Product and Solutions Offering

Isola Laminate Systems' broad range of laminate, prepreg and foil products and solutions includes:

- **PWB Substrates**
  - FR-4s
  - Composites
- **Advanced PWB Substrates**
  - BT/Epoxy
  - Polyimide
  - Specialty Prepregs
- **HDI Materials**
  - RCC
- **Signal Integrity Substrates**
- **Buried Passive Solutions**
- **Packaging Substrates**

RCC®

Coated Copper Foil

RCC is a unique, thin dielectric for multilayer high density interconnects. It consists of specially engineered layers of resin, supported on electrodeposited copper foil. It is designed to serve as an insulating layer while encapsulating the circuitry and also acting as an outer layer conductor.

RCC is supplied with a polyliner protecting the B-staged resin. This liner, along with its uniquely toughened resin matrix, reduces cracking, and eliminates resin flaking and epoxy spots due to handling.

RCC consists of a C-Stage (fully cured) epoxy resin coating and a second coating of B-Stage (partially cured) epoxy resin. Its unique structure allows RCC to be used with rigid laminate as a cap layer or sequential build up, and also for flex coverlay applications*. The elimination of glass reinforcement allows the mass formation of blind microvias by means other than mechanical drilling. Both plasma and laser ablation have been used effectively.

Performance and Processing Advantages

- **Glass-free Dielectric**
  Enabler for mass via formation by laser or plasma ablation technique
- **Low Profile Copper**
  Superior insulation resistance, dielectric thickness consistency
- **Low Dielectric Constant**
  Improved impedance control
  Higher operating speeds
- **Surface Smoothness/ No Weave Print Through**
  Improved etching of fine lines and spaces
- **Thin Dielectric**
  Higher interconnect density
- **C-Stage Layer**
  Provides assured minimum thickness
  Increased surface smoothness
  Eliminates resin bleed through (pin holes)

Purchasing Information

- **Standard Availability**
  RCC products are available in a variety of standard thickness combinations. Alternate thickness combinations are available upon request.
  RCC products are available coated on 18 µm (1/2oz.), and 12 µm (3/8oz.) HTE copper foil. Thin foils ≤ 9 µm (1/4oz.) are available upon request.
  The RCC product chosen should be based on press cycles, blind via formation and inner layer design considerations. Please see the RCC Microvia Design and Selection and Processing Bulletins for assistance in making your selection.

- **Standard Product Selection**

Product Designation	**18/35/35**	**12/35/35**	**9/35/35**
	18µm copper	**12µm copper**	**9µm copper**
C-Stage thickness	35µm or 1.4mil	35µm or 1.4mil	35µm or 1.4mil
B-Stage thickness	35µm or 1.4mil	35µm or 1.4mil	35µm or 1.4mil

Standard products have a seven day leadtime.

- **Non-Standard Product Selection**
  Non-standard product include 18µm, 12µm, and ≤ 9µm foils with different C-Stage and B-stage thicknesses than listed above. These include but are not limited to the following copper and resin combinations.

Product Designation	**12/50/50**	**12/35/50**	**5/35/35**
C-Stage Thickness	50µm or 2.0mil	35µm or 1.4mil	35µm or 1.4mil
B-Stage Thickness	50µm or 2.0mil	50µm or 2.0mil	35µm or 1.4mil

For leadtime and availability of non-standard products contact Isola Laminate System's Inside Sales.

isola

Ordering Information
Contact your local sales representative or the Inside Sales Department in La Crosse, WI.

Phone: 1-800-845-2904 or
608-784-6070
Fax: 1-800-344-1825 or
608-791-2428

Isola Laminate Systems Corp.
230 North Front Street
La Crosse, WI 54601

For further information visit
www.isolalaminatesystems.com

RCC® Typical Properties

PROPERTY	UNITS	RCC® VALUE	CONDITIONING
Thermal			
Glass Transition Temperature (Tg)	°C	160	DMA
CTE (25 to 160°C), x-axis	ppm/°C	57	Four Camera
y-axis	ppm/°C	57	Four Camera
z-axis	ppm/°C	57	Four Camera
Solder Float, 288°C	seconds	116	@ 288°C
Electrical			
Dielectric Constant @ 1 MHz	—	3.43	C-24/23/50
Dissipation Factor @ 1MHz	—	0.025	C-24/23/50
Electric Strength	volts/mil	1760	D-48/50
Insulation Resistance	megohms	1.02×10^{5}	C-96/35/90
Surface Resistivity	megohms	9.39×10^{8}	E-24/125
	megohms	4.71×10^{8}	C-96/35/90
Volume Resistivity	megohms-cm	7.17×10^{7}	E-24/125
	megohms-cm	5.87×10^{8}	C-96/35/90
Physical			
Volatile Content	%	1.00	IPC-CF-148
Flammability	—	V-0	UL 94
Peel Strength, ½oz. copper	lbs/in	6.1	Condition A
	lbs/in	6.1	After Thermal Stress
	lbs/in	5.7	E-1/125
Resin Layer Thickness Tolerance	±mil/±µ	0.1/2.5	Nuclear Gage/gravimetric
Water Absorption	%	1.04	D-24/23

**For further information of specimen preparation, conditioning and test procedures, contact your Isola Laminate Systems Technical Service Representative.*

Storage and Handling

RCC panels, whether individually wrapped or contained in vendor packaging, must be stored flat on a fully supported surface to minimize curling or bending. RCC exhibits characteristics typical to most prepregs and must be stored avoiding exposure to excessive moisture or temperature. Recommended storage conditions are 70°F maximum at 45% ± 5% relative humidity.

Lamination

RCC is compatible with conventional epoxy lamination cycles. For further processing information, please refer to Isola Laminate Systems RCC Product Selection and Processing bulletin.

Note: This cap material is licensed by Parlex Corporation only for use in fabricating flat multilayer printed circuit boards which are not designed nor intended to be bent more than 15 degrees. Purchasers should contact Parlex Corporation if printed circuit boards are to be fabricated with this cap material which would be bent more than 15 degrees or flat products using aluminum base plates for automotive applications.

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