



## FR406 No-Flo and FR406 Lo-Flo® Specialty Prepreg

Isola offers a **FR406N** family of no-flow and low-flow prepregs consisting of proprietary resin systems specifically formulated for optimal performance in bonding applications requiring minimal resin flow and consistency in lamination. FR406 No-Flo and FR406 Lo-Flo® products bring the fabricator specific thermal characteristics appropriate for use in heat sink bonding, die cavity board (direct chip attachment) and multilayer rigid-flex applications.

[www.isola-group.com/products/FR406N](http://www.isola-group.com/products/FR406N)

### ORDERING INFORMATION:

Contact your local sales representative or visit [www.isola-group.com](http://www.isola-group.com) for further information.

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High Performance

## FR406N Data Sheet

Tg 170, Td 300  
Dk 3.48, Df 0.021  
/21 /24 /26

### Features

- Wide Range of Thermal Performance
  - ▶ Tg: 170°C, High temperature FR-4 epoxy
- RoHS Compliant
- Minimal, Uniform Resin Flow
  - ▶ Complete encapsulation and embedment of no-planar surfaces
  - ▶ Consistent dielectric spacing
- Adhesion to Wide Range of Materials
  - ▶ Flex films – (Mylar®, Kapton®, etc.)
  - ▶ Treated or untreated copper
  - ▶ Plated metals (tin, solder, nickel, etc.)
  - ▶ Conventional laminate surfaces
- Processing Ease
  - ▶ Machinable to complex shapes by steel rule die and punching
  - ▶ Allows for lamination at non-uniform pressures
  - ▶ Cure and form bond at low temperatures
- Prepreg Standard Availability
  - ▶ Roll or panel form
  - ▶ Tooling of prepreg panels available
- Glass Fabric Availability
  - ▶ Standard E-glass
- Industry Approvals
  - ▶ IPC-4101C /21 /24 /26
  - ▶ UL Recognized – V-0

# FR406N Specifications

| Property  |                           | Typical Values             |                      |                  |                          |
|---|---------------------------|----------------------------|----------------------|------------------|--------------------------|
|   |                           | Typical Value              | Specification        | Units            | Test Method              |
|   |                           |                            |                      | Metric (English) | IPC-TM-650 (or as noted) |
| <b>Pressed Thickness<sup>1</sup></b>              | <b>106</b>                | 1.7 ±0.3                   | Condition A          | –                | –                        |
|   | <b>1080</b>               | 2.7 ±0.3                   |                      |                  |                          |
| <b>Resin Content</b>                              | <b>106</b>                | 65 ±1.5                    | Condition A          | %                | –                        |
|   | <b>1080</b>               | 65 ±1.5                    |                      |                  |                          |
| <b>Resin Flow Testing</b>                         | <b>106</b><br><b>1080</b> | R & R<br>R & R             | Condition A          | –                | –                        |
| <b>Modified Circle Flow<sup>2</sup></b>           | <b>106</b><br><b>1080</b> | 0.050-0.120<br>0.050-0.120 | Condition A          | –                | –                        |
| <b>Glass Transition Temperature (Tg)</b>          |                           | 170 (Full Cure)            | –                    | °C               | E-2/105                  |
| <b>Cure Temperature Recommended for Full Cure</b> |                           | 370                        | –                    | °F               | –                        |
| <b>Min. for Functional Bonding</b>                |                           | 325                        | –                    | °F               | –                        |
| <b>CTE, Z-axis</b>                                |                           | 75                         | Ambient to Tg        | ppm/°C           | –                        |
| <b>CTE, X-, Y-axes</b>                            |                           | 17/20                      | Ambient to Tg        | ppm/°C           | –                        |
| <b>Thermal Conductivity</b>                       |                           | 0.30                       | Condition A          | watts/m°C        | –                        |
| <b>Dielectric Strength</b>                        |                           | 1750                       | –                    | V/mil            | D-48/50                  |
| <b>Dielectric Constant (1 MHz)</b>                |                           | 4.3                        | –                    | V/mil            | C-24/23/50               |
| <b>Dissipation Factor (1 MHz)</b>                 |                           | 0.025                      | –                    | V/mil            | C-24/27/50               |
| <b>Peel Strength</b>                              | 1 oz (38 µm) copper       | 10.0                       | After Thermal Stress | lb/inch          | –                        |
| <b>Flammability</b>                               |                           | V-0                        | –                    | Rating           | UL Test                  |

1. For reference only. Pressed thickness determined by loading the press hot at the recommended press temperature and applying 200 PSI for 70 minutes.

2. Isola Laminate Systems modified 1" circle flow test.

The data, while believed to be accurate and based on analytical methods considered to be reliable, is for information purposes only. Any sales of these products will be governed by the terms and conditions of the agreement under which they are sold.

[www.isola-group.com/products/FR406N](http://www.isola-group.com/products/FR406N)

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