, unfired:

**(Typical Data)**

1.90 g/cm<sup>3</sup>

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#### Fired Physical Properties <sup>1</sup>:

	(Typical Data)
Shrinkage:	x, y – axis 13.7% ± 0,5 % z – axis (total) 28,0 %
Fired Density: (Weight - Dimension - Measurement)	> 96 % theoretical (3.2 g / cm <sup>3</sup> )
Water Absorption: (1 hr water boil)	< 0.05 % weight increase
Thermal Coefficient of Expansion (25 - 300°C):	7.3 ppm / K
Flexural Strength:	≥ 130 MPa

#### Fired Electrical Properties <sup>1</sup>:

	(Typical Data)
Dielectric Constant:	7.5– 7.9 (1 kHz, 25 °C)
Dissipation Factor: (tanδ x 10 <sup>-3</sup> )	3 (1 kHz, 25 °C)
Thermal Conductivity:	4.3 W / m K
Insulation Resistance:	>10 <sup>13</sup> Ωcm (25°C)

<sup>1</sup> Cofiring Process,  
Lamination pressure: 21 N / mm<sup>2</sup> (3045 psi)  
Firing in a box oven: peak temperature 865 °C,  
dwell time 30 min

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