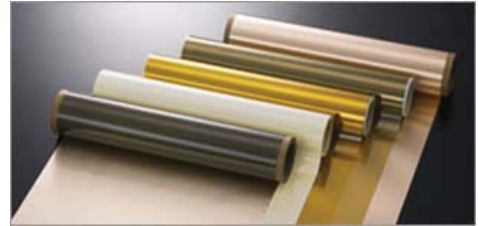




DATA SHEET FELIOS FLEX

FELIOS FLEX ADHESIVELESS FLEXIBLE LAMINATE



Description

Panasonic FELIOS® Adhesiveless Flexible Laminates are the ideal choice for technically advanced Multilayer, Rigid-flex, Double and Single sided applications. FELIOS® Flex is an engineered, all Polyimide Substrate with premium copper foil bonded on two sides. FELIOS® Flex is currently used in many of today's advanced flexible applications such as Avionics, Computers, Medical Equipment, Hand Held Computers, and Instrumentation.

Features

- Superior Dimensional Stability
- Excellent Copper Foil Bond Strength
- Consistent dielectric thickness and electrical performance
- Halogen and Antimony Free
- UL94-V0, 160° C UL Operating Temperature
- Certified to IPC 4204/11, wide processing window
- 31032 Tested, 340° C Tg, RoHaS Compliant

Product Offering

Product	Polyimide Thickness	Copper Foil RA*
RF775-Double Sided	.00058"	Q, T, H, 1 oz
	.0008"	Q, T, H, 1 oz
	.001"	Q, T, H, 1, 2 oz
	.002"	Q, T, H, 1, 2 oz
RF770-Single Sided	.0008"	T, H, 1 oz
	.001"	T, H, 1 oz
	.002"	T, H, 1 oz

* ED Foil available on request

General Characteristics

Property	Unit	Test Method	R-F775/778		
			25μ	50μ	100μ
Peel Strength	kN/m	IPC-TM-650 2.4.9			
As Fabricated			1.7	1.7	1.7
After Solder			1.7	1.7	1.7
Solder Float	288°C		Pass	Pass	Pass
Tensile Strength	MPa	IPC-TM-650 2.4.19	500	500	500
Tensile Modulus	Gpa	IPC-TM-650 2.4.19	7.1	7.1	7.1
Elongation	%	IPC-TM-650 2.4.19	93	93	93
Poisson's Ratio			0.3	0.3	0.3
MIT Folding Endurance		JIS C6471 R=0.38	220	60	
Water Absorption	%	IPC-TM-650 2.6.2	1	1	1
Moisture Absorption	%	23°C, 50%RH, 24 hr	0.7	0.7	0.7
Dielectric Thickness Tolerance	%	IPC-TM-650 4.6.2	±10	±10	±10
UL Flammability		UL-94	94V-0	94V-0	
Dielectric Constant	1 MHz	IPC-TM-650 2.5.5.3	3.2	3.2	3.2
Dissipation Factor	1 MHz	IPC-TM-650 2.5.5.3	0.002	0.002	0.002
Dielectric Strength	kV/ml	ASTM-D-149	7	7	7
Volume Resistivity	ohm-cm	IPC-TM-650 2.5.17.1	>1E+14	>1E+14	>1E+14
Surface Resistivity	ohms	IPC-TM-650 2.5.17.1	>1E+14	>1E+14	>1E+14
Moisture & Insulation Resistance	ohms	IPC-TM-650 2.6..3.2	>1E+13	>1E+13	>1E+13
Initiation Tear Strength	g	2.4.26	1700		
Chemical Resistance	min, %	2.3.2	Pass, >95	Pass, >95	Pass, >95
Propagation Tear Strength	g	2.4.17.1	10	20	
Solderability		IPC-S-804, M.1	Pass	Pass	Pass
Glass Transition (Tg)	C		343	343	343
Flexural Endurance	min, cycles	2.4.3	>10000	>10000	>10000
Dimensional Change after etch MD/TD	%	IPC-TM-650 2.2.4 (B)	0.017/0.030	0.009/0.016	0.010/0.017
Dimensional Change after heat MD/TD	%	IPC-TM-650 2.2.4	0.012/0.009	0.007/0.010	0.007/0.014
Coefficient of Thermal Expansion	ppm/k	TMA 250°C-100°C	18	18	18
Coefficient of Humidity Expansion	ppm/%RH	5°C/min, 500g			
		23°C, 24 hrs	10	10	10
Thermal Conductivity	W/mK	Laser Flash Method	0.24	0.24	0.24
Specific Heat	J/gK	Laser Flash Method	1.13	1.13	1.13
Density	g/cm3	Laser Flash Method	1.47	1.47	1.47