

**Superior thermal resistance**  
MOT 160°C

**Wide line-up of film thickness**  
0.5-6.0mils

**Wide line-up of copper foil thickness**  
2-150µm



## FELIOS

Double-sided copper clad

### R-F775

Single-sided copper clad

### R-F770

## Flexible circuit board materials

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.

### Applications

## Avionics / Industry

Consumer Mobile Products (Smartphone, Tablet PC), Medical, Industrial, Avionics/Space Applications, etc.

**Line-up** Available in various film and copper foil combinations. **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)	●*1	●*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

Item	Test method	Condition	Unit	FELIOS R-F775	
Solder heat resistance	JIS C 6471	A	°C	>330	
		C-96/40/90		260	
Tensile modulus	ASTM D882	A	GPa	7.1	
Tensile strength	Internal method	A	MPa	542	
Peel strength	RA: 1/3oz(12µm)	JIS C 6471	A	N/mm(lb/inch)	1.35
CTE	MD/TD/Z-axis	JIS R 3251	50-200°C	ppm/°C	17/19/101
Thermal conductivity	Laser flash	A	W/m·K	0.16	
Dimensional stability	IPC-TM-650	After etching MD direction	%	0.00±0.10	
		After etching TD direction		0.00±0.10	
Flammability	UL	A+E-168/70	-	94V-0	
Outgas	TML/CVCM/WVR*	ASTM E595-07/ASTM E595-15	-	%	0.62 / 0.05 / 0.55

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

\* TML: Total Mass Loss, CVCM: Collected Volatile Condensable Material, WVR: Water Vapor Recovered

Our Halogen-free materials are based on JPCA-ES-01-2003 standard and others.

The above data are typical values and not guaranteed values.

industrial.panasonic.com/ww/electronic-materials

panasonic R-F775

Panasonic Industry Co., Ltd. Electronic Materials Business Division