

# Flexible circuit board materials

## FELIOS

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

### Features

- Halogen-free with UL94V-0
- Felios adhesiveless flex materials are available in a wide-range of film and copper foil thicknesses to support all applications.
- Felios offers superior thermal resistance, dimensional stability and quality.

### Application

- Consumer mobile products (Smartphone, tablet PC), Medical, Industrial, Avionics/Space applications, In-vehicle cable (Wire harness alternative), etc.

### Line-up

Roll-cut Type: MAX 610mm(MD) x 500mm(TD) Roll Type: W=250mm, 500mm

Copper Foil Thickness		Film Thickness							Unit: mils (mm)
		0.5 (0.013)	1.0 (0.025)	2.0 (0.050)	3.0 (0.075)	4.0 (0.100)	5.0 (0.125)	6.0 (0.150)	
RA Copper Foil	1/4oz (9μm)	●*1	●*1	●*1	—	—	—	●*1	
	1/3oz (12μm)	●	●	●	●	●	—	—	
	1/2oz (18μm)	●	●*2	●*2	●*2	●*2	●*2	●	
	1oz (35μm)	●	●*2	●*2	●*2	●*2	●*2	●	
	2oz (70μm)	—	●*2	●*2	●	●	●	—	
	3oz (105μm)	—	●	●	—	—	—	—	
ED Copper Foil	— (2μm)	●	●	●	●	—	—	—	
	1/6oz (6μm)	●	●	●	—	—	—	—	
	1/4oz (9μm)	●	●	●	●	●	●	●	
	1/3oz (12μm)	●	●	●	●	●	●	●	
	1/2oz (18μm)	●	●	●	●	●	—	—	
	1oz (35μm)	—	●	●	●	●	—	—	

\*1 Special option \*2 W=610mm is optional.

### General Properties

				R-F775
Item	Test method	Unit	Condition	Typical value
Solder heat resistance	JIS C 6471	°C	A	>330
			C-96/40/90	260
Dielectric constant(Dk) (1GHz)	ASTM D150	-	A	3.2
Dissipation factor(Df) (1GHz)				0.003
Tensile modulus	ASTM D882	GPa	A	7.1
Tensile strength	Internal method	MPa	A	542
Peel strength	RA:1/3oz(12μm)	N/mm	A	1.35
CTE	MD/TD	ppm/°C	50-200°C	17/19
	Z-axis			101
Thermal conductivity	Laser flash	W/m·K	A	0.16
Dimensional stability	IPC-TM-650	%	After etching MD direction	0.00±0.10
			After etching TD direction	0.00±0.10
Water absorption	IPC-TM-650	%	23°C 24h immersion	0.9
Flammability	UL	-	A+E-168/70	94V-0
Outgas	TML*	%	-	0.62
	CVCM*		-	0.05
	WVR*		-	0.55

The sample thickness is film 25 μm, copper foil 12 μm.

\*TML: Total Mass Loss

CVCM: Collected Volatile Condensable Material

WVR: Water Vapor Recovered

**Characteristic graph(reference value)**

## ● Dimensional stability

