FARADFLEX® BC8M, BC12M, BC16M and BC24M

Ultra Thin Advanced Electronic Materials

Product Description

FaradFlex® BC8M, BC12M, BC16M and BC24M are advanced film based laminate materials designed for ultra thin, low impedance, low inductance, buried capacitance, or reduced thickness applications. These materials are used primarily in printed circuit boards, cards and modules. Today's high speed, high data rate, ultra high density requirements for PCB's, packages and modules have made power delivery and power integrity critical. FaradFlex® is the thinnest, high performance laminate available for the printed circuit industry.

The FaradFlex® family of materials, are manufactured using the latest generation processing equipment, controls, and analytical techniques. FaradFlex® BC8M, BC12M, BC16M, and BC24M are constructed using Oak-Mitsui Technologies proprietary high performance polymer film, resin, and copper materials.

Configurations of Copper

½ oz/ ½ oz
1 oz/ 1 oz
2 oz/ 2 oz
1 oz/ ½ oz

Others may be available upon request

Typical Dielectric Nominal Thicknesses*

BC8M	→	8µm (≈ 1/3 mil)
BC12M	→	11µm (≈ ½ mil)
BC16M	→	15µm (≈ ¾ mil)
BC24M	→	22µm (≈ 1 mil)

***-Reference only, controlled by capacitance density**

Standard Size Dimensions

18.5" x 24.5"
Others available upon request

Features

- Greatly reduces impedance associated with the PCB substrate and power delivery system.
- Minimizes the inductance loop.
- Ultra-thin construction allows more layers in the same PCB stack thickness.
- "Green" Halogen Flame Retardant Free material
- Lead Free RoHS compatible
- Allows for simplification of circuitry routing by eliminating the traces, vias, and pads associated with the removed capacitors.
- Used to reduce the PCB form factor.
- Reduces or eliminates resonance that causes electromagnetic interference (EMI).
- Better electrical performance and higher PCB reliability then equivalent FR4 materials
- In many cases all 0.1 µm capacitors and lower can be removed from PCB's eliminating the need to connect those devices with solder.
- Makes the PCB lighter.

Specifications

IPC 4821
UL File #E239316
Telecordia DA-1777 Volume 1

Part Designation/ Nomenclature

BC XX M

Product Family is designated as BC
Numbers 8, 12, 16 and 24 are specific product names in the product family to indicate thickness.
The letter M designates our proprietary resin and film substrate.

Storage

FaradFlex® BC8M, BC12M, BC16M and BC24M materials are a cured laminate system.
FaradFlex® laminate should be stored in a dry, clean environment.

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***Visit us online at* www.FaradFlex.com**

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4/29/2009

Mechanical Properties	Method	Units	BC8M	BC12M	BC16M	BC24M
Tensile Strength	ASTM D882A	MPa	126	194	164	152
Elongation	ASTM D882A	%	8.5	11.5	16.5	18.5
Dimensional Stability after Etch (MD/TD)	IPC TM-650 2.4.2	%	-0.14	-0.03	-0.01	-0.03
			(-0.01)	(-0.01)	(-0.05)	(-0.02)
Dimensional Stability after Bake (MD/TD)	IPC TM-650 2.4.2	%	-0.30	-0.04	-0.02	-0.12
			(-0.06)	(-0.01)	(-0.10)	(-0.06)
Peel Strength	IPC TM-650 .2.4.9	PLI	>4	>6	>6	>6

Electrical Properties	Tested	Method	Units	BC8M	BC12M	BC16M	BC24M
Capacitance Density (Cp)	1MHz	IPC TM-650 2.5.5.3	nF/cm^2	0.57	0.32	0.27	0.18
	1GHz			0.39	0.25	0.19	0.14
	3GHz			0.39	0.24	0.19	0.14
	10GHz			0.38	0.23	0.19	0.13
Dielectric Constant(DK)	1MHz	IPC TM-650 2.5.5.3		4.4	4.4	4.4	4.4
	1GHz			3.48	3.5	3.5	3.48
	3GHz			3.45	3.5	3.5	3.45
	10GHz			3.37	3.4	3.4	3.37
Dissipation Factor (DF)	1MHz	IPC TM-650 2.5.5.3		0.016	0.015	0.015	0.015
	1GHz			0.021	0.02	0.02	0.016
	3GHz			0.021	0.02	0.02	0.017
	10GHz			0.021	0.02	0.02	0.017
Dielectric Strength		IPC TM-650 2.5.6.3	VDC/ micron	>400	>415	>312	>208
Volume Resistivity		IPC TM-650 2.5.17	Ohm/cm	2.59E+16	5.93E+15	1.64E+16	1.10E+15
Surface Resistance		IPC TM-650 2.5.17	Ohms	3.02E+13	3.50E+13	6.95E+13	7.20E+13
Working Voltage		-	Volts	1280	1600	>2000	>2000
Migration (85C/85%RH)	@35V/50V	-		>1000(35V)	>1000(50V)	>1000(50V)	>1000(50V)

Thermal Properties	Tested	Method	Units	BC8M	BC12M	BC16M	BC24M
CTE (in X-Y)		IPC TM-650 .4.41.3	ppm/°C	32	23	28	24
Tg, DMA			°C	185	185	185	185
Moisture Absorption		IPC TM-650 2.6.2	%	0.5	1.3	1.5	1.3
Decomposition Temperature, TGA	N2/Air @5% wt loss	IPC TM-650 2.3.40	°C	390/350	385/345	385/345	390/350
UL Flammability Rating		UL Flammability	Rating	V-0	V-0	V-0	V-0
MOT			°C	125	130	130	130

The information on this data sheet is provided as a guide to assist in design but does not imply the material is fit for use for any specific application. The values on this data sheet are measured "typical" values and they do not imply that all the material provided will match these exact values.

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