

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 ⁽¹⁾					
ML SERIES™ 92ML™ Woven Glass Reinforced Modified Epoxy Laminates	5.3 (1 MHz)	-	0.011 (1 MHz)	-	4.9 X 10 ⁹	9.9 X 10 ⁷	⁽²⁾ 0.12
AD SERIES™ AD250C™ Woven Glass Reinforced PTFE Antenna Grade Laminates	2.50 ± 0.04	2.52	0.0013	-117	4.8 X 10 ⁸	4.1 X 10 ⁷	⁽²⁾ 0.04
AD255C™ Woven Glass Reinforced PTFE Antenna Grade Laminates	2.55 ± 0.04	2.60	0.0013	-110	7.4 X 10 ⁸	3.6 X 10 ⁷	⁽²⁾ 0.03
AD300D™ Woven Glass Reinforced PTFE Antenna Grade Laminates	2.97 ± 0.05	2.94	0.0021	-73	1.7 X 10 ⁸	5.1 X 10 ⁷	0.04
AD350A™ Woven Glass Reinforced PTFE Antenna Grade Laminates	3.50 ± 0.05	3.54	0.0033	-57	1.5 X 10 ⁹	9.5 X 10 ⁷	⁽²⁾ 0.10
AD1000™ Woven Glass Reinforced PTFE	10.20* ± 0.35	10.2	0.0023	-380	1.4 X 10 ⁹	1.8 X 10 ⁹	⁽²⁾ 0.03
CLTE SERIES™ CLTE-XT™ Woven Glass Reinforced PTFE	2.94* ± 0.03	2.94	0.0012	-9	4.3 X 10 ⁸	2.5 X 10 ⁸	⁽²⁾ 0.02
CLTE™ Woven Glass Reinforced PTFE	2.98 ± 0.04	2.98	0.0023	-9	1.4 X 10 ⁹	1.3 X 10 ⁶	⁽²⁾ 0.04
CLTE-AT™ Woven Glass Reinforced PTFE	3.00 ± 0.04	3.00	0.0013	-10	4.3 X 10 ⁸	2.0 X 10 ⁸	⁽²⁾ 0.03
CLTE-MW™ Woven Glass Reinforced PTFE	2.94 - 3.02 ± 0.04	3.03 to 3.10	0.0015	-35	1.3 X 10 ⁷	2.5 X 10 ⁶	⁽²⁾ 0.03
CUCIAD® SERIES CuClad® 217 Cross-Plied Woven Glass Reinforced PTFE	2.17, 2.20 ± 0.02	2.17, 2.20	0.0009	-151	2.3 X 10 ⁸	3.4 X 10 ⁶	⁽²⁾ 0.02
CuClad 233 Cross-Plied Woven Glass Reinforced PTFE	2.33 ± 0.02	2.40	0.0013	-171	8.0 X 10 ⁸	2.4 X 10 ⁶	⁽²⁾ 0.02
CuClad 250 Cross-Plied Woven Glass Reinforced PTFE	2.40 to 2.55* ± 0.04	2.40 to 2.60*	0.0017	-170	8.0 X 10 ⁹	1.5 X 10 ⁸	⁽²⁾ 0.03
DICIAD® SERIES DiClad® 880 Woven Glass Reinforced PTFE	2.17, 2.20 ± 0.02	2.2	0.0009	-160	1.4 X 10 ⁹	2.9 X 10 ⁶	⁽²⁾ 0.02
DiClad 870 Woven Glass Reinforced PTFE	2.33 ± 0.04	2.33	0.0013	-161	1.5 X 10 ⁹	3.4 X 10 ⁷	⁽²⁾ 0.02
DiClad 527 Woven Glass Reinforced PTFE	2.40 to 2.60* ± 0.04	2.40 to 2.60*	0.0017	-153	1.2 X 10 ⁹	4.5 X 10 ⁷	⁽²⁾ 0.03
ISOCLAD® SERIES IsoClad® 917 Non-Woven Glass Reinforced PTFE	2.17 ± 0.02	2.17	0.0013	-157	1.5 X 10 ¹⁰	1.0 X 10 ⁹	⁽²⁾ 0.04
IsoClad 933 Non-Woven Glass Reinforced PTFE	2.33 ± 0.04	2.33	0.0016	-132	3.5 X 10 ⁸	1.0 X 10 ⁸	⁽²⁾ 0.05
KAPPA® Kappa® 438 Hydrocarbon / Ceramic / Woven Glass UL 94 V-0 Laminates	4.10 ± 0.08	4.38	0.005	-21	2.9 X 10 ⁹	6.2 X 10 ⁷	0.12
MAGTRES™ MAGTRES™ 555 Magneto-Dielectric Laminates	$\epsilon_r = 6.5 \pm 0.5$ $\mu_r = 6.0 \pm 0.2$	-	See Data Sheet	~+1000	6.15 X 10 ⁸	1.74 X 10 ⁸	0.25
RO1000® XtremeSpeed™ R01200™ PTFE Ceramic Woven Glass Reinforced	3.03 - 3.10 ± 0.10	3.03 - 3.10	0.0017	-35	1.3 X 10 ⁷	2.5 X 10 ⁶	0.03

*Refer to Data Sheets for Dielectric Constant and Thickness Options

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							
1.60	18	18	27	7.6	2.26	V-0	YES	-	92ML™ Woven Glass Reinforced Modified Epoxy Laminates	ML SERIES™
0.33	47	29	196	14.8 (2.6)	2.28	V-0	YES	-164	AD250C™ Woven Glass Reinforced PTFE Antenna Grade Laminates	AD SERIES™
0.35	34	26	196	13.6 (2.4)	2.28	V-0	YES	-164	AD255C™ Woven Glass Reinforced PTFE Antenna Grade Laminates	
0.37	24	23	98	18.3 (3.2)	2.23	V-0	YES	-159	AD300D™ Woven Glass Reinforced PTFE Antenna Grade Laminates	
0.44	18	18	63	14.7 (2.6)	2.43	V-0	YES	-164	AD350A™ Woven Glass Reinforced PTFE Antenna Grade Laminates	
0.81	8	10	20	12.0 (2.14)	3.20	V-0	YES	-	AD1000™ Woven Glass Reinforced PTFE	
0.56	12.7	13.7	40.8	7.2 (1.29)	2.02	V-0	YES	-	CLTE-XT™ Woven Glass Reinforced PTFE	CLTE SERIES™
0.50	9.9	9.4	57.9	7.0 (1.25)	2.38	V-0	YES	-	CLTE™ Woven Glass Reinforced PTFE	
0.64	11.4	10.0	41.8	6.5 (1.16)	2.06	V-0	YES	-	CLTE-AT™ Woven Glass Reinforced PTFE	
0.42	8	8	30	6.0 (1.1)	2.1	V-0	YES	-	CLTE-MW™ Woven Glass Reinforced PTFE	
0.26	29	28	246	14.0 (2.50)	2.23	V-0	YES	-	CuClad® 217 Cross-Plied Woven Glass Reinforced PTFE	CUCLAD® SERIES
0.26	23	24	194	14.0 (2.50)	2.26	V-0	YES	-	CuClad 233 Cross-Plied Woven Glass Reinforced PTFE	
0.25	18	19	177	14.0 (2.50)	2.31	V-0	YES	-	CuClad 250 Cross-Plied Woven Glass Reinforced PTFE	
0.26	25	34	252	14.0 (2.50)	2.23	V-0	YES	-	DiClad® 880 Woven Glass Reinforced PTFE	DICALAD® SERIES
0.26	17	29	217	14.0 (2.50)	2.26	V-0	YES	-	DiClad 870 Woven Glass Reinforced PTFE	
0.25	14	21	173	14.0 (2.50)	2.31	V-0	YES	-	DiClad 527 Woven Glass Reinforced PTFE	
0.26	46	47	236	10.0 (1.79)	2.23	V-0	YES	-	IsoClad® 917 Non-Woven Glass Reinforced PTFE	ISOCALD® SERIES
0.26	31	35	203	10.0 (1.79)	2.27	V-0	YES	-	IsoClad 933 Non-Woven Glass Reinforced PTFE	
0.64	13	16	42	5.8	1.99	V-0	YES	-	Kappa® 438 Hydrocarbon / Ceramic / Woven Glass UL 94 V-0 Laminates	KAPPA®
0.47	22	25	25	3.1	3.45	N/A	YES	-	MAGTRES™ 555 Magneto-Dielectric Laminates	MAGTRES™
0.42	8	8	30	>4.5 (>0.79)	2.1	V-0	YES	-	XtremeSpeed™ R01200™ PTFE Ceramic Woven Glass Reinforced	R01000®

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 ⁽¹⁾						
RO3000® SERIES	R03003G2™ PTFE Ceramic	3.00 ± 0.04	⁽²⁹⁾ 3.07	0.0011	-35	1.4 X 10 ⁹	2.6 X 10 ⁸	0.06
	R03003™ PTFE Ceramic	⁽⁷⁾ 3.00 ± 0.04	3.00	0.0010	-3	1 X 10 ⁷	1 X 10 ⁷	0.04
	R03035™ PTFE Ceramic	3.50 ± 0.05	3.60	0.0015	-45	1 X 10 ⁷	1 X 10 ⁷	0.04
	R03006™ PTFE Ceramic	6.15 ± 0.15	6.4	0.002	-262	1 X 10 ⁵	1 X 10 ⁹	0.02
	R03010™ PTFE Ceramic	10.20 ± 0.30	11.2	0.0022	-395	1 X 10 ⁵	1 X 10 ⁹	0.05
	R03210™ PTFE Ceramic Woven Glass Reinforced	10.20 ± 0.50	10.8	0.0027	-459	1 X 10 ³	1 X 10 ⁹	0.12
RO4000® SERIES	R04003C™ Hydrocarbon / Ceramic / Woven Glass	3.38 ± 0.05	3.55	0.0027	+40	1.7 X 10 ¹⁰	4.2 X 10 ⁹	0.04
	R04350B™ Hydrocarbon / Ceramic / Woven Glass	3.48 ± 0.05	3.66	0.0037	+50	1.2 X 10 ¹⁰	5.7 X 10 ⁹	0.05
	R04360G2™ Hydrocarbon / Ceramic / Woven Glass	6.15 ± 0.15	6.4	0.0038	-131	4 X 10 ⁷	9 X 10 ⁶	0.08
	R04830™ Hydrocarbon / Ceramic / Spread Woven Glass	3.25 ± 0.05	3.24	0.0033	-30	9.6 X 10 ⁹	1.1 X 10 ⁸	0.15
	⁽¹⁶⁾ R04835™ Hydrocarbon / Ceramic / Spread Woven Glass	3.33 ± 0.05	3.52	0.0030	+35 ppm/°C (from -50 to +50°C) -35 ppm/°C (from +50 to +150°C)	1.34 X 10 ⁸	1.17 X 10 ⁶	0.20
	R04835™ Hydrocarbon / Ceramic / Woven Glass	3.48 ± 0.05	3.66	0.0037	+50	5 X 10 ⁸	7 X 10 ⁸	0.05
	R04533™ Hydrocarbon / Ceramic / Woven Glass Antenna Grade Laminates	3.30 ± 0.08	3.45	0.0025 (0.0020)	+40	1.1 X 10 ¹⁰	9.9 X 10 ⁸	0.02
	R04534™ Hydrocarbon / Ceramic / Woven Glass Antenna Grade Laminates	3.40 ± 0.08	3.55	0.0027 (0.0022)	+40	1.7 X 10 ¹⁰	4.2 X 10 ⁹	0.06
	R04535™ Hydrocarbon / Ceramic / Woven Glass UL 94 V-0 Antenna Grade Laminates	3.44 ± 0.08	3.60	0.0037 (0.0032)	+50	1.2 X 10 ¹⁰	5.7 X 10 ⁹	0.09
	R04725JXR™ Hydrocarbon / Ceramic / Woven Glass	2.55 ± 0.05	2.64	0.0026 (0.0022)	+34	2.16 X 10 ⁸	4.8 X 10 ⁷	0.24
R04730G3™ Hydrocarbon / Ceramic / Woven Glass UL 94 V-0 Antenna Grade Laminates	3.00 ± 0.05	2.98	0.0028	+34	9.0 X 10 ⁷	7.2 X 10 ⁵	0.93	
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	0.31
	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

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						
0.43	16	17	18	⁽³⁰⁾ 12.0	2.15	V-0	YES	-	R03003G2™ PTFE Ceramic
0.50	17	16	25	12.7 (2.2)	2.1	V-0	YES	-	R03003™ PTFE Ceramic
0.50	17	17	24	10.2 (1.8)	2.1	V-0	YES	-	R03035™ PTFE Ceramic
0.79	17	17	24	7.1 (1.2)	2.6	V-0	YES	-	R03006™ PTFE Ceramic
0.95	13	11	16	9.4 (1.6)	2.8	V-0	YES	-	R03010™ PTFE Ceramic
0.81	13	13	34	11.0 (1.9)	3	V-0	YES	-	R03210™ PTFE Ceramic Woven Glass Reinforced
0.71	11	14	46	6.0 (1.05)	1.8	NON FR	YES	-	R04003C™ Hydrocarbon / Ceramic / Woven Glass
0.69	10	12	32	5.0 (0.88)	1.9	V-0	YES	-	R04350B™ Hydrocarbon / Ceramic / Woven Glass
0.75	13	14	28	5.2 (0.91)	2.16	V-0	YES	-	R04360G2™ Hydrocarbon / Ceramic / Woven Glass
0.45	23	23	110	3.8 (0.67)	1.68	V-0	YES	-	R04830™ Hydrocarbon / Ceramic / Spread Woven Glass
0.53 0.52 @ 80°	14	16	62	3.0 (0.53)	1.81	V-0	YES	-	⁽¹⁶⁾ R04835T™ Hydrocarbon / Ceramic / Spread Woven Glass
0.66	10	12	31	5.0 (0.88)	1.92	V-0	YES	-	R04835™ Hydrocarbon / Ceramic / Woven Glass
0.60	13	11	37	6.9 (1.2)	1.8	NON FR	YES	-157	R04533™ Hydrocarbon / Ceramic / Woven Glass Antenna Grade Laminates
0.60	11	14	46	6.3 (1.1)	1.8	NON FR	YES	-157	R04534™ Hydrocarbon / Ceramic / Woven Glass Antenna Grade Laminates
0.6	16	17	50	5.1 (0.9)	1.9	V-0	YES	-157	R04535™ Hydrocarbon / Ceramic / Woven Glass UL 94 V-0 Antenna Grade Laminates
⁽¹⁹⁾ 0.38	13.9	19.0	25.6	8.5 (1.49)	1.27	NON FR	YES	-160	R04725JXR™ Hydrocarbon / Ceramic / Woven Glass
0.45	15.9	14.4	35.2	4.1	1.58	V-0	YES	≤-165	R04730G3™ Hydrocarbon / Ceramic / Woven Glass UL 94 V-0 Antenna Grade Laminates
0.33	54	47	40	>4.0	1.4	V-0	YES	-	RT/duroid® 5880LZ Filled PTFE Composite
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

R03000® SERIES

R04000® SERIES

RT/DUROID® 5000

LAMINATES

Product	Dielectric Constant, ϵ_r @ 10 GHz (2.5 GHz) (Typical)		Dissipation ⁽¹⁾ Factor $TAN \delta$ @ 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 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

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						
0.60	16	16	24	8.9 (1.6)	2.1	V-0	YES	-	RT/duroid 6002 PTFE Ceramic
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 (27)1.0	7	7	23	7.0 (1.2)	2.3	V-0	YES	-	TC350™ PTFE Ceramic Woven Glass Reinforced
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 (1.4)	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
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

RT/DUROID 6000

TC SERIES

TMM SERIES

BONDING MATERIALS

Product	Dielectric ⁽¹⁾ Constant, ϵ_r (Typical)	Dissipation ⁽¹⁾ Factor TAN δ @ 10 GHz (Typical)	Volume Resistivity Mohm · cm (Typical)	Water ⁽⁴⁾ Absorption D48/50 % (Typical)	Thermal ⁽⁵⁾ Conductivity W/(m·K) (Typical) 50°C ASTM D5470
92ML™ Prepreg	5.3 (1 MHz)	0.011 (1 MHz)	4.9 X 10 ⁹	0.12 ⁽²⁵⁾	1.60 ⁽²⁶⁾
2929 Bondply	2.94 ± 0.05	0.0030	⁽²⁷⁾ 7.4 X 10 ⁹	0.1	0.40
COOLSPAN® TECA Thermoset Thermally & Electrically Conductive Adhesive (TECA) Film	N/A	N/A	3.8 X 10 ⁻¹⁰ (Conductive)	N/A	6.00
6250 Bonding Film	2.32	0.0013	1.0 X 10 ¹⁰	0.01 ⁽²²⁾	0.17
6700 Bonding Film	2.35	0.0025	1.0 X 10 ¹²	0.01 ⁽²²⁾	0.17
R04450F™ Hydrocarbon / Ceramic / Woven Glass / Prepreg	3.52 ± 0.05	0.0040	8.93 X 10 ⁸	0.09	0.65
⁽²⁸⁾ R04450T™ Hydrocarbon / Ceramic / Woven Glass / Prepreg	3.23 ± 0.05	0.0039	2.9 X 10 ⁹	0.11	0.50
R04460G2™ Hydrocarbon / Ceramic / Woven Glass / Prepreg	6.15 ± 0.15	0.0040	9.1 X 10 ⁸	0.13	0.67
XtremeSpeed™ R01200™ Bondply	2.97	0.0012	8.9 X 10 ⁷	0.13 ⁽²⁵⁾	0.5
SpeedWave™ 300P Prepreg	3.16	0.0021	1.0 X 10 ⁹	0.12 ⁽²⁵⁾	0.48

Properties Notes:

- (1) Measured by IPC-TM-650 method 2.5.5.5 @ ~10 GHz, 23°C. Materials were based on testing raw substrate material. ϵ_r values and tolerance reported by IPC-TM-650 method 2.5.5.5 are the basis for quality acceptance, but for some products these values may be incorrect for design engineering applications, especially those in microstrip. We recommend that prototype boards of a new design be verified for electrical performance.
- (2) Measured by IPC-TM-650 method 2.5.5.5 at ~10GHz modified.
- (3) Typical values are mean values derived from populations of measurements involving multiple lots of the specific foil type.
- (4) Measured after 48±1 hours immersion at 50±1°C in accordance with the ASTM D570 standard.
- (5) Tested by ASTM C518.
- (6) Tested by IPC-TM-650 2.4.41. Values are average over temperature range but not necessarily linear. However for RT/duroid 6002 and TMM grades the response is essentially linear.
- (7) The nominal dielectric constant of an 0.060" thick R03003 laminate as measured by IPC-TM-2.5.5.5 will be 3.04 due to the elimination of biasing caused by air gaps in the test fixture. For further information refer to Rogers' T.R. 5242.
- (8) Due to construction limitations, the dielectric constant of 0.005" laminates is 3.06 ± 0.04; 0.010" and 0.015" laminates are 3.02 ± 0.04; TCDK is +5 for the higher Dk range; and for 2.90 TCDK is -15.
- (9) Rogers' high frequency laminates and prepregs are lead-free process compatible and in accordance with IEC 61249-2-21.
- (10) TMM material test conditions D24/50 (twenty-four hours at 50°C) on 0.050" (1.27mm) thick specimens. TMM13i test condition D48/50.
- (11) Design Dk is determined by testing thick microstrip transmission line circuits and reporting the thickness-axis dielectric constant of the raw material without the influence of copper. For more information, refer to the article on the Rogers website titled "The Influence of Test Method, Conductor Profile, and Substrate Anisotropy on the Permittivity Values Required for Accurate Modeling of High Frequency Planar Circuits", which was featured in a publication Sept. 2012. <http://www.rogerscorp.com/acs/articles.aspx>
- (12) Testing conditions: 24 hours @ 23 C, specimens etched free of copper.
- (13) Available only with LoPro® copper foil.
- (14) Measured by IPC-TM-650 method 2.5.5.6 .
- (15) 2oz available on TC350™ Plus only.
- (16) Values for 2.5 mil thickness.
- (17) Estimated

Coefficient of Thermal Expansion ⁽⁶⁾ 0° - 100°C ppm/°C (Typical)			Density g/cm ³ (Typical)	Flammability Rating UL 94	Lead-Free ⁽⁹⁾ Process Compatible	Press Temperatures		Product
X	Y	Z				F	C	
18	18	27	2.26	V-0	YES	365	185	92ML™ Prepreg
50	50	50	1.50	NON-FR	YES	450	232	2929 Bondply
45	45	45	4.60	NON-FR	YES	350	175	COOLSPAN® Thermoset & Electrically Conductive Adhesive (TECA) Film
-	-	-	0.93	-	NO	275	135	6250 Bonding Film
-	-	-	2.10	-	NO	450	232	6700 Bonding Film
19	17	50	1.83	V-0	YES	350	175	R04450F™ Hydrocarbon / Ceramic / Woven Glass / Prepreg
20	21	57	1.83	V-0	YES	350	175	⁽²⁸⁾ R04450T™ Hydrocarbon / Ceramic / Woven Glass / Prepreg
15	18	43	2.22	V-0	YES	350	175	R04460G2™ Hydrocarbon / Ceramic / Woven Glass / Prepreg
29	29	29	-	V-0	YES	700	370	XtremeSpeed™ R01200™ Bondply
15	15	35	-	V-0	YES	392	200	SpeedWave™ 300P Prepreg

Properties Notes Continued:

- (18) IPC-TM-650.2.5.5.1
- (19) Test method: ASTM D5470-12 @ 50°C.
- (20) PR stands for Planar Resistor. Resistive foil, if required, must be specified when ordering 6202PR laminate.
- (21) Conditions 125°C/24 hours. Test method IPC-TM-650 2.5.17.1
- (22) Measured after 24+½-0 hours immersion at 23 ± 1°C in accordance with the ASTM D570 standard.
- (23) 12 microstrip transmission line test circuit on 0.060" thick laminate.
- (24) N/A
- (25) (D24/23) IPC TM-650 2.6.2.1
- (26) ASTM E1461
- (27) 1.0 W/(m•K) based on ASTM E1461
- (28) Values for 3 mil thickness.
- (29) Measured using differential phase length method at 77GHz.
- (30) Value shown is for 1/2 oz ED copper.

Typical values are a representation of an average value for the population of the property.
For specification values contact Rogers Corporation.

The information contained in this Product Selector Guide is intended to assist you in designing with Rogers' circuit materials. It is not intended to and does not create any warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose. The user should determine the suitability of Rogers' circuit materials for each application.

Prolonged exposure in an oxidative environment may cause changes to the dielectric properties of hydrocarbon based materials. The rate of change increases at higher temperatures and is highly dependent on the circuit design. Although Rogers' high frequency materials have been used successfully in innumerable applications and reports of oxidization resulting in performance problems are extremely rare, Rogers recommends the customer evaluate each material and design combination to determine fitness for use over the entire life of the end product.

Metal Claddings

Foil Type	Weight or Thickness	Surface Roughness Sq(μm) or RMS(μm)		Products
		Dielectric Side	Top Side	
Rolled	1 oz (35 μm)	0.4	0.3	XtremeSpeed™ R01200™ , R03003™ , RT/duroid® 5870 , 5880, 6002, 6202, DiClad®527 , DiClad® 870 , DiClad® 880
	½ oz. (18 μm)	0.4	0.3	
Electrodeposited	1 oz (35 μm)	1.5	0.4	TC350™ , TC600™ , AD250™ , AD255™ , AD300™ , AD350™
	½ oz. (18 μm)	1.6	0.4	
	2 oz (70 μm)	3.0	0.4	
	1 oz (35 μm)	1.7	0.4	CuClad 217 , CuClad 233 , CuClad 250 , DiClad 527 , DiClad 870 , DiClad 880 , IsoClad 917 , IsoClad 933 , CLTE , CLTE-AT , CLTE-XT , CLTE-MW , AD1000™
	½ oz. (18 μm)	1.5	0.4	
	1 oz (35 μm)	2.4	0.4	R03003 , R03006 , R03010 , R03035 , R03210
	½ oz. (18 μm)	2.0	0.4	RT/duroid 5870 , 5880, 5880LZ, 6002, 6035HTC, 6202, 6006, 6010.2LM, TMM® 3 , 4, 6, 10, 10i, 13i
	2 oz. (70 μm)	3.5	0.4	
	1 oz. (35 μm)	3.2	0.4	Kappa® 438 , R04003C™ , R04350B™ , R043508™ , R04360G2™ , R04533™ , R04534™ , R04535™ , R04730G3™ , R04835™ , 92ML Series (only product grade with 2oz), CU4000
	½ oz. (18 μm)	2.8	0.4	
	1 oz. (35 μm)	0.5	0.4	AD300D™-IM™ , AD255C™-IM , DiClad® 880-IM
	1 oz. (35 μm)	-	0.4	
½ oz. (18 μm)	0.7	0.4	R04835T™ , R03003G2™ , CLTE-MW™	
Electrodeposited Low Profile Reverse Treated	¼ oz. (9 μm)	-	-	CLTE-MW™
	2 oz. (70 μm)	1.0	2.0	
	1 oz. (35 μm)	1.0	1.3	DiClad 527 , DiClad 870 , DiClad 880 , CLTE , CLTE-AT , CLTE-XT , CLTE-MW (only product grade with 2oz), AD1000
	½ oz. (18 μm)	1.0	0.8	
	1 oz. (35 μm)	1.0	1.5	
LoPro® Foil	½ oz. (18 μm)	1.0	1.0	RT/duroid 6035HTC , AD250 , AD255 , AD300 , AD350 , TC350 , TC600 , TC350 Plus
	1 oz. (35 μm)	0.9	1.3	R04003C , R04350B , R04533 , R04534 , R04535 , R04725JXR™ , R04730G3™ , R04830™ , R04835 , CU4000 LoPro
Resistive Foil	½ oz. (18 μm)	0.9	0.8	
	NiCr Ticer TCR ½ oz. (18 μm)	1.4	0.4	R04003C , R04350B , R04360G2 , R04835
	OhmegaPly® ½ oz. (18 μm)	1.7	0.4	R04003C
	OhmegaPly ½ oz. (18 μm)	1.2	0.4	CLTE , DiClad 527 , DiClad 870 , DiClad 880 , R03003 , R03006 , R03010 , R03035 , R03210 , RT/duroid 5870 , 5880, 6002, 6006, 6010.2LM, 6202, 6202PR

Property	Electrodeposited (ED)				Rolled (RLD)		
	¼ oz (9 μm)	0.5 oz (18 μm)	1 oz. (35 μm)	2 oz (70 μm)	0.5 oz (18 μm)	1 oz. (35 μm)	2 oz. (70 μm)
Tensile Strength, kpsi	15	33	40	40	20	22	28
Elongation, %	2	2	3	3	8	13	27
Vol Resistivity Microhm-cm	-	1.66	1.62	1.62	1.78	1.74	1.74
Thickness: in (μm)	0.0004 (10.2)	0.0007 (17.8)	0.0014 (35.6)	0.0028 (71.1)	0.0007 (17.8)	0.0014 (35.6)	0.0028 (71.1)

Rogers produces upon request a select number of copper clad laminates using commercially available, subtractively processed resistive foils. Resistive foil technology enables the use of planar resistors within the circuit boards that are made from our laminate products. The availability of these resistive foils varies depending on each particular copper clad laminate product offered by Rogers. However, in general Rogers uses both OhmegaPly® foil from Ohmega Technologies, Inc. (<http://ohmega.com/>) and TCR® foil from Ticer Technologies (<http://www.ticertechnologies.com/>). Rogers customers are encouraged to research the specific resistive foil products that are available as well as the performance and processing details from each foil supplier prior to placing orders with Rogers. As a service, Rogers offers customers the option of purchasing resistive foils bonded to certain substrates. Rogers does not guarantee the performance of resistive layers, and as such, shall not be liable for any loss or damage suffered by the buyer. Rogers products manufactured with resistive foils are offered on a "best efforts" basis for appearance and resistive expectations. Please reference *Rogers Statement on Resistive Foil Visual Appearance and Resistive Expectations* at the Rogers Document Library website: <https://rogerscorp.com/downloads>

Thickness, Tolerance & Panel Size inches (mm)

Laminates

Product	Available Dielectric Thickness (Without Cladding)	Available Claddings	Available Panel Sizes
<u>92ML™</u>	0.003" (0.076mm) ± 0.0007" 0.004" (0.102mm) ± 0.0007" 0.006" (0.152mm) ± 0.0010" 0.008" (0.203mm) ± 0.0015"	1 oz (35µm), 2 oz (70µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>AD250C™</u>	0.020" (0.508mm) ± 0.0020" 0.030" (0.762mm) ± 0.0020" 0.060" (1.524mm) ± 0.0030"	½ oz (18µm), 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>AD255C™</u>	0.020" (0.510mm) ± 0.0020" 0.030" (0.762mm) ± 0.0020" 0.040" (1.016mm) ± 0.0020" 0.060" (1.524mm) ± 0.0030" 0.125" (3.175mm) ± 0.0060"	½ oz (18µm), 1 oz (35µm) ED ½ oz (18µm), 1 oz (35µm) RT 1 oz (35µm) IM	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>AD300D™</u>	0.030" (0.762mm) ± 0.0020" 0.040" (1.020mm) ± 0.0020" 0.060" (1.524mm) ± 0.0020" 0.120" (3.050mm) ± 0.0060"	½ oz (18µm), 1 oz (35µm) ED ½ oz (18µm), 1 oz (35µm) RT 1 oz (35µm) IM	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>AD350A™</u>	0.030" (0.762mm) ± 0.0020" 0.060" (1.524mm) ± 0.0030" 0.120" (3.048mm) ± 0.0060"	½ oz (18µm), 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>AD1000™</u>	0.025" (0.635mm) ± 0.0020" 0.050" (1.270mm) ± 0.0020"	½ oz (18µm), 1 oz (35µm) ED	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
<u>CLTE-XT™</u>	0.0051" (0.130mm) ± 0.0005" 0.0094" (0.239mm) ± 0.0007" 0.020" (0.508mm) ± 0.0010" 0.030" (0.762mm) ± 0.0010"	½ oz (18µm), 1 oz (35µm) ED ½ oz (18µm), 1 oz (35µm) RT	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
<u>CLTE™</u>	0.0053" (0.135mm) ± 0.0005" 0.010" (0.254mm) ± 0.0010" 0.020" (0.508mm) ± 0.0020" 0.030" (0.762mm) ± 0.0020"	½ oz (18µm), 1 oz (35µm) ED ½ oz (18µm), 1 oz (35µm) RT	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
<u>CLTE-AT™</u>	0.005" (0.127mm) ± 0.0005" 0.010" (0.254mm) ± 0.0007" 0.020" (0.508mm) ± 0.0015" 0.030" (0.762mm) ± 0.0020" 0.060" (1.524mm) ± 0.0030"	½ oz (18µm), 1 oz (35µm) ED ½ oz (18µm), 1 oz (35µm) RT	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
<u>CLTE-MW™</u>	0.003" (0.076mm) ± 0.0005" 0.004" (0.102mm) ± 0.0005" 0.005" (0.127mm) ± 0.0007" 0.006" (0.152mm) ± 0.0007" 0.007" (0.178mm) ± 0.001" 0.008" (0.203mm) ± 0.001" 0.010" (0.254mm) ± 0.001"	½ oz (18µm), 1 oz (35µm), 2oz (70µm) RT ¼ oz (9µm), ½ oz (18µm), 1 oz (35µm) VLP ED	12" x 18" (305mm x 457mm) 24" x 18" (610mm x 457mm)
<u>CuClad® 217</u>	0.010" (0.254mm) ± 0.0010" 0.020" (0.508mm) ± 0.0020" 0.031" (0.787mm) ± 0.0020" 0.062" (1.524mm) ± 0.0020"	½ oz (18µm), 1 oz (35µm) ED	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
<u>CuClad 233</u>	0.010" (0.254mm) ± 0.0010" 0.020" (0.508mm) ± 0.0020" 0.031" (0.787mm) ± 0.0020" 0.062" (1.575mm) ± 0.0020"	½ oz (18µm), 1 oz (35µm) ED	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
<u>CuClad 250</u>	0.010" (0.254mm) ± 0.0009" 0.020" (0.508mm) ± 0.0020" 0.031" (0.787mm) ± 0.0020" 0.062" (1.575mm) ± 0.0020"	½ oz (18µm), 1 oz (35µm) ED	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)

Thickness, Tolerance & Panel Size inches (mm)

Laminates

Product	Available Dielectric Thickness (Without Cladding)	Available Claddings	Available Panel Sizes
<u>DiClad® 880</u>	0.020" (0.508mm) ± 0.0020" 0.030" (0.762mm) ± 0.0020" 0.060" (1.524mm) ± 0.0020"	½ oz (18µm), 1 oz (35µm) ED ½ oz (18µm), 1 oz (35µm) RT 1 oz (35µm) IM	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
<u>DiClad 870</u>	0.031" (0.787mm) ± 0.0020" 0.093" (2.362mm) ± 0.0030" 0.125" (3.251mm) ± 0.0060"	½ oz (18µm), 1 oz (35µm) ED ½ oz (18µm), 1 oz (35µm) rolled	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
<u>DiClad 527</u>	0.020" (0.508mm) ± 0.0020" 0.030" (0.787mm) ± 0.0020" 0.060" (1.524mm) ± 0.0020"	½ oz (18µm), 1 oz (35µm) ED	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
<u>IsoClad® 917</u>	0.031" (0.787mm) ± 0.0020" 0.062" (1.524mm) ± 0.0040"	½ oz (18µm), 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>IsoClad 933</u>	0.015" (0.381mm) ± 0.0020" 0.031" (0.787mm) ± 0.0020" 0.062" (1.524mm) ± 0.0040"	½ oz (18µm), 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>Kappa® 438</u>	0.020" (0.508mm) ± 0.0015" 0.030" (0.762mm) ± 0.0020" 0.040" (1.016mm) ± 0.0030" 0.060" (1.524mm) ± 0.0040"	½ oz (18µm) ED, 1 oz (35µm) ED	24" X 18" (610mm X 457mm) 24.25" X 18.25" (616mm X 464mm) 48" X 36" (1220mm X 914mm) 48.25" X 36.25" (1226mm X 921mm)
<u>MAGTREX™ 555</u>	0.040" (1.016mm) ± 0.002" 0.060" (1.524mm) ± 0.003" 0.080" (2.032mm) ± 0.004" 0.100" (2.540mm) ± 0.005" 0.140" (3.556mm) ± 0.007" 0.200" (5.080mm) ± 0.009" 0.260" (6.604mm) ± 0.009"	1 oz (35µm) ED	12" X 18" (305mm X 457mm)
<u>XtremeSpeed™ R01200™</u>	0.003" (0.076mm) ± 0.0005" 0.004" (0.102mm) ± 0.0005" 0.005" (0.127mm) ± 0.0007" 0.006" (0.152mm) ± 0.0007" 0.007" (0.178mm) ± 0.0010" 0.008" (0.203mm) ± 0.0010" 0.010" (0.254mm) ± 0.0010"	½ oz (18µm), 1 oz (35µm) rolled 2 oz (70µm) Reverse Treat	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm) 24" X 36" (610mm X 914mm)
<u>R03003G2™</u>	0.005" (0.127mm) ± 0.0005" 0.010" (0.254mm) ± 0.0007"	½ oz (18µm) ED	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm)
<u>R03003™</u>	0.005" (0.127mm) ± 0.0005" 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 oz (18µm) ED, 1 oz (35µm) ED ½ oz (18µm), 1 oz (35µm) rolled	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>R03035™</u>	0.010" (0.254mm) ± 0.0007" 0.020" (0.508mm) ± 0.001" 0.060" (1.524mm) ± 0.003"	½ oz (18µm), 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>R03006™</u> <u>R03010™</u>	0.005" (0.127mm) ± 0.0005" 0.010" (0.254mm) ± 0.0007" 0.025" (0.635mm) ± 0.001" 0.050" (1.270mm) ± 0.002"	½ oz (18µm) ED, 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>R03210™</u>	0.025" (0.635mm) ± 0.001" 0.050" (1.270mm) ± 0.002"	½ oz (18µm), 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
<u>R04725JXR™</u>	0.0307" (0.78mm) ± 0.002" 0.0607" (1.54mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	24" X 18" (610mm X 457mm) 48" X 36" (1220mm X 914mm)
<u>R04730G3 ED™</u> (With ED Foil)	0.020" (0.508mm) ± 0.0015" 0.030" (0.762mm) ± 0.002" 0.060" (1.524mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) ED	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)

Thickness, Tolerance & Panel Size inches (mm)

Laminates

Product	Available Dielectric Thickness (Without Cladding)	Available Claddings	Available Panel Sizes
<u>R04730G3™ LoPro®</u>	0.0057" (0.145mm) ± 0.0007" 0.0107" (0.272mm) ± 0.001" 0.0207" (0.526mm) ± 0.0015" 0.0307" (0.780mm) ± 0.002" 0.0607" (1.542mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04533™</u>	0.020" (0.508mm) ± 0.0015" 0.030" (0.762mm) ± 0.0015" 0.060" (1.524mm) ± 0.004"	½ oz (18µm) ED, 1 oz (35µm) ED	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04533 LoPro®</u>	0.0207" (0.526mm) ± 0.0015" 0.0307" (0.780mm) ± 0.002" 0.0607" (1.542mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04003C™</u>	0.008" (0.203mm) ± 0.001" 0.012" (0.305mm) ± 0.001" 0.016" (0.406mm) ± 0.0015" 0.020" (0.508mm) ± 0.0015" 0.024" (0.610mm) ± 0.0015" 0.032" (0.813mm) ± 0.002" 0.060" (1.524mm) ± 0.004"	½ oz (18µm) ED, 1 oz (35µm) ED ½ oz (18µm) Ticer & OhmegaPly Resistive Foil -Only Available 12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04360G2™</u>	0.008" (0.203mm) ± 0.007" 0.016" (0.406mm) ± 0.0015" 0.020" (0.508mm) ± 0.0015" 0.024" (0.610mm) ± 0.0015" 0.032" (0.813mm) ± 0.002" 0.060" (1.524mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) ED ½ oz (18µm) Ticer Resistive Foil -Only Available 12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04003C LoPro®</u>	0.0087" (0.220mm) ± 0.001" 0.0127" (0.323mm) ± 0.001" 0.0167" (0.424mm) ± 0.0015" 0.0207" (0.526mm) ± 0.0015" 0.0327" (0.831mm) ± 0.002" 0.0607" (1.542mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04350B™</u>	0.0040" (0.101mm) ± 0.0007" 0.0066" (0.168mm) ± 0.0007" 0.010" (0.254mm) ± 0.001" 0.020" (0.508mm) ± 0.0015" 0.030" (0.762mm) ± 0.002" 0.060" (1.524mm) ± 0.004"	½ oz (18µm) ED, 1 oz (35µm) ED ½ oz Ticer Resistive Foil -Only Available 12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04350B LoPro®</u>	0.0040" (0.102mm) ± 0.0007" 0.0073" (0.185mm) ± 0.0007" 0.0107" (0.272mm) ± 0.001" 0.0207" (0.526mm) ± 0.0015" 0.0307" (0.780mm) ± 0.002" 0.0607" (1.542mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04835™</u>	0.0066" (0.168mm) ± 0.0007" 0.010" (0.254mm) ± 0.001" 0.020" (0.508mm) ± 0.0015" 0.030" (0.762mm) ± 0.002" 0.060" (1.524mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) ED Foil ½ oz Ticer Resistive Foil -Only Available 12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04835 LoPro®</u>	0.0040" (0.102mm) ± 0.0007" 0.0073" (0.185mm) ± 0.0007" 0.0107" (0.272mm) ± 0.001" 0.0207" (0.526mm) ± 0.0015" 0.0307" (0.780mm) ± 0.002" 0.0607" (1.542mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04835T™</u>	0.0025" (0.064mm) ± 0.0006" 0.0030" (0.076mm) ± 0.0006" 0.0040" (0.101mm) ± 0.0006" 0.0050" (0.127mm) ± 0.0006"	½ oz (18µm) ED, 1 oz (35µm) ED	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
<u>R04830™</u>	0.0050" (0.127mm) ± 0.0006" 0.0094" (0.239mm) ± 0.0010"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)

Thickness, Tolerance & Panel Size inches (mm)

Laminates

Product	Available Dielectric Thickness (Without Cladding)	Available Claddings	Available Panel Sizes
R04534 LoPro®	0.0207" (0.526mm) ± 0.0015" 0.0327" (0.831mm) ± 0.002" 0.0607" (1.542mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
R04535™	0.020" (0.508mm) ± 0.0015" 0.030" (0.762mm) ± 0.002" 0.060" (1.524mm) ± 0.004"	½ oz (18µm) ED, 1 oz (35µm) ED	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
R04535 LoPro®	0.0207" (0.526mm) ± 0.0015" 0.0327" (0.831mm) ± 0.002" 0.0607" (1.542mm) ± 0.004"	½ oz (18µm), 1 oz (35µm) LoPro reverse treated ED foil	24" X 18" (610mm X 457mm) 24" X 21" (610mm X 533mm) 24" X 36" (1219mm X 914mm) 48" X 36" (1220mm X 914mm)
RT/duroid 5880LZ	0.010" (0.254mm) ± 0.0010" 0.020" (0.508mm) ± 0.0010" 0.050" (1.270mm) ± 0.0030" 0.100" (2.540mm) ± 0.0050"	½ oz (18µm) ED, 1 oz (35µm) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
RT/duroid® 5870 RT/duroid 5880	0.005" (0.127mm) ± 0.0005" 0.010" (0.254mm) ± 0.0007" 0.020" (0.508mm) ± 0.0010" 0.031" (0.787mm) ± 0.0010" 0.062" (1.575mm) ± 0.0020"	½ (18µm), 1 oz (35µm) ED ½ (18µm), 1 oz (35µm) Rolled Copper	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
RT/duroid 6002	0.010" (0.254mm) ± 0.0007" 0.020" (0.508mm) ± 0.0010" 0.030" (0.762mm) ± 0.0015" 0.060" (1.524mm) ± 0.0020"	½ (18µm), 1 oz (35µm) ED ½ (18µm), 1 oz (35µm) Rolled Copper	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)
RT/duroid 6202	0.005" (0.127mm) ± 0.0005" 0.020" (0.508mm) ± 0.0010" 0.030" (0.762mm) ± 0.0010"	½ (18µm), 1 oz (35µm) ED ½ (18µm), 1 oz (35µm) Rolled Copper	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
RT/duroid 6202PR	0.010" (0.254mm) ± 0.0007" 0.020" (0.508mm) ± 0.0010"	½ (18µm), 1 oz (35µm) ED ½ (18µm), 1 oz (35µm) Rolled Copper	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
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) ED	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
RT/duroid 6010.2LM RT/duroid 6006	0.025" (0.635mm) ± 0.0010" 0.050" (1.270mm) ± 0.0020" 0.075" (1.905mm) ± 0.0040"	½ (18µm), 1 oz (35µm) ED	10" X 10" (254mm X 254mm) 10" X 20" (254mm X 508mm) 18" X 12" (457mm X 305mm)
TC350™	0.010" (0.254mm) ± 0.0007" 0.020" (0.508mm) ± 0.0015" 0.030" (0.762mm) ± 0.0020" 0.060" (1.524mm) ± 0.0030"	½ (18µm), 1 oz (35µm) ED ½ (18µm), 1 oz (35µm) RT	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
TC350 Plus	0.010" (0.254mm) ± 0.0007" 0.020" (0.508mm) ± 0.0015" 0.030" (0.762mm) ± 0.0020" 0.060" (1.524mm) ± 0.0030"	½ (18µm), 1 oz (35µm) Reverse Treated	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
TC600™	0.010" (0.254mm) ± 0.0007" 0.020" (0.508mm) ± 0.0010" 0.030" (0.762mm) ± 0.0020" 0.060" (1.524mm) ± 0.0030"	½ (18µm), 1 oz (35µm) ED ½ (18µm), 1 oz (35µm) Reverse Treated	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)

Thickness, Tolerance & Panel Size inches (mm)

Laminates

Product	Available Dielectric Thickness (Without Cladding)	Available Claddings	Available Panel Sizes
TMM® 3 TMM 4 TMM 6 TMM 10 TMM 10i TMM 13i	0.015" (0.381mm) ± 0.0015" 0.025" (0.635mm) ± 0.0015" 0.030" (0.762mm) ± 0.0015" 0.050" (1.270mm) ± 0.0015" 0.060" (1.524mm) ± 0.0015" 0.075" (1.905mm) ± 0.0015" 0.100" (2.540mm) ± 0.0015" 0.125" (3.175mm) ± 0.0015" 0.150" (3.810mm) ± 0.0015" 0.200" (5.080mm) ± 0.0015" 0.250" (6.350mm) ± 0.0015" 0.500" (12.70mm) ± 0.0015" Non-standard and custom thicknesses available. Please check with Rogers' Representative to confirm availability.	½ (18µm), 1 oz (35µm) ED	18" X 12" (457mm X 305mm) 18" X 24" (457mm X 610mm)

Thickness, Tolerance & Panel Size inches (mm)

Bonding Materials

Product	Available Dielectric Thickness (Without Cladding)	Available Claddings	Available Panel Sizes
2929 Thermoset Bondply	0.0015" (0.038mm) 0.0020" (0.051mm) 0.0030" (0.076mm)	N/A	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
92ML Prepreg Ceramic Filled Thermoset Prepreg	104 88% 0.0032" (0.081mm) 106 90% 0.0042" (0.107mm) 1080 85% 0.0060" (0.152mm)	N/A	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
COOLSPAN® TECA Thermoset Thermally & Electrically Conductive Adhesive (TECA) Film	0.0020" (0.051mm) ± 0.0005" 0.0040" (0.102mm) ± 0.0005"	N/A	10" X 12" (254mm X 305mm)
6250 Thermoplastic Bonding Film	0.0015" (0.038mm)	N/A	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
6700 Thermoplastic Bonding Film	0.0015" (0.038mm) 0.0030" (0.076mm)	N/A	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm)
R04450F™ Thermoset-Hydrocarbon / Ceramic / Woven Glass / Prepreg	0.0040" (0.102mm) ± 0.0007"	N/A	16" X 18" (406mm X 457mm) 24" X 18" (610mm X 457mm) 24" X 36" (610mm X 914mm) 24.5" X 18.5" (622mm X 470mm)
R04450T Thermoset-Hydrocarbon / Ceramic / Spread Woven Glass / Prepreg	0.0025" (0.064mm) ± 0.0007" 0.0030" (0.076mm) ± 0.0007" 0.0035" (0.089mm) ± 0.0007" 0.0040" (0.101mm) ± 0.0007" 0.0045" (0.114mm) ± 0.0007" 0.0050" (0.127mm) ± 0.0007" 0.0060" (0.152mm) ± 0.0007"	N/A	
R04460G2 Thermoset-Hydrocarbon / Ceramic / Woven Glass / Prepreg	0.0040" (0.101mm) ± 0.0007"	N/A	
XtremeSpeed™ R01200™ Bondply	0.0025" (0.064mm) 0.0030" (0.076mm) 0.0040" (0.102mm) 0.0050" (0.127mm)	N/A	12" X 18" (305mm X 457mm) 24" X 18" (610mm X 457mm) 24" X 36" (610mm X 914mm)
SpeedWave™ 300P Prepreg	0.0020" (0.051 mm) 1035 RC 67% 0.0025" (0.064 mm) 1035 RC 72%, 106 RC 76% 0.0030" (0.076 mm) 1078 RC 64%, 1035 RC 76% 0.0035" (0.089 mm) 1078 RC 69%, 1080 RC 69% 0.0040" (0.102 mm) 2113 RC 57%, 1080 RC 72% 0.0050" (0.127 mm) 2116 RC 56% 0.0055" (0.140 mm) 2116 RC 59%	N/A	24" X 18" (610mm X 457mm)

Interpreting Rogers Part Descriptions:

The thickness in the example below is for 20 Mils +/- 1

5880 **18x12** **H1/H1** **R3** **0200+-001** **DI**

Product Grade

Panel Size

Metal Cladding

Revision Number
(When Applicable)

Dielectric Thickness & Tolerance

Dielectric Thickness
(When Applicable)

ROGERS Copper Foil Designation

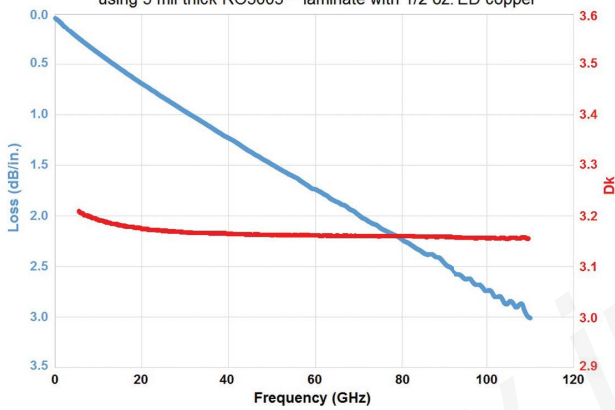
Copper Weight	Rogers Clad Designation	IPC-4562A			
		Foil Grade (1.2.4)	Foil Thickness (1.2.5)	Bond Enhancement Treatment (1.2.6)	Foil Profile (1.2.7)
1/4 oz	HQ	Standard Electrodeposited (STD-E)	Q (9 µm)	Single-sided treatment (S)	Low (L)
	CQ				Very low (V)
1/2 oz	5E	High Temperature Elongation Electrodeposited (HTE-E)	H (1/2 oz, 18 µm)	S	Standard (S)
	5ED				
	5E				
	5ED				
	HH				
	5TC				
	SH				
	AH	As Rolled Wrought HTE-E	S	V	
	TH	As Rolled Wrought (AR-W)			
	5R	HTE-E	S	S	
	5RD				
	25RFO(1)(2)-5E(D)				
	50RFO(1)(2)-5E(D)				
	100RFO(1)(2)-5E(D)				
25RFT(3)(4)-5E(D)(HH)					
50RFT(3)(4)-5E(D)(HH)					
100RFT(3)(4)-5E(D)(HH)					
1 oz	1E	HTE-E	1 (1 oz, 35 µm)	S	S
	1ED				
	1E				
	1ED				
	H1				
	1TC				
	S1				
	A1	AR-W	S	V	
	T1	HTE-E			
	1R	AR-W	S	S	
	1RD				
	25RFO(1)(2)-1E(D)	HTE-E			
	50RFO(1)(2)-1E(D)				
	100RFO(1)(2)-1E(D)				
25RFT(3)(4)-1E(D)(H1)					
50RFT(3)(4)-1E(D)(H1)					
100RFT(3)(4)-1E(D)(H1)					
2 oz	2E		HTE-E	2 (2 oz, 70 µm)	S
	2ED				
	H2				
	S2	AR-W	R	L	
	A2				
	2R				
2RD	S	V			

Electrical Characterization Capabilities

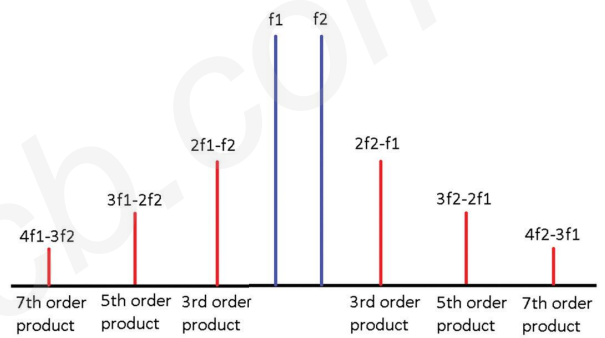
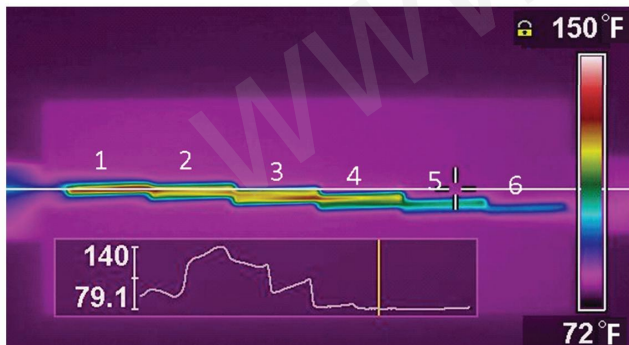
Multiple Test Methods Used:

- Clamped Stripline Resonator
- Split Post Dielectric Resonator
- Full Sheet Resonance
- Ring Resonators
- Waveguide Perturbation

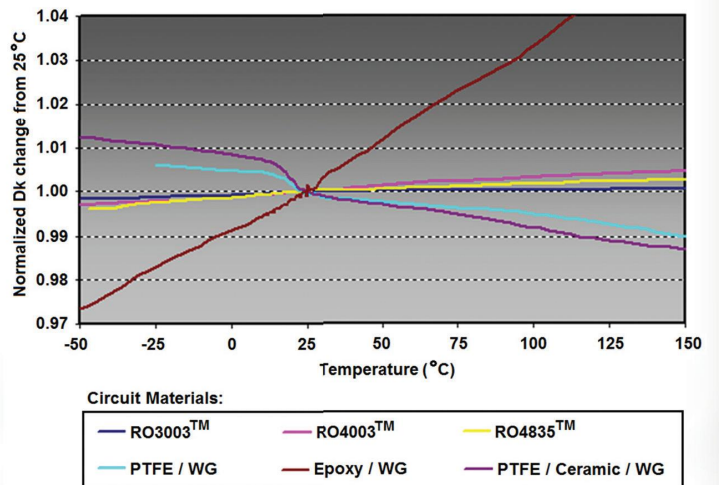
Microstrip 50 ohm transmission line circuit testing, differential length method using 5 mil thick RO3003™ laminate with 1/2 oz. ED copper



Very wideband insertion loss & phase measurements



PIM Testing Capabilities



Primary Markets

KEY: ✓ = Recommended Material

Product	AUTOMOTIVE		
	Active Safety	Telematics/Infotainment	Thermal Management
2929 Bondply			
92ML™			✓
AD250C™		✓	
AD255C™		✓	
AD300D™		✓	
AD350A™		✓	
CLTE-XT™			
CLTE™			
CLTE-AT™			
CLTE-MW™	✓		
CuClad® 217			
CuClad 233			
CuClad 250			
6250 Bonding Film			
6700 Bonding Film			
COOLSPAN®			✓
DiClad® 880			
DiClad 870			
DiClad 527			
IM Series™			
IsoClad® 917			
IsoClad 933			
Kappa® 438		✓	
MAGTREX™ 555			
XtremeSpeed™ R01200™			
R03003G2™	✓		
R03003™	✓	✓	
R03035™			
R03006™			
R03010™			
R03210™			
R04730G3™			
R04533™			
R04003C™			
R04534™			
R04350B™			
R04450F™	✓	✓	
R04450T™	✓	✓	
R04460G2™			
R04835™	✓	✓	
R04835T™	✓		
R04535™			
R04725JXR™			
R04360G2™			
R04830™	✓		
RT/duroid® 5880LZ			
RT/duroid 5880			
RT/duroid 5870			
RT/duroid 6002			
RT/duroid 6202PR			
RT/duroid 6202			
RT/duroid 6006			
RT/duroid 6035HTC			
RT/duroid 6010.2LM			
TC350™			
TC350 Plus			
TC600™			
TMM® 3			
TMM 4			
TMM 6			
TMM 10			
TMM 10i			
TMM 13i			
SpeedWave™ 300P Prepreg	✓	✓	

KEY: √ = Recommended Material

CONNECTED DEVICES			Product
Internet of Things (IoT)	Mobile Internet Devices	Thermal Management	
			2929 Bondply
		√	92ML™
			AD250C™
			AD255C™
			AD300D™
			AD350A™
			CLTE-XT™
			CLTE™
			CLTE-AT™
			CLTE-MW™
			CuClad® 217
			CuClad 233
			CuClad 250
			6250 Bonding Film
			6700 Bonding Film
		√	COOLSPAN®
			DiClad® 880
			DiClad 870
			DiClad 527
			IM Series™
			IsoClad® 917
			IsoClad 933
√			Kappa® 438
			MAGTRES™ 555
			XtremeSpeed™ R01200™
			R03003G2™
			R03003™
			R03035™
√	√		R03006™
√	√		R03010™
			R03210™
			R04730G3™
			R04533™
√			R04003C™
			R04534™
√	√		R04350B™
			R04450F™
√			R04450T™
√			R04460G2™
√	√		R04835™
√			R04835T™
			R04535™
			R04725JXR™
√	√		R04360G2™
			R04830™
			RT/duroid® 5880LZ
			RT/duroid 5880
			RT/duroid 5870
			RT/duroid 6002
			RT/duroid 6202PR
			RT/duroid 6202
			RT/duroid 6006
			RT/duroid 6035HTC
			RT/duroid 6010.2LM
		√	TC350™
		√	TC350 Plus
		√	TC600™
			TMM® 3
			TMM 4
			TMM 6
			TMM 10
			TMM 10i
			TMM 13i
√			SpeedWave™ 300P Prepreg

Primary Markets

KEY: ✓ = Recommended Material

Product	HIGH RELIABILITY			
	Antenna Systems	Communications Systems	Radar Systems	Space Based Systems
2929 Bondply	✓	✓	✓	✓
92ML™		✓		
AD250C™	✓	✓		
AD255C™	✓	✓		
AD300D™	✓	✓		
AD350A™	✓	✓		
CLTE-XT™	✓	✓	✓	✓
CLTE™	✓	✓	✓	✓
CLTE-AT™	✓	✓	✓	✓
CLTE-MW™	✓	✓	✓	✓
CuClad® 217	✓	✓	✓	✓
CuClad 233	✓	✓	✓	✓
CuClad 250	✓	✓	✓	✓
6250 Bonding Film	✓	✓		✓
6700 Bonding Film	✓	✓		✓
COOLSPAN®			✓	
DiClad® 880				
DiClad 870				
DiClad 527				
IM Series™	✓	✓		
IsoClad® 917				
IsoClad 933				
Kappa® 438				
MAGTREX™ 555	✓	✓	✓	✓
XtremeSpeed™ R01200™				
R03003G2™				
R03003™	✓	✓	✓	
R03035™	✓	✓	✓	
R03006™	✓	✓	✓	
R03010™	✓	✓	✓	
R03210™	✓	✓	✓	✓
R04730G3™				
R04533™				
R04003C™		✓	✓	
R04534™				
R04350B™		✓	✓	
R04450F™		✓	✓	
R04450T™		✓	✓	
R04460G2™		✓	✓	
R04835™		✓	✓	
R04835T™		✓	✓	
R04535™				
R04725JXR™	✓	✓		
R04360G2™		✓	✓	
R04830™				
RT/duroid® 5880LZ	✓	✓	✓	✓
RT/duroid 5880	✓	✓	✓	✓
RT/duroid 5870	✓	✓	✓	✓
RT/duroid 6002	✓	✓	✓	✓
RT/duroid 6202PR	✓	✓	✓	✓
RT/duroid 6202	✓	✓	✓	✓
RT/duroid 6006	✓	✓	✓	✓
RT/duroid 6035HTC	✓	✓	✓	✓
RT/duroid 6010.2LM	✓	✓	✓	✓
TC350™			✓	
TC350 Plus			✓	
TC600™			✓	
TMM® 3	✓		✓	✓
TMM 4	✓		✓	✓
TMM 6	✓		✓	✓
TMM 10	✓		✓	✓
TMM 10i	✓		✓	✓
TMM 13i	✓		✓	✓
SpeedWave™ 300P Prepreg		✓	✓	

KEY: √ = Recommended Material

WIRED INFRASTRUCTURE			Product
Computing	IP Infrastructure	Test & Measurement	
√	√	√	2929 Bondply
			92ML™
			AD250C™
			AD255C™
			AD300D™
			AD350A™
			CLTE-XT™
			CLTE™
			CLTE-AT™
			CLTE-MW™
			CuClad® 217
			CuClad 233
			CuClad 250
			6250 Bonding Film
			6700 Bonding Film
			COOLSPAN®
			DiClad® 880
			DiClad 870
			DiClad 527
			IM Series™
			IsoClad® 917
			IsoClad 933
			Kappa® 438
			MAGTREX™ 555
√	√	√	XtremeSpeed™ R01200™
			R03003G2™
			R03003™
			R03035™
			R03006™
			R03010™
			R03210™
			R04730G3™
			R04533™
√	√	√	R04003C™
			R04534™
√	√	√	R04350B™
√	√	√	R04450F™
√	√	√	R04450T™
			R04460G2™
√	√	√	R04835™
√	√	√	R04835T™
			R04535™
			R04725JXR™
			R04360G2™
			R04830™
			RT/duroid® 5880LZ
			RT/duroid 5880
			RT/duroid 5870
			RT/duroid 6002
			RT/duroid 6202PR
			RT/duroid 6202
			RT/duroid 6006
			RT/duroid 6035HTC
			RT/duroid 6010.2LM
			TC350™
			TC350 Plus
			TC600™
			TMM® 3
			TMM 4
			TMM 6
			TMM 10
			TMM 10i
			TMM 13i
√	√	√	SpeedWave™ 300P Prepreg

Primary Markets

KEY: √ = Recommended Material

Product	WIRELESS INFRASTRUCTURE			
	Antennas	Backhaul Radios	Power Amplifiers	Small Cells/DAS
2929 Bondply				
92ML™				
AD250C™	√			
AD255C™	√			
AD300D™	√			
AD350A™	√			
CLTE-XT™				
CLTE™				
CLTE-AT™		√	√	
CLTE-MW™		√	√	
CuClad® 217				
CuClad 233				
CuClad 250				
6250 Bonding Film				
6700 Bonding Film				
COOLSPAN®				
DiClad® 880				
DiClad 870				
DiClad 527				
IM Series™	√			
IsoClad® 917				
IsoClad 933				
Kappa® 438				√
MAGTREX™ 555				
XtremeSpeed™ R01200™				
R03003G2™				
R03003™		√	√	
R03035™			√	
R03006™			√	
R03010™				
R03210™				
R04730G3™	√			
R04533™	√			
R04003C™				
R04534™	√			
R04350B™		√	√	√
R04450F™			√	
R04450T™		√	√	√
R04460G2™		√	√	√
R04835™		√	√	√
R04835T™		√	√	√
R04535™				
R04725JXR™				
R04360G2™		√	√	√
R04830™				
RT/duroid® 5880LZ				
RT/duroid 5880				
RT/duroid 5870				
RT/duroid 6002				
RT/duroid 6202PR				
RT/duroid 6202				
RT/duroid 6006				
RT/duroid 6035HTC				
RT/duroid 6010.2LM				
TC350™		√		
TC350 Plus			√	
TC600™		√		
TMM® 3				
TMM 4				
TMM 6				
TMM 10				
TMM 10i				
TMM 13i				
SpeedWave™ 300P Prepreg		√	√	√