Micromax™ GreenTape™ 951PT

Microcircuit and Component Materials

Low Temperature Ceramic System

Micromax™ GreenTape™ 951 is a low-temperature cofired ceramic tape. GreenTape™ 951 system comprises a complete cofireable family of gold and silver metallizations, buried passives, and encapsulants. GreenTape™ 951 is available in multiple thicknesses and it designed for use as an insulating layer in :

- Multichip modules
- Single chip packages
- Ceramic printed wiring boards
- RF modules

The GreenTape™ 951C2, GreenTape™ 951PT, GreenTape™ 951TT, GreenTape™ 951P2 and GreenTape™ 951PX products are provided on base film with improved punching characteristics.

Product benefits

When used with compatible metallizations, Micromax™ GreenTape™ 951 offer the following benefits:

- Component integration — buried resistors, capacitors, and inductors
- Hermetic packaging
- Low temperature brazing
- Cavities
- High density interconnections
- Cofire processing and refire stability

Product information

Blend member or series	GreenTape™ 951

Application technique

Recommended film thickness	106 - 122[1] µm

[1]: unfired thickness

Thermal properties

Thermal conductivity	≥3.3 W/(m K)

Storage and stability

Shelf life	12[2] months

[2]: in unopened containers, from date of shipment, at temperature <30 ° C

Additional information

How to use

Design & compatibility

- Design
  - For detailed recommendations on the use of the Micromax™

Micromax™ GreenTape™ 951PT

Microcircuit and Component Materials

GreenTape™ 951, see the GreenTape™ Design and Layout Guidelines (Micromax™ GreenTape™ 951 section). For compatible metallizations and their recommended use see the GreenTape™ 951 Product Selector Guide.

- System capability
  - The Micromax™ GreenTape™ 951 system is designed to deliver line and space resolution of 100µm, via diameters of 100µm, and maximum layer counts in excess of 100.

Processing

- Printing
  - Following blanking and preconditioning of Micromax™ GreenTape™ 951 green sheets, print compatible compositions directly onto unfired GreenTape™ 951 using thick film printing methods and a vacuum stone or other support structure that uniformly distributes vacuum. Follow specific printing and drying recommendations described on individual composition product data sheets.
- Inspection
  - Inspect via, conductor and other prints prior to collation and lamination.
- Lamination and firing
  - Laminate multiple sheets of Micromax™ GreenTape™ 951 low-temperature cofired ceramic tape according to processing parameters detailed in the GreenTape™ Design and Layout Guidelines (Micromax™ GreenTape™ 951 section). Recommended parameters for lamination are 3000 psi and 70°C for 10 minutes. Cofire laminates of GreenTape™ 951 using the recommended firing profile and a belt or box furnace.
- Post-fire processing
  - Print compatible compositions onto cofired substrate surface and refire.
- Singulation
  - Singulate multi-up substrates either in the green state using a hot-knife or after cofire using either a diamond saw (preferred) or laser scribe.

Properties

Typical Tape Properties (Physical & Electrical)

Test	Properties

Micromax™ GreenTape™ 951PT

Microcircuit and Component Materials

X, Y Shrinkage_951PT,P2,PX, TT (%)	12.7 ± 0.3
Z Shrinkage (%)	15.0 ± 0.5
Camber (inch/inch)	Conforms to setter
Surface Roughness (µm)	< 0.34
Flexural Strength*[1] (MPa)	250 - 280
Young's Modulus (Gpa)	120

*1 Four point bend

Information in this datasheet shows anticipatied typical physical properties for Micromax™ GreenTape™ 951 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Storage and shelf life

Tape rolls, or boxes of sheeted tape, should be stored tightly sealed in a clean, stable environment at room temperature (<30°C). Shelf life of material in unopened boxes is twelve months.

Safety and handling

For safety and handling information pertaining to this product, read Safety Data Sheet (SDS).

Revised: 2023-02-15 Source: Celanese Materials Database