

Flexible circuit board materials

FELIOS

(Double-sided copper clad)
R-F775
(Single-sided copper clad)
R-F770

■ Features

- Excellent dimensional stability
- Line-up of thick copper foil and thick film specifications
- Halogen-free with UL94V-0

■ Application

- Various modules for Smartphones and Tablet PCs

■ Line-up

● RA Copper Foil

| Copper Foil Thickness | Film Thickness | | | | | | | | | | | | | | | |
|-----------------------|--------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | Sheet Type Max 610mm(MD) x 510mm(TD) | | | | | | | | Roll Type W=250mm, 500mm | | | | | | | |
| | 0.5 (0.01) | 0.8 (0.02) | 1.0 (0.03) | 2.0 (0.05) | 3.0 (0.08) | 4.0 (0.10) | 5.0 (0.13) | 6.0 (0.15) | 0.5 (0.01) | 0.8 (0.02) | 1.0 (0.03) | 2.0 (0.05) | 3.0 (0.08) | 4.0 (0.10) | 5.0 (0.13) | 6.0 (0.15) |
| 1/4oz (9μm) | ●* | ●* | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 1/3oz (12μm) | ● | ● | ● | ● | ● | — | — | — | ● | — | ● | ● | ● | — | — | — |
| 1/2oz (18μm) | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | ● | ● | ● | ● | ● | — |
| 1oz (35μm) | ● | ● | ● | ● | ● | ● | ● | ● | — | — | ● | ● | ● | ● | ● | — |
| 2oz (70μm) | — | — | ● | ● | ● | ● | ● | ● | — | — | ● | ● | — | — | — | — |
| 3oz (105μm) | — | — | ●* | ●* | — | — | — | — | — | — | — | — | — | — | — | — |

* OPTIONAL(If Needs are existing)

● ED Copper Foil

| Copper Foil Thickness | Film Thickness | | | | | | | | | | | | | | | |
|-----------------------|--------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | Sheet Type Max 610mm(MD) x 510mm(TD) | | | | | | | | Roll Type W=250mm, 500mm | | | | | | | |
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| — (2μm) | ● | ● | ● | ● | — | — | — | — | — | — | ● | ● | — | — | — | — |
| 1/6oz (6μm) | ● | ● | ● | ● | — | — | — | — | — | — | ● | ● | — | — | — | — |
| 1/4oz (9μm) | — | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — | — | — | — |
| 1/3oz (12μm) | — | ● | ● | ● | ● | ● | ● | ● | — | — | ● | ● | — | — | — | — |
| 1/2oz (18μm) | — | ● | ● | ● | ● | ● | ● | ● | — | — | ● | ● | — | — | — | — |
| 1oz (35μm) | — | ● | ● | ● | ● | ● | ● | ● | — | — | ● | ● | — | — | — | — |

■ General Properties

| | | | R-F775 |
|------------------------------------|------|--|----------------------------------|
| Item | Unit | Condition | Typical value |
| Surface resistance | MΩ | C-24/23/50 | 1×10 ¹⁵ |
| Dielectric constant(Dk) (1MHz) | — | C-24/23/50 | 3.2 |
| Dissipation factor(Df) (1MHz) | — | C-24/23/50 | 0.002 |
| Solder heat resistance | — | E-1/135 288°C solder float for 1min. | No abnormality |
| Moisture heat resistance | — | C-96/40/90 260°C solder float for 1min. | No abnormality |
| Peel strength RA: 0.018mm(18μm) | N/mm | C-24/23/50 260°C solder float for 5sec. | 1.3 1.3 |
| Flammability(UL method) | — | A+E-168/70 | 94V-0 |
| Tensile modulus | GPa | C-24/23/50 | 7.1 |
| Chemical resistance | — | HCl 2mol/l 23°C 5min. NaOH 2mol/l 23°C 5min. IPA 23°C 5min. | No abnormality |
| Dimensional stability | % | After etching MD direction After etching TD direction After E-0.5/150 MD direction After E-0.5/150 TD direction | 0.030 0.037 0.022 0.027 |

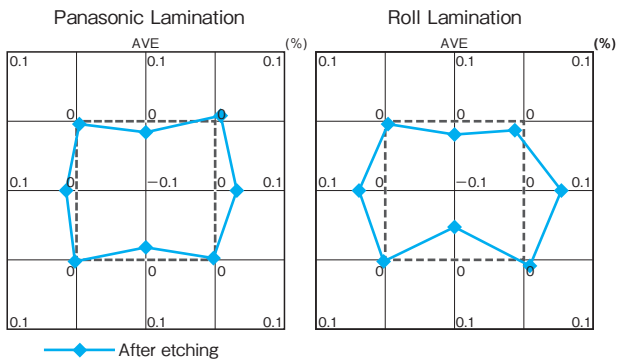
Note: The sample thickness is RA copper foil 18μm, film 25μm.

Note: The above test methods are in accordance with JIS C 6481 other than the cases flammability is with UL 94.

Note: R-F775 and R-F770 products conform to IPC 4204/11 specifications

■ Characteristic graph(reference value)

● Dimensional stability



● Frequency dependence of dielectric property(IPC-TM650 2.5.5.5)

| | Condition | 1GHz | 2.5GHz | 5GHz | 10GHz |
|--------------------------|------------|-------|--------|-------|-------|
| Dielectric constant (Dk) | A | 3.2 | 3.2 | 3.2 | 3.2 |
| | C-96/40/96 | 3.3 | 3.3 | 3.2 | 3.2 |
| Dissipation factor (Df) | A | 0.002 | 0.002 | 0.002 | 0.003 |
| | C-96/40/96 | 0.002 | 0.002 | 0.003 | 0.003 |