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Data Sheet

Feature:

CAF resistant

RO4400™ Series Bondply Data Sheet

RO4450B™ RO4450F™ and RO4460G2™ Bondply

RO4000® dielectric materials have long been used in combination with FR-4 cores and bondplys as a means to achieve a performance upgrade of standard FR-4 multi-layer designs. RO4003C™, RO4350B™, RO4360G2™, RO4835™, and RO4000 LoPro™ glass reinforced hydrocarbon/ceramic laminates have been used in layers where operating frequency, dielectric constant, or high-speed signal requirements dictate the need for high performance materials. FR-4 cores and bondply are still commonly used to inexpensively form less critical signal layers.

The RO4400™ bondply family is comprised of three grades based on the RO4000 series core materials, and are compatible in multi-layer constructions with RO4003C, RO4350B, RO4360G2, RO4835 or RO4000 LoPro laminates. A high postcure Tg makes RO4400 series bondply an excellent choice for multi-layers requiring sequential laminations as fully cured RO4400 bondplys are capable of handling multiple lamination cycles. In addition, FR-4 compatible bond requirements permit RO4400 bondply and low flow FR-4 bondply to be combined into non-homogeneous multi-layer constructions using a single bond cycle.

RO4450F™ bondply has demonstrated improvement in lateral flow capability over RO4450B™, and is becoming the first choice for new designs or as a replacement in designs that have difficult fill requirements. RO4460G2™ bondply provides designers with a 6.15 Dk bonding layer that, just as the other RO4400 bonding materials, exhibits excellent Dk control while maintaining a low z axis expansion for plated through hole reliability.

Each of the three grades of bondplys are recognized by Underwriter Laboratories with the UL-94 flame rating, and are compatible with lead-free processes.

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ROGERS CORPORATION

Data Sheet

Typical Values

RO4400 Series Bondply

PROPERTY	TYPICAL VALUES [1] RO4450B	RO4450F	RO4460G2	DIRECTION	UNITS	CONDITION	TEST METHOD
Thickness	3.6 (0.091)	4 (0.101)	4 (0.101)	4 (0.101)	Z	mils (mm)	-	-
Dielectric Constant, ε_r	3.30 ± 0.05	3.54 ± 0.05	3.52 ± 0.05	6.15 ± 0.15	Z	-	10GHz - 23°C	IPC-TM-650 2.5.5.5
Dissipation Factor, tan δ	0.004	0.004	0.004	0.004	Z	-	10GHz-23°C	IPC-TM-650 2.5.5.5
Dielectric Strength	1000	1000	1000	1000	Z	V/mil	23°C/50% RH	IPC-TM-650 2.5.6.2
Volume Resistivity	9.26 X 10^7	9.26 X 10^7	8.93 X 10^8	9.1 X 10^8	-	MΩ•cm	23°C/50% RH	IPC-TM-650 2.5.17.1
Surface Resistivity	3.82 X 10^7	3.82 X 10^7	1.03 X 10^7	1.5 X 10^8	X,Y	MΩ	23°C/50% RH	IPC-TM-650 2.5.17.1
Thermal Conductivity	0.60	0.60	0.65	0.67	Z	W/m/K	80°C	ASTM C518
Moisture Absorption	0.10	0.10	0.09	0.13	-	%	48 hrs immersion 0.060" sample temperature 50°C	ASTM D570
Tg	>280	>280	>280	170	-	°C TMA	-60°C - 300°C @ 10°C/min	IPC-TM-650 2.4.24.3
Td	390	390	390	405	-	°C TGA		ASTM D3850
Density	1.80	1.86	1.83	2.22	-	gm/cm^3	23°C	ASTM D792
Copper Adhesion	4.0 (0.70)	4.9 (0.86)	4.0 (0.70)	5.0 (1.04)	Z	pli (N/mm)	½ oz. EDC After Solder Float	IPC-TM-650 2.4.8
Coefficient of Thermal Expansion	19 17 60	19 17 50	19 17 50	15 18 43	X Y Z	ppm/°C	-55 to 280°C	IPC-TM-650 2.4.41
Color	White	White	White	White	-	-	-	-
Flammability	V-0	V-0	V-0	V-0				UL94
Lead-Free Process Compatible	Yes	Yes	Yes	Yes				

Notes:
[1]Typical values are a representation of an average value for the population of the property.
For specification values contact Rogers Corporation.
Rogers UL file number is E102763B.

STANDARD THICKNESS:	STANDARD SIZE:
RO4450B 0.0036" (0.091mm), 0.004", (0.101mm) RO4450F 0.0040" (0.101mm) RO4460G2 0.0040" (0.101mm)	24X18" Sheets (610mm X 457mm) Contact Customer Service for other available sizes.

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