

LAMINATES

Product	Dielectric Constant, ϵ_r @ 10 GHz (2.5 GHz) (Typical)		Dissipation ⁽¹⁾ Factor TAN δ @ 10 GHz (2.5 GHz) (Typical)	Thermal ⁽²⁾ Coefficient of ϵ_r -50°C to 150°C ppm/°C (Typical)	Volume Resistivity Mohm · cm (Typical)	Surface Resistivity Mohm (Typical)	Water ⁽⁴⁾ Absorption D48/50 % (Typical)	
	Process ⁽¹⁾	Design ⁽¹¹⁾						
RT/DUROID 5000	RT/duroid® 5880LZ Filled PTFE Composite	2.00 ± 0.04	2.00	0.0021	+20	1.74 X 10 ⁷	2.08 X 10 ⁶	0.03
	RT/duroid 5880 PTFE Random Glass Fiber	2.20 ± 0.02	2.20	0.0009	-125	2 X 10 ⁷	3 X 10 ⁷	0.02
	RT/duroid 5870 PTFE Random Glass Fiber	2.33 ± 0.02	2.33	0.0012	-115	2 X 10 ⁷	2 X 10 ⁷	0.02
RT/DUROID 6000	RT/duroid 6002 PTFE Ceramic	2.94 ± 0.04	2.94	0.0012	+12	1 X 10 ⁶	1 X 10 ⁷	0.02
	RT/duroid 6202PR ⁽²⁰⁾ PTFE Ceramic Woven Glass Reinforced	2.90 to 3.00 ± 0.04	2.90 to 3.00	0.0020	⁽⁸⁾ +5 to -15	1 X 10 ¹⁰	1 X 10 ⁹	0.03
	RT/duroid 6202 PTFE Ceramic Woven Glass Reinforced	⁽⁸⁾ 2.90 to 3.06	⁽⁸⁾ 2.90 to 3.06 ± 0.04	0.0015	⁽⁸⁾ +5 to -15	1 X 10 ⁶	1 X 10 ⁹	0.04
	RT/duroid 6035HTC PTFE Ceramic	3.50 ± 0.05	3.60	0.0013	-66	1 X 10 ⁸	1 X 10 ⁸	⁽¹²⁾ 0.06
	RT/duroid 6006 PTFE Ceramic	6.15 ± 0.15	6.45	0.0027	-410	2 X 10 ⁷	7 X 10 ⁷	0.05
	RT/duroid 6010.2LM PTFE Ceramic	10.20 ± 0.25	10.7	0.0023	-425	5 X 10 ⁵	5 X 10 ⁶	0.01
TC SERIES	TC350™ PTFE Ceramic Woven Glass Reinforced	3.50 ± 0.05	3.50	0.0020	-9	7.4 X 10 ⁶	3.2 X 10 ⁷	⁽²²⁾ 0.05
	TC350 Plus PTFE Ceramic Woven Glass Reinforced	3.50 ± 0.05	3.62	0.0017	-42	9.4 X 10 ¹¹	3.3 X 10 ¹²	⁽²⁵⁾ 0.05
	TC600™ PTFE Ceramic Woven Glass Reinforced	6.15 ± 0.15	6.15	0.0020	-75	1.6 X 10 ⁹	3.1 X 10 ⁹	⁽²²⁾ 0.03
TMM SERIES	TMM® 3 Hydrocarbon Ceramic	3.27 ± 0.032	3.45	0.0020	+37	3 X 10 ⁹	9 x 10 ⁹	⁽¹⁰⁾ 0.06
	TMM 4 Hydrocarbon Ceramic	4.50 ± 0.045	4.7	0.0020	+15	6 X 10 ^{8*}	1 x 10 ⁹	⁽¹⁰⁾ 0.07
	TMM 6 Hydrocarbon Ceramic	6.00 ± 0.08	6.3	0.0023	-11	1 X 10 ^{8*}	1 x 10 ⁹	⁽¹⁰⁾ 0.06
	TMM 10 Hydrocarbon Ceramic	9.20 ± 0.23	9.8	0.0022	-38	2 X 10 ⁸	4 X 10 ⁷	⁽¹⁰⁾ 0.09
	TMM 10i Hydrocarbon Ceramic	9.80 ± 0.245	9.9	0.0020	-43	2 X 10 ⁸	4 X 10 ⁷	⁽¹⁰⁾ 0.16
	TMM 13i Hydrocarbon Ceramic	⁽¹⁴⁾ 12.85 ± 0.35	12.2	0.0019	-70	-	-	0.13

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Thermal Conductivity W/(m·K) (Typical) 50°C ASTM D5470	Coefficient of Thermal Expansion ⁽⁶⁾ -55° to 288°C ppm/°C (Typical)			Peel Strength 1 oz (35µm) ED Foil lbs/in. (N/mm) (Typical)	Density g/cm ³ (Typical)	Flammability Rating UL 94	Lead-Free ⁽⁹⁾ Process Compatible	PIM ⁽²³⁾ dBc (Typical)	Product	
	X	Y	Z							
0.33	54	47	40	>4.0	1.4	V-0	YES	-	RT/duroid® 5880LZ Filled PTFE Composite	RT/DUROID 5000
0.20	31	48	237	31.2 (5.5)	2.2	V-0	YES	-	RT/duroid 5880 PTFE Random Glass Fiber	
0.22	22	28	173	27.2 (4.8)	2.2	V-0	YES	-	RT/duroid 5870 PTFE Random Glass Fiber	
0.60	16	16	24	8.9 (1.6)	2.1	V-0	YES	-	RT/duroid 6002 PTFE Ceramic	RT/DUROID 6000
0.68	15	15	30	14.3 (2.5)	2.1	V-0	YES	-	RT/duroid 6202PR ⁽²⁰⁾ PTFE Ceramic Woven Glass Reinforced	
0.68	15	15	30	9.1 (1.6)	2.1	V-0	YES	-	RT/duroid 6202 PTFE Ceramic Woven Glass Reinforced	
1.44	19	19	39	7.9 (1.4)	2.2	V-0	YES	-	RT/duroid 6035HTC PTFE Ceramic	
0.49	47	34	117	14.3 (2.5)	2.7	V-0	YES	-	RT/duroid 6006 PTFE Ceramic	
0.86	24	24	47	12.3 (2.1)	3.1	V-0	YES	-	RT/duroid 6010.2LM PTFE Ceramic	
0.72 ⁽²⁾ 1.0	7	7	23	7.0	2.3	V-0	YES	-	TC350™ PTFE Ceramic Woven Glass Reinforced	TC SERIES
1.24	10	9	38	3.8 (0.7)	TBD	V-0	YES	TBD	TC350 Plus PTFE Ceramic Woven Glass Reinforced	
1.10	9	9	35	8.0	3.0	V-0	YES	-	TC600™ PTFE Ceramic Woven Glass Reinforced	
0.70	15	15	23	5.7 (1.0)	1.8	NON FR	YES	-	TMM® 3 Hydrocarbon Ceramic	TMM SERIES
0.70	16	16	21	5.7 (1.0)	2.1	NON FR	YES	-	TMM 4 Hydrocarbon Ceramic	
0.72	18	18	26	5.7 (1.0)	2.4	NON FR	YES	-	TMM 6 Hydrocarbon Ceramic	
0.76	21	21	20	5 (0.9)	2.8	NON FR	YES	-	TMM 10 Hydrocarbon Ceramic	
0.76	19	19	20	5 (0.9)	2.8	NON FR	YES	-	TMM 10i Hydrocarbon Ceramic	
⁽¹⁷⁾ 0.76	19	19	20	4 (0.7)	3.0	NON FR	YES	-	TMM 13i Hydrocarbon Ceramic	

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Thickness, Tolerance & Panel Size inches (mm)

Laminates

Product	Standard Dielectric Thickness (Without The Cladding)	Available Claddings	Standard Panel Sizes
R04830™	0.0050" (0.127mm) ± 0.0006" 0.0094" (0.239mm) ± 0.0010"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm) 48" X 36" (1220mm X 914mm)
R04534™	0.032" (0.813mm) ± 0.002" 0.040" (1.016mm) ± 0.003" 0.060" (1.524mm) ± 0.004"	½ oz (18µm) ED, 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm) 24" X 36" (610mm X 914mm) 48" X 36" (1220mm X 914mm)
	0.0327" (0.831mm) ± 0.002" 0.0407" (1.034mm) ± 0.003" 0.0607" (1.542mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	
R04535™	0.030" (0.762mm) ± 0.002" 0.040" (1.016mm) ± 0.003" 0.060" (1.524mm) ± 0.004"	½ oz (18µm) ED, 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm) 24" X 36" (610mm X 914mm) 48" X 36" (1220mm X 914mm)
	0.0307" (0.780mm) ± 0.002" 0.0407" (1.034mm) ± 0.003" 0.0607" (1.542mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	
RT/duroid 5880LZ	0.010" (0.254mm) ± 0.0010" 0.020" (0.508mm) ± 0.0010" 0.025" (0.635mm) ± 0.0020" 0.030" (0.762mm) ± 0.0020" 0.040" (1.016mm) ± 0.0020" 0.050" (1.270mm) ± 0.0030" 0.100" (2.540mm) ± 0.0050" 0.170" (4.318 mm) ± 0.0080" Non-standard and custom thicknesses available. Please check with Rogers' Representative to confirm availability.	½ oz (18µm) ED, 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm) Non-Standard size available up to 24" X 54" (610mm X 1372mm)
RT/duroid® 5870 RT/duroid 5880	0.005" (0.127mm) ± 0.0005" 0.010" (0.254mm) ± 0.0007" 0.015" (0.381mm) ± 0.0010" 0.020" (0.508mm) ± 0.0010" 0.031" (0.787mm) ± 0.0010" 0.062" (1.575mm) ± 0.0020" Non-standard and custom thicknesses available. Please check with Rogers' Representative to confirm availability.	¼ oz (9µm)*, ½ (18µm), 1 oz (35µm), 2 oz (70µm)* ED ½ (18µm), 1 oz (35µm), 2 oz (70µm)* Rolled Copper ½ (18µm), 1 oz (35µm), 2 oz (70µm)* Reverse Treated ½ (18µm), 1 oz (35µm) Ohmega resistive foil Aluminum, Copper, Brass thick metal claddings may be available based on dielectric thickness*	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm) Non-Standard size available up to 18" X 48" (457mm X 1219mm)
RT/duroid 6002	0.005" (0.127mm) ± 0.0005" 0.010" (0.254mm) ± 0.0007" 0.020" (0.508mm) ± 0.0010" 0.030" (0.762mm) ± 0.0015" 0.060" (1.524mm) ± 0.0020" 0.120" (3.048mm) ± 0.0060" Non-standard and custom thicknesses available. Please check with Rogers' Representative to confirm availability.	¼ oz (9µm)*, ½ (18µm), 1 oz (35µm), 2 oz (70µm)* ED ½ (18µm), 1 oz (35µm), 2 oz (70µm)* Rolled Copper ½ (18µm), 1 oz (35µm) Ohmega resistive foil ½ (18µm), 1 oz (35µm), 2 oz (70µm)* Reverse Treated Aluminum, Copper, Brass thick metal claddings may be available based on dielectric thickness*	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm) Non-Standard size available up to 24" X 54" (610mm X 1372mm)
RT/duroid 6202	0.005" (0.127mm) ± 0.0005" 0.010" (0.254mm) ± 0.0007" 0.015" (0.381mm) ± 0.0010" 0.020" (0.508mm) ± 0.0010" 0.030" (0.762mm) ± 0.0010" 0.060" (1.524mm) ± 0.0020"	¼ oz (9µm)*, ½ (18µm), 1 oz (35µm), 2 oz (70µm)* ED ½ (18µm), 1 oz (35µm), 2 oz (70µm)* Rolled Copper ½ (18µm), 1 oz (35µm) Ohmega resistive foil ½ (18µm), 1 oz (35µm), 2 oz (70µm)* Reverse Treated	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm) Non-Standard size available up to 24" X 54" (610mm X 1372mm)
RT/duroid 6202PR	0.005" (0.127mm) ± 0.0005" 0.010" (0.254mm) ± 0.0007" 0.015" (0.381mm) ± 0.0010" 0.020" (0.508mm) ± 0.0010"	¼ oz (9µm)*, ½ (18µm), 1 oz (35µm), 2 oz (70µm)* ED ½ (18µm), 1 oz (35µm), 2 oz (70µm)* Reverse Treated ½ (18µm), 1 oz (35µm), 2 oz (70µm)* Rolled Copper ½ (18µm), 1 oz (35µm) Ohmega-ply® resistive foil	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm) Non-Standard size available up to 24" X 54" (610mm X 1372mm)
RT/duroid 6035HTC	0.010" (0.254mm) ± 0.0007" 0.020" (0.508mm) ± 0.001" 0.030" (0.762mm) ± 0.0015" 0.060" (1.524mm) ± 0.003"	½ (18µm), 1 oz (35µm), 2 oz (70µm) ED ½ (18µm), 1 oz (35µm) Reverse Treated	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
RT/duroid 6010.2LM RT/duroid 6006	0.010" (0.254mm) ± 0.0010" 0.025" (0.635mm) ± 0.0010" 0.050" (1.270mm) ± 0.0020" 0.075" (1.905mm) ± 0.0040" 0.100" (2.540mm) ± 0.0050" Non-standard and custom thicknesses available. Please check with Rogers' Representative to confirm availability.	¼ oz (9µm)*, ½ (18µm), 1 oz (35µm), 2* ED ½ (18µm), 1 oz (35µm), 2 oz (70µm)* Reverse Treated ½ (18µm), 1 oz (35µm) Ohmega resistive foil Aluminum, Copper, Brass thick metal claddings may be available based on dielectric thickness*	10" X 10" (254mm X 254mm) 10" X 20" (254mm X 508mm) 18" X 12" (457mm X 305mm) 18" X 12" and 18" X 24" Available in 0.025" Dielectric Thickness Increments Only and not Available in 0.010" (0.254mm)

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