ROGERS CORPORATION

\\\ Datasheet

RO4450T™
Bondply

RO4450T™ 3.2-3.3 Dk, low loss, spread glass reinforced, ceramic filled bonding material is designed to complement RO4835T™ laminates and the existing RO4000® laminate family, and come in multiple thickness options for improved multilayer board design flexibility .

RO4450T bonding materials exhibit excellent Dk control for repeatable electrical performance, a low z-axis expansion for plated through-hole reliability, and are compatible with standard epoxy/glass (FR-4) processes. These materials are an excellent choice for multilayer designs requiring sequential laminations, as fully cured RO4000 products are capable of withstanding multiple lamination cycles. RO4450T bondplys have the UL 94 V-0 flame retardant rating, and are compatible with lead-free processes. RO4000 bonding materials feature high performance material attributes for outstanding, repeatable wireless performance that provide the optimum blend of price, performance and durability.

\\\ Features and Benefits:

Prepreg grades based on RO4000 series core materials

- Compatible in mulitlayer board constructions with RO4003C, RO4350B, RO4835, RO4350G2, and RO4000 LoPro laminates

Low z-axis coefficient of thermal expansion ranging from 43 to 60 ppm/°C

- CAF resistant

Sequential lamination capable

- High frequency thermoset prepreg compatible with FR-4 bond temperatures

Lead free solder processing compatible

- High reliability plated through-hole

\\\ Typical Applications:

- Backhaul Radios
- Communications Systems
- Power Amplifiers
- Small Cells/DAS

Available Thicknesses	Available Panel Sizes
0.0025" (0.064 mm) 0.0030" (0.076 mm) 0.0035" (0.089 mm) 0.0040" (0.102 mm) 0.0045" (0.114 mm) 0.0050" (0.127 mm) 0.0060" (0.152 mm)	16" X 18" (406 X 457 mm) 24" X 18" (610 X 457 mm) 24.5" X 18.5" (622 X 470 mm) 24" X 36" (610 X 914 mm) Contact customer service for other available sizes.

\\\ Standard Properties Table

Properties	Typical Values [1]						
Electrical Properties							
Thicknesses	2.5 mils (0.064 mm)	3.0 mils (0.076 mm)	3.5 mils (0.089 mm)	4.0 mils (0.102 mm)	4.5 mils (0.114 mm)	5.0 mils (0.127 mm)	6.0 mils (0.152 mm)
Dielectric Constant	3.26 ± 0.05	3.23 ± 0.05	3.19 ± 0.05	3.35 ± 0.05	3.29 ± 0.05	3.28 ± 0.05	3.24 ± 0.05
Dissipation Factor	0.0037	0.0039	0.0033	0.0042	0.0044	0.0038	0.0044
Volume Resistivity	1.1 X10^{9}	2.8 X10^{9}	1.0 X10^{9}	1.4 X10^{9}	7.1 X10^{8}	2.3 X10^{9}	8.9 X10^{8}
Surface Resistivity	7.8 X10^{6}	2.5 X10^{8}	8.3 X10^{6}	1.0 X10^{7}	7.7 X10^{6}	1.7 X10^{8}	6.5 X10^{6}
Electrical Strength (dielectric strength)	1004	1020	972	1040	1070	990	1066
Thermal Properties							
Decomposition Temperature (Td)	397	406	398	408	398	405	397
Glass Transition (Tg)	176	179	188	176	182	177	183
Coefficient of Thermal Expansion	18	20	20	15	17	19	18
Coefficient of Thermal Expansion	18	21	19	16	17	20	18
Coefficient of Thermal Expansion	58	57	63	58	52	62	64
Thermal Conductivity	0.53	0.50	0.51	0.55	0.55	0.53	0.55
Mechanical Properties							
Copper Peel Strength after Thermal Stress	0.79 (4.5)	0.81 (4.6)	0.77 (4.4)	0.77 (4.4)	075 (4.3)	0.81 (4.6)	0.79 (4.5)
Physical Properties							
Glass	106	106	106	1078	1078	1078	1078
Resin-Content	79	82	84	75	77	79	83
Color	White	White	White	White	White	White	White
Flammability	V-0	V-0	V-0	V-0	V-0	V-0	V-0
Moisture Absorption	0.05	0.06	0.06	0.05	0.05	0.05	0.06
Lead Free Process Compatible	Yes	Yes	Yes	Yes	Yes	Yes	Yes

[1] Typical values are a representation of an average value for the population of the property. For specification values contact Rogers Corp.

\\\ Standard Properties Table

Properties	Direction	Units	Test Conditions		Test Method
Electrical Properties					
Dielectric Constant	Z	-	23˚C @ 50% RH	10 GHz	IPC TM-650 2.5.5.5
Dissipation Factor	Z	-	23˚C @ 50% RH	10 GHz	IPC TM-650 2.5.5.5
Volume Resistivity	-	Mohm-cm	C-96/35/90	-	IPC TM-650 2.5.17.1
Surface Resistivity	X,Y	Mohm	C-96/35/90	-	IPC TM-650 2.5.17.1
Electrical Strength (dielectric strength)	Z	V/mil	-	-	IPC TM-650 2.5.6.2
Thermal Properties					
Decomposition Temperature (Td)	-	˚C	2hrs @ 105˚C	5% Weight Loss	IPC TM-650 2.4.24.6
Glass Transition (Tg)	-	˚C TMA	A	-	IPC-TM-650 2.4.24
Coefficient of Thermal Expansion	X	ppm/˚C	-	-55˚C to 288˚C	IPC TM-650 2.4.41
Coefficient of Thermal Expansion	Y	ppm/˚C	-	-55˚C to 288˚C	IPC TM-650 2.4.41
Coefficient of Thermal Expansion	Z	ppm/˚C	-	-55˚C to 288˚C	IPC TM-650 2.4.41
Thermal Conductivity	Z	W/(m·K)	50˚C	z direction	ASTM D5470
Mechanical Properties					
Copper Peel Strength after Thermal Stress	X,Y	N/mm (lbs/in)	10s @288˚C	35 µm foil	IPC TM-650 2.4.8
Physical Properties					
Glass	-	-	-	-	-
Resin-Content	-	-	-	-	-
Color	-	-	-	-	-
Flammability	-	-	-	C48/23/50 & C168/70	UL 94
Moisture Absorption	-	%	D24/23	-	IPC TM-650 2.6.2.1
Lead Free Process Compatible	-	-	-	-	-

[1] Typical values are a representation of an average value for the population of the property. For specification values contact Rogers Corp.

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