FARADFLEX® BC8TM, BC12TM

Ultra Thin Advanced Electronic Materials

Product Description

FaradFlex® BC8TM and BC12TM are advanced film based laminate materials designed for ULTRA THIN, **HIGH CAPACITANCE DENSITY** applications. Some major characteristics are low impedance and low inductance. Both materials enable reduced thickness and weight applications. These materials are used primarily in printed circuit boards, chip modules, and chip packages. 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® BC8TM and BC12TM are constructed using Oak-Mitsui Technologies proprietary high performance polymer film, ceramic filled resin, and copper materials.

Configurations of Copper

½ oz/ ½ oz
1 oz/ 1 oz
2 oz/ 2 oz

Others may be available upon request

Typical Dielectric Nominal Thicknesses*

BC8TM → 8µm (≈ 1/3 mil)
BC12TM → 12µm (≈ ½ 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 power delivery system.
- Higher capacitance than most organic PCB materials
- High Dk/ Permittivity
- Minimizes the inductance loop.
- Ultra-thin construction allows more layers in the same PCB stack thickness.
- Lead Free compatible, RoHS compliant
- 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).
- 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 TM

Product Family is designated as BC
Numbers 8 and 12 are specific product names in the product family to indicate thickness.
The letters TM designates our proprietary "filled" resin and film substrate.

Storage

FaradFlex® BC8TM and BC12TM 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**

FARADFLEX® BC8TM, BC12TM

Ultra Thin Advanced Electronic Materials

Mechanical Properties	Method	Units	BC8TM	BC12TM
Tensile Strength	ASTM D882A	MPa	81	110
Elongation	ASTM D882A	%	3	6
Dimensional Stability after Etch	IPC TM-650 2.4.2	%	-	-
Dimensional Stability after Bake	IPC TM-650 2.4.2	%	-	-
Peel Strength	IPC TM-650 .2.4.9	PLI	>4	>4

4/29/2009

Electrical Properties	Tested	Method	Units	BC8TM	BC12TM
Capacitance Density (Cp)	1MHz	IPC TM-650 2.5.5.3	nF/cm^2	1.13	0.65
	1GHz			1.05	0.72
	3GHz			1.05	0.72
	10GHz			1.03	0.7
Dielectric Constant(DK)	1MHz	IPC TM-650 2.5.5.3		10.5	10
	1GHz			10	9.5
	3GHz			10	9.5
	10GHz			9.8	9.2
Dissipation Factor (DF)	1MHz	IPC TM-650 2.5.5.3		0.020	0.015
	1GHz			0.021	0.020
	3GHz			0.021	0.020
	10GHz			0.021	0.020
Dielectric Strength		IPC TM-650 2.5.6.3	VDC/ micron	160	200
Volume Resistivity		IPC TM-650 2.5.17	Ohm/cm	4.60E+14	6.50E+14
Surface Resistance			Ohms	1.20E+13	1.90E+13
Working Voltage		-	Volts	1280	1600
Migration (85C/85%RH)/DC35V/50V		-		>1000(35V)	>1000(50V)

Thermal Properties	Tested	Method	Units	BC8TM	BC12TM
CTE (in X-Y)		IPC TM-650 .4.41.3	ppm/°C	22	28
Tg, DMA			°C	185	185
Moisture Absorption		IPC TM-650 2.6.2	%	0.5	0.8
Decomposition Temperature, TGA	N2/Air @5% wt loss	IPC TM-650 2.3.40	°C	390/350	385/345
UL Flammability Rating		UL Flammability	Rating	V-0 (Pending)	V-0
MOT			°C	125 (Pending)	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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