

CTP-1/2 High Polymer Magnetic Composite-dielectric Substract

The high polymer magnetic microwave composite-dielectric substrate is made up of the composition of low loss minerals, high polymer magnetic materials and organic plaitis in proper proportion. Then a copper-clad substrate is achieved by way of baking, sintering and press process, on which super thin copper foils being pressed finally. It is used widely for mobile communications, micro strip antennas, circulators, isolators as well as others microwave devices. This type of substrate is the first of it's kind in China and in the lead worldwide.

1. Micros trip Circuit Features by use of the Substrate:

(1) The adhesive strength between copper foil and dielectric is higher than that of the vacuum coating on ferrite substrate, being easy of circuit fabrication with high output rate of end products and much lower cost than that of ferrite one.

(2) Easy machine-shaping by drilling-machine, lathe, milling-machine, shearer and photo fabrication. There is no comparison of fabrication processes between the substrate described above and ceramic one.

2. Technical Specifications:

(1) Exterior Looks: Well plane ness on both sides of the substrate scatches, hollows, copper without foil stains folded and pinholes.

(2) Dimensions(mm): 120×100 , 135×135 , 150×150 ,

(3) Dimensions and Tolerance(mm): 0.8±0.03 1±0.04 2±0.06

(4) Mechanical Properties:

a. Copper Peel Strength: ≥10N/cm (in normal condition).
8N/cm (in alter mating damp and hot condition).

b. Tensile Strength: ≥800Kg/cm²

(5) Chemical Properties: Printed-circuits made by photo-fabrication with the performances of the dielectric materials of the substrate unchanged.

(6) Physical and Electrical Properties:

| Number | Item | Test Condition | | Unit | Target value |
|--------|-------------------------------|--|----------------------------|-------------------|---------------------|
| 1 | Gravity | In normal | | g/cm ² | 2 |
| 2 | Water Absorption | Soaking in Distilled water of 20±2°C for 24 hours. | | % | ≤0.01 |
| 3 | Operating Temperature | High AND Low Temperature Oven | | °C | -100 ~ +150 |
| 4 | Heat Conduction Coefficient | | | Kcal/m.hour°C | 0.7 |
| 5 | Linear Expansion Coefficient | Arise of 96°C in Temperature/hour | | ×1 | ≤1×10 ⁻⁴ |
| 6 | Shrinkage | To be boiled in Boiling water for 2 hors. | | % | 0.0002 |
| 7 | Surface Insulation Resistance | 500V direct current | normal | M.Ω | ≥1×10 ⁻⁹ |
| | | | const damp and hot | | ≥1×10 ⁻⁸ |
| 8 | Bulk Resistance | In normal conditio | | MΩ.cm | ≥1×10 ⁻⁹ |
| | | const damp and hot | | | ≥1×10 ⁻⁹ |
| 9 | Resistance Between Plugs | 500V direct current | In normal conditio | MΩ | ≥1×10 ⁻⁸ |
| | | | In constant damp condition | | ≥1×10 ⁻⁹ |
| 10 | Surface Electric Strength | In normal conditio | | δ=1mm(kv/m m) | ≥1.5 |
| | | In constant damp condition | | | ≥1.4 |
| 11 | Dielectric Constant | 10GHz | | ε _r | 6 ~ 8(±2%) |
| 12 | Dielectric Constant Tangent | 10GHz | | tgδ | ≤1×10 ⁻³ |