



ThinFlex



ThinFlex Corporation

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ThinFlex-AR, AR-2003ED-C3 Adhesiveless Double Sided Copper Clad Laminate (Halogen Free)

ThinFlex-AR, AR-2003ED-C3 is an adhesiveless double-sided (D/S) copper clad laminate, using ARISAWA TPI film and laminated with ED copper foil on both sides. The AR-2003ED-C3 adhesiveless D/S composites are designed for a wide variety of flexible circuit applications which require advanced material performance and high reliability.

1. Product Characteristics:

- * Excellent dimensional stability
- * Excellent flexibility
- * Excellent etching capability
- * Excellent flame resistance
- * Excellent chemical resistance
- * Excellent thermal, mechanical, and electrical properties
- * Low moisture absorption

2. Specifications:

AR - 20 03 E D-C3

| Product | Thickness of PI | Thickness of Cu | Cu Type | Structure | Cu Supplier |
|--------------|--|-----------------|---------|-----------|-------------|
| AR-type FCCL | 20 : 1.0 mil | 03 : 0.3 oz | E : ED | D: D/S | Fukuda |
| Product Size | W: 250/500 ± 1mm; L: 400~700 ± 2mm (sheet type) W: 250/500 ± 1mm; L: 100 +2/-0m (roll type) | | | | |

* Other product size is also available on customer's demand.



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3. Construction:

Copper foil
Polyimide film
Copper foil

4. Properties:

| Test item | Unit | AR-2003ED-C3 | Test Method | |
|--|------------------------|-------------------|---------------------------|------------------|
| Peel Strength | | | | |
| As Received | Kgf/cm | ≥ 0.7 | IPC-TM650 2.4.9 | |
| Solder Float | Kgf/cm | ≥ 0.7 | IPC-TM650 2.4.9 | |
| After Temp. Cycling | Kgf/cm | ≥ 0.7 | IPC-TM650 2.4.9 | |
| Chemical Resistance | Kgf/cm | ≥ 0.7 | IPC-TM650 2.3.2 | |
| Tensile Strength (Base Film) | Kg/mm ² | ≥ 26 | IPC-TM-650 2.4.19 | |
| Elongation (Base Film) | % | ≥ 60 | IPC-TM-650 2.4.19 | |
| Tensile Modulus (Base Film) | Kg/mm ² | ≥ 450 | ASTM D882 | |
| Initial Tear Strength (Base Film) | g | ≥ 1200 | IPC-TM-650 2.4.16 | |
| Propagation Tear Strength (Base Film) | g | ≥ 18 | IPC-TM-650 2.4.17.1 | |
| Flexural Endurance, MIT | | | | |
| M.D. | Cycles | NA | JIS-C 6471, 0.8mmR, 0.5kg | |
| T.D. | Cycles | NA | JIS-C 6471, 0.8mmR, 0.5kg | |
| Electrical Properties | | | | |
| Surface Resistance | Ω | ~10 ¹¹ | IPC-TM650 2.5.17 | |
| Volume Resistance | Ω-cm | ~10 ¹² | IPC-TM650 2.5.17 | |
| Insulation Resistance | Ω | ~10 ⁹ | IPC-TM650 2.6.3.2 | |
| Dielectric Strength | kV/mil | 6.5 | ASTM-D149 | |
| Dielectric Constant (1GHz) | - | 3.3 | IPC-TM650 2.5.5.3 | |
| Dissipation factor (1GHz) | - | 0.01 | IPC-TM650 2.5.5.3 | |
| Physical and Thermal Properties | | | | |
| Dimensional Stability | M.D. | % | -0.1~0.1 | IPC-TM650 2.2.4C |
| | T.D. | % | -0.1~0.1 | IPC-TM650 2.2.4C |
| CTE | ppm/°C | 26 | ThinFlex | |
| T _g | °C | 330 | ThinFlex | |
| Solder Float | 30sec at 288°C (550°F) | - | Pass | IPC-TM650 2.4.13 |
| Moisture Absorption | % | 1.1 | IPC-TM650 2.6.2 | |
| Chemical Resistance | - | Pass | IPC-TM650 2.3.2 | |
| Thickness tolerance | um | 74±10% | ThinFlex | |
| UL Flame Class | - | VTM-0 | UL94 | |

* Above data are typical values, and are not guaranteed values.



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5. Storage:

ThinFlex-AR, AR-2003ED-C3 will meet its shelf-life for at least 12 months after arrival at purchaser's factory with original package, stored at temperature of 25°C or less and relative humidity of 70% or less. The product is no need to be kept in the refrigeration.

Note: The information and data contained in this technical literature is believed to be accurate and is offered in good faith for the benefit of the user. The user should make his own tests to verify the suitability of this product for any application before its use. All data are typical values only and subject to change without notice.

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