

Material Comparison Chart

Material	Supplier	Dk @10GHz Process	Dk @10GHz Design	Tolerance	Df @10GHz	CTE			Moisture Absorption %	Tg °C	Copper peel strength lbs/in	Thermal Cond. W/m/K	Diel. Break down kV/mil	UL-94	Material components	Comments
						X	Y	Z								
						ppm/°C										
RT/duroid 5880LZ	Rogers	1.96	1.96	+/-0.04	0.0019	44	43	41	0.22	-	4.0	0.33	-	V0	PTFE/random glass	
FEP 200-70	Taconic	2.00	-	-	0.0003	-	-	-	-	-	-	-	-	-	Thermoplastic bonding film 50um thick	Bonds at 285C
NY9208	Neltec	2.08	-	+/-0.02	0.0006	25	35	250	0.02	-	13	0.272	50	V0	PTFE/ woven glass	
NY9208IM	Neltec	2.08	-	+/-0.02	0.0006	25	35	250	0.02	-	13	0.272	50	V0	PTFE/ woven glass	Reduced intermodulation
TaclamPlus	Taconic	2.10	-	+/-0.02	0.0004	N/A	N/A	280	<0.02	-	12.00	---	---	V0	Thin PTFE/ 2% to 3% ceramic	Needs 0.5 to3.0mm metal backing
IsoClad 917	Arlon	2.17	-	-	0.0013	46	47	236	0.04	-	10.0	0.263	-	V0	PTFE/ Crossplied glass	
NY9217	Neltec	2.17	-	+/-0.02	0.0008	25	35	260	0.02	-	13	0.272	50	V0	PTFE/ woven glass	
NY9217IM	Neltec	2.17	-	+/-0.02	0.0008	25	35	260	0.02	-	13	0.272	50	V0	PTFE/ woven glass	Reduced intermodulation
TLP-5A	Taconic	2.17	-	+/-0.03	0.0009	20	20	280	<0.02	-	10.00	0.22	>60	V0	PTFE/ woven glass	
TLY-5A	Taconic	2.17	-	+/-0.02	0.0009	26	15	217	0.02	-	16.00	0.22	>45	V0	PTFE/ woven glass	
TLY-5A-L	Taconic	2.17	-	+/-0.02	0.0009	26	15	217	0.02	-	16.00	0.22	>45	V0	PTFE/ woven glass	Laser ablateable
DiClad 880	Arlon	2.17, 2.20	-	-	0.0009	25	34	252	0.02	-	14	0.261	-	V0	PTFE /Unidirectional glass	
CuClad 217LX	Arlon	2.17, 2.20	-	-	0.0009	29	28	246	0.02	-	14	0.261	-	V0	PTFE /Crossplied glass	
RT/duroid 5880	Rogers	2.20	2.20	+/-0.02	0.0009	31	48	237	0.02	-	31.2	0.20	-	V0	PTFE/random glass	
NY9220	Neltec	2.20	-	+/-0.02	0.0009	25	35	260	0.02	-	13	0.272	50	V0	PTFE/ woven glass	
NY9220IM	Neltec	2.20	-	+/-0.02	0.0009	25	35	260	0.02	-	13	0.272	50	V0	PTFE/ woven glass	Reduced intermodulation
TLY-5	Taconic	2.20	-	+/-0.02	0.0009	26	15	217	0.02	-	16.00	0.22	>45	V0	PTFE/ woven glass	
TLY-5-L	Taconic	2.20	-	+/-0.02	0.0009	26	15	217	0.02	-	16.00	0.22	>45	V0	PTFE/ woven glass	Laser ablateable
TLP-5	Taconic	2.20	-	+/-0.03	0.0009	20	20	280	<0.02	-	10.00	0.22	>60	V0	PTFE/ woven glass	
Ro 3001	Rogers	2.28	-	-	0.0030	-	-	-	0.05	-	-	0.22	-	-	Thermoplastic Bondingfilm 38µm	Bonds at 220C
CuClad 6250	Arlon	2.32	-	-	0.0013	-	-	-	-	-	-	0.17	-	-	Thermoplastic Bondingfilm 38µm	Bond at 130C
RT/duroid 5870	Rogers	2.33	2.33	+/-0.02	0.0012	22	28	173	0.02	-	27.2	0.22	-	V0	PTFE/random glass	
DiClad 870	Arlon	2.33	-	-	0.0013	17	29	217	0.02	-	14.0	0.257	-	V0	PTFE Unidirectional	
CuClad 233 LX	Arlon	2.33	-	-	0.0013	23	24	194	0.02	-	14.0	0.258	-	V0	PTFE/ Crossplied glass	
IsoClad 933	Arlon	2.33	-	-	0.0016	31	35	203	0.05	-	10.0	0.263	-	V0	PTFE/ Crossplied glass	
NY9233	Neltec	2.33	-	+/-0.02	0.0011	25	35	260	0.02	-	13	0.272	50	V0	PTFE/ woven glass	
NY9233IM	Neltec	2.33	-	+/-0.02	0.0011	25	35	260	0.02	-	13	0.272	50	V0	PTFE/ woven glass	Reduced intermodulation
TLP-3	Taconic	2.33	-	+/-0.03	0.0009	20	20	280	<0.02	-	10.00	0.22	>60	V0	PTFE/ woven glass	
TLY-3	Taconic	2.33	-	+/-0.02	0.0009	26	15	217	0.02	-	16.00	0.22	>45	V0	PTFE/ woven glass	
TLY-3F	Taconic	2.33	-	+/-0.02	0.0009	26	15	217	0.02	-	16.00	0.22	>45	V0	PTFE/ woven glass	Formed antennas
CuClad 6700	Arlon	2.35	-	-	0.0025	-	-	-	0.005	-	-	-	-	-	Thermoplastic Bondingfilm 38µm	Bonds at 220C
FV 6700	Neltec	2.35	-	-	0.0025	-	-	-	-	-	-	-	3.75	-	Thermoplastic Bondingfilm 38µm	Bonds at 220C
HT1.5	Taconic	2.35	-	-	0.0025	-	-	-	0.005	-	-	0.22	-	-	Thermoplastic bonding film 38µm thick	Bonds at 220C
Ultralam 2000	Rogers	2.4-2.6	2.4-2.6	+/-0.04	0.0019	15	15	200	0.03	-	18.0	0.24	-	V0	PTFE/ woven glass	
CuClad 250 GX	Arlon	2.40-2.55	-	-	0.0018	18	19	177	0.03	-	14.0	0.254	-	V0	PTFE/ Crossplied glass	
DiClad 522	Arlon	2.40-2.60	-	-	0.0018	14	21	173	0.03	-	14.0	0.254	-	V0	PTFE Unidirectional	
DiClad 527	Arlon	2.40-2.60	-	-	0.0018	14	21	173	0.03	-	14.0	0.254	-	V0	PTFE/ Unidirectional glass	
NX9243	Neltec	2.43	-	+/-0.04	0.0016	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	
NX9243IM	Neltec	2.43	-	+/-0.04	0.0016	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	Reduced intermodulation
NX9245	Neltec	2.45	-	+/-0.04	0.0016	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	
NX9245IM	Neltec	2.45	-	+/-0.04	0.0016	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	Reduced intermodulation
TLT-0	Taconic	2.45	-	+/-0.05	0.0006	9	12	140	<0.02	-	12.00	0.19	>60	V0	PTFE/ woven glass	
TLX-0	Taconic	2.45	-	+/-0.04	0.0019	9	12	140	<0.02	-	12.00	0.19	>60	V0	PTFE/ woven glass	
NX9248	Neltec	2.48	-	+/-0.04	0.0017	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	
NX9248IM	Neltec	2.48	-	+/-0.04	0.0017	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	Reduced intermodulation
CuClad 250 GT	Arlon	2.50	-	-	0.0018	18	19	177	0.03	-	14.0	0.254	-	V0	PTFE /Crossplied glass	
AD 250	Arlon	2.50	-	-	0.0018	12	15	95	0.07	-	14.0	0.235	-	V0	PTFE/Glass/ceramic	
AD 250A	Arlon	2.50	-	-	0.0015	12	15	95	0.04	-	14.0	0.28	-	V0	PTFE/Glass/ceramic	
NX9250	Neltec	2.50	-	+/-0.04	0.0017	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	
NX9250IM	Neltec	2.50	-	+/-0.04	0.0017	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	Reduced intermodulation
TLT-9	Taconic	2.50	-	+/-0.05	0.0006	9	12	140	<0.02	-	12.00	0.19	>60	V0	PTFE/ woven glass	
TLX-9	Taconic	2.50	-	+/-0.04	0.0019	9	12	140	<0.02	-	12.00	0.19	>60	V0	PTFE/ woven glass	

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						X	Y	Z								
						ppm/°C										
AD 255	Arlon	2.55	-	-	0.0018	12	15	95	0.07	-	14.0	0.235	-	V0	PTFE/Glass/ceramic	
AD 255A	Arlon	2.55	-	-	0.0015	16	16	80	0.04	-	12.0	0.30	-	V0	PTFE/Glass/ceramic	
AD 255C	Arlon	2.55	-	-	0.0014	16	16	50	0.04	-	12.0	0.30	-	V0	PTFE/Glass/ceramic	
NX9255	Neltec	2.55	-	+/-0.04	0.0018	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	
NX9255IM	Neltec	2.55	-	+/-0.04	0.0018	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	Reduced intermodulation
TLT-8	Taconic	2.55	-	+/-0.05	0.0006	9	12	140	<0.02	-	12.00	0.19	>60	V0	PTFE/ woven glass	
TLX-8	Taconic	2.55	-	+/-0.04	0.0019	9	12	140	<0.02	-	12.00	0.19	>60	V0	PTFE/ woven glass	
AD 260A	Arlon	2.60	-	-	0.0017	16	16	80	0.04	-	17.0	0.32	-	V0	PTFE/Glass/ceramic	
NX9260	Neltec	2.60	-	+/-0.04	0.0019	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	
NX9260IM	Neltec	2.60	-	+/-0.04	0.0019	12	18	150	0.05	-	13	0.251	50	V0	PTFE/ woven glass	Reduced intermodulation
NH9260	Neltec	2.60	-	+/-0.04	0.0019	12	18	150	0.08	-	13	0.230	45	V0	PTFE/woven glass/ceramic	
TLT-7	Taconic	2.60	-	+/-0.05	0.0006	9	12	140	<0.02	-	12.00	0.19	>60	V0	PTFE/ woven glass	
TSM-26	Taconic	2.60	-	-	0.0014	23	28	78	0.03	-	8.00	0.27	75	V0	PTFE/ woven glass/ceramic	
TLX-7	Taconic	2.60	-	+/-0.04	0.0019	9	12	140	<0.02	-	12.00	0.19	>60	V0	PTFE/ woven glass	
TLA	Taconic	2.62	@1.9GHz	+/-0.05	0.0012	9	12	140	0.02	-	10.00	0.22	>60	V0	PTFE/ woven glass	Antenna grade
TLT-6	Taconic	2.65	-	+/-0.05	0.0006	9	12	140	<0.02	-	12.00	0.19	>60	V0	PTFE/ woven glass	
TLX-6	Taconic	2.65	-	+/-0.04	0.0019	9	12	140	<0.02	-	12.00	0.19	>60	V0	PTFE/ woven glass	
AD 270	Arlon	2.70	-	-	0.0023	12	15	95	0.07	-	14.0	0.235	-	V0	PTFE/Glass/ceramic	
NX9270	Neltec	2.70	-	+/-0.04	0.0020	12	18	150	0.02	-	13	0.272	50	V0	PTFE/ woven glass	
NX9270IM	Neltec	2.70	-	+/-0.04	0.0020	12	18	150	0.02	-	13	0.272	50	V0	PTFE/ woven glass	Reduced intermodulation
NH9270	Neltec	2.70	-	+/-0.04	0.0020	12	18	150	0.08	-	13	0.230	45	V0	PTFE/woven glass/ceramic	
Fastrise -27	Taconic	2.75	-	-	0.0014	59	70	72	0.08	188	N/A	0.25	49	V0	PTFE/ ceramic/thermoset resin	Bonds at 216C resin flow 4% to 36'
NX9280	Neltec	2.80	-	+/-0.04	0.0021	9	12	71	0.02	-	13	0.272	50	V0	PTFE/ woven glass	
NX9280IM	Neltec	2.80	-	+/-0.04	0.0021	9	12	71	0.02	-	13	0.272	50	V0	PTFE/ woven glass	Reduced intermodulation
NH9280	Neltec	2.80	-	+/-0.04	0.0021	9	12	71	0.08	-	13	0.230	45	V0	PTFE/woven glass/ceramic	
TSM-DS	Taconic	2.85	-	+/-0.05	0.0010	11	18	57	0.04	-	8.00	0.45	65	V0	PTFE/ woven glass/ceramic	
Ultralam 3850	Rogers	2.90	3.05	-	0.0025	17	17	150	0.04	-	5.2	0.20	-	VTM 0	Liquid Crystalline Polymer	
RT/duroid 6202PR	Rogers	2.90-3.00	2.90-3.00	+/-0.04	0.0015	15	15	30	0.03	-	14.3	0.68	-	V0	ceramic/PTFE/ woven glass	
Ultralam 3908	Rogers	2.90	-	-	0.0025	17	17	150	0.04	-	-	0.20	-	-	LCP bonding film	LCP bonding film
RT/duroid 6002	Rogers	2.94	2.94	+/-0.04	0.0012	16	16	24	0.02	-	8.9	0.60	-	V0	ceramic/PTFE	
RT/duroid 6202	Rogers	2.94	2.94	+/-0.04	0.0015	15	15	30	0.04	-	9.1	0.68	-	V0	ceramic/PTFE/ woven glass	
CLTE-Xt	Arlon	2.94	-	-	0.0012	8	8	20	0.02	-	7.2	0.56	-	V0	PTFE/Glass/ceramic	
NX9294	Neltec	2.94	-	+/-0.04	0.0022	9	12	71	0.02	-	13	0.272	50	V0	PTFE/ woven glass	
NX9294IM	Neltec	2.94	-	+/-0.04	0.0022	9	12	71	0.02	-	13	0.272	50	V0	PTFE/ woven glass	Reduced intermodulation
NH9294	Neltec	2.94	-	+/-0.07	0.0022	9	12	71	0.08	-	13	0.230	45	V0	PTFE/woven glass/ceramic	
Ro 6002	Rogers	2.94	-	+/-0.04	0.0012	16	16	24	<0.10	-	-	0.60	-	-	ceramic/PTFE/bond-ply	Ceramic PTFE bond ply
CLTE	Arlon	2.94	-	-	0.0025	10	12	35	0.04	-	7	0.50	>45	V0	PTFE/woven glass/ ceramic, resin	Thermoplastic resin Bond at 288C
TLT	Taconic	2.95	-	+/-0.05	0.0028	9	12	70	<0.02	-	12.00	0.20	>60	V0	PTFE/ woven glass	
Fastrise -DS	Taconic	2.96	-	-	0.0018	11	17	66	0.10	188	N/A	0.36	44.2	V0	PTFE/ceramic/ woven glass/ thermoset resin	Bonds at 216C - resin flow 5%
AD 300C	Arlon	2.97	-	-	0.0020	12	12	50	0.05	-	13.0	0.45	-	V0	PTFE/Glass/ceramic	
RF-301	Taconic	2.97	@1.9GHz	-	0.0012	17	20	150	0.02	-	10.00	0.23	-	V0	PTFE/ woven glass/ceramic	Antenna grade
CLTE	Arlon	2.98	-	-	0.0023	10	12	34	0.04	-	7.0	0.50	-	V0	PTFE/Glass/ceramic	
Ro3003	Rogers	3.00	3.00	+/-0.04	0.0013	17	16	25	0.05	-	12.7	0.50	-	V0	ceramic/PTFE	
CLTE-AT	Arlon	3.00	-	-	0.0013	8	8	20	0.03	-	6.5	0.64	-	V0	PTFE/Glass/ceramic	
AD 300A	Arlon	3.00	-	-	0.0020	12	12	125	0.02	-	13.0	0.49	-	V0	PTFE/Glass/ceramic	
N9300-13RF	Neltec	3.00	-	+/-0.05	0.0040	13	20	67	0.07	210	9.12	-	>50	V0	PTFE/wovenglass/thermoset resin	
NX9300	Neltec	3.00	-	+/-0.04	0.0023	9	12	71	0.02	-	13	0.272	50	V0	PTFE/ woven glass	
NX9300IM	Neltec	3.00	-	+/-0.04	0.0023	9	12	71	0.02	-	13	0.272	50	V0	PTFE/ woven glass	Reduced intermodulation
NH9300	Neltec	3.00	-	+/-0.07	0.0023	9	12	71	0.08	-	13	0.230	45	V0	PTFE/woven glass/ceramic	
TSM-30	Taconic	3.00	-	-	0.0013	23	28	78	0.03	-	8.00	0.27	68	V0	PTFE/ woven glass/ceramic	
TSM-DS3	Taconic	3.00	-	+/-0.05	0.0011	10	16	23	0.07	-	8.00	0.65	65	V0	PTFE/ woven glass/ceramic	
Ro3730	Rogers	3.00	3.00	+/-0.06	0.0013-16	11	12	65	0.04	-	10.50	0.45	-	V0 pend	ceramic/ PTFE	Antenna grade laminate

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						ppm/°C										
Ro4730	Rogers	3.00	3.00	+/-0.08	0.0023-33	19	17	40	0.13	-	6.10	0.52	-	Non FR	ceramic/hydrocarbon	Antenna grade laminate
RF-30	Taconic	3.00	@1.9GHz	+/-0.10	0.0014	11	21	125	0.02	-	10.00	0.23	>60	V0	PTFE/ woven glass/ceramic	Antenna grade
Ro 3003	Rogers	3.00	-	+/-0.04	0.0013	17	16	25	0.05	-	-	0.50	-	-	ceramic/PTFE/bond-ply	Ceramic PTFE bond ply
TacPreg TPG-30	Taconic	3.00	-	-	0.0038	21	23	28	0.13	-	13.00	0.25	54	V0	PTFE/ceramic/ woven glass/ BT resin	Bonds at 205C - resin flow 24%
TacPreg TPN-30 (0.11)	Taconic	3.00	-	-	0.0038	21	23	28	0.13	-	8.00	0.25	-	-	PTFE/ceramic/ woven glass/ BT resin	Bonds at 205C - resin flow 1~7%
TacPreg TPN-30 (0.25)	Taconic	3.00	-	-	0.0026	8	12	61	0.16	-	8.00	0.27	-	-	PTFE/ceramic/ woven glass/ BT resin	Bonds at 205C - resin flow 1~7%
Ro3203	Rogers	3.02	3.02	+/-0.04	0.0016	13	13	58	0.06	-	10.2	0.48	-	V0	PTFE/glass/ceramic	
NX9318	Neltec	3.18	-	+/-0.04	0.0024	9	12	71	0.02	-	13	0.272	50	V0	PTFE/ woven glass	
NX9318IM	Neltec	3.18	-	+/-0.04	0.0024	9	12	71	0.02	-	13	0.272	50	V0	PTFE/ woven glass	Reduced intermodulation
NH9318	Neltec	3.18	-	+/-0.07	0.0024	9	12	71	0.08	-	13	0.230	45	V0	PTFE/woven glass/ceramic	
AD 320	Arlon	3.20	-	-	0.0038	12	15	95	0.06	-	17.0	0.235	-	V0	PTFE/Glass/ceramic	
AD 320A	Arlon	3.20	-	-	0.0032	14	14	128	0.02	-	14.0	0.45	-	V0	PTFE/Glass/ceramic	
NX9320	Neltec	3.20	-	+/-0.04	0.0024	9	12	71	0.02	-	13	0.272	50	V0	PTFE/ woven glass	
NX9320IM	Neltec	3.20	-	+/-0.04	0.0024	9	12	71	0.02	-	13	0.272	50	V0	PTFE/ woven glass	Reduced intermodulation
NH9320	Neltec	3.20	-	+/-0.07	0.0024	9	12	71	0.08	-	13	0.230	45	V0	PTFE/woven glass/ceramic	
N9320-13RF	Neltec	3.20	-	+/-0.05	0.0045	13	20	67	0.07	210	9.12	-	>50	V0	PTFE/wovenglass/thermoset resin	
TLC	Taconic	3.20	-	+/-0.05	0.0030	9	12	70	<0.02	-	12.00	0.24	>60	V0	PTFE/ woven glass	
TacPreg TPG-32	Taconic	3.20	-	-	0.0050	N/A	N/A	N/A	0.22	-	13.00	0.31	N/A	V0	PTFE/ceramic/ woven glass/ BT resin	Bonds at 205C
TacPreg TPN-32 (0.11)	Taconic	3.20	-	-	0.0050	N/A	N/A	N/A	0.22	-	8.00	0.31	-	-	PTFE/ceramic/ woven glass/ BT resin	Bonds at 205C - resin flow 1~7%
TacPreg TPN-32 (0.25)	Taconic	3.20	-	-	0.0030	8	12	61	0.16	-	8.00	0.27	-	-	PTFE/ceramic/ woven glass/ BT resin	Bonds at 205C - resin flow 1~7%
NH9326	Neltec	3.26	-	+/-0.10	0.0025	9	12	71	0.08	-	13	0.230	45	V0	PTFE/woven glass/ceramic	
TMM 3	Rogers	3.27	3.39	+/-0.032	0.0020	15	15	23	0.06	-	6.1	0.70	-	Non FR	ceramic/hydrocarbon	
Ro4533	Rogers	3.30	3.45	+/-0.08	0.0020-29	13	11	37	0.02	-	6.90	0.60	-	Non FR	ceramic/hydrocarbon	Antenna grade laminate
Ro4450B 0.0036 thick	Rogers	3.30	-	+/-0.05	0.0043	19	17	60	0.09	-	-	0.60	-	-	ceramic/hydrocarbon prepreg	Hydrocarbon ceramic prepreg
TacPreg TPN-33 (0.25)	Taconic	3.33	-	-	0.0031	8	12	61	0.16	-	8.00	0.27	-	-	PTFE/ceramic/ woven glass/ BT resin	Bonds at 205C - resin flow 1~7%
XT Duroid 8000	Rogers	3.34	-	+/-0.05	0.0035	18	23	68	0.20	-	5.0	0.35	-	VTM 0	High temp. thermoplastic/ceramic	
Ro4003	Rogers	3.38	3.55	+/-0.05	0.0029	11	14	46	0.04	-	6.8	0.71	-	Non FR	ceramic/hydrocarbon	
25N	Arlon	3.38	-	-	0.0025	15	15	52	0.09	95-100	5.0	0.45	-	N/A	ceramic / hydrocarbon	
NH9338	Neltec	3.38	-	+/-0.10	0.0025	9	12	71	0.08	-	13	0.230	45	V0	PTFE/woven glass/ceramic	
Syron 7000	Rogers	3.40 max.	-	-	0.0045	18	23	68	0.20	-	5.0	0.35	-	VTM 0	High temp. thermoplastic/ceramic	
TLF-34	Taconic	3.40	@1.9GHz	+/-0.07	0.0020	21	23	85	0.02	-	10.00	0.36	-	V0	PTFE/ woven glass/ceramic	
Ro4534	Rogers	3.40	-	+/-0.08	0.0022-30	11	14	46	0.06	-	6.30	0.60	-	Non FR	ceramic/hydrocarbon	Antenna grade laminate
Ro4350B	Rogers	3.48	3.66	+/-0.05	0.0037	14	16	35	0.05	-	5.5	0.69	-	V0	ceramic/hydrocarbon	
Ro4350B-TX	Rogers	3.48	3.66	+/-0.05	0.0034	14	16	35	0.05	-	5.7	0.62	-	V0	ceramic/hydrocarbon	
NH9348	Neltec	3.48	-	+/-0.10	0.003	9	12	71	0.08	-	13	0.230	45	V0	PTFE/woven glass/ceramic	
Ro3035	Rogers	3.50	3.60	+/-0.05	0.0018	17	17	24	0.08	-	9.1	0.50	-	V0	ceramic/PTFE	
TC350	Arlon	3.50	-	-	0.0020	7	7	23	0.05	-	7.0	1.03	-	V0	PTFE/Glass/ceramic	
AD 350A	Arlon	3.50	-	-	0.0030	5	9	35	0.10	-	17.0	0.45	-	V0	PTFE/Glass/ceramic	
N9350-13RF	Neltec	3.50	-	+/-0.05	0.0055	13	20	67	0.07	210	9.12	-	>50	V0	PTFE/wovenglass/thermoset resin	
N4350-13RF	Neltec	3.50	-	+/-0.05	0.0065	10	14	70	0.1	200	7.5	0.35	>50	V0	woven glass/thermoset resin	
TLF-35	Taconic	3.50	-	+/-0.07	0.0020	21	23	85	0.02	-	10.00	0.36	-	V0	PTFE/ woven glass/ceramic	
RF-35A2	Taconic	3.50	@1.9GHz	+/-0.05	0.0015	8	10	104	0.02	-	>12.00	0.29	59	V0	PTFE/ woven glass/ceramic	
RF-35	Taconic	3.50	@1.9GHz	+/-0.10	0.0018	19	24	64	0.02	-	>10.00	0.24	41	V0	PTFE/ woven glass/ceramic	
RF-35P	Taconic	3.50	-	-	0.0034	15	15	110	0.03	-	10.00	0.23	41	V0	PTFE/ woven glass/ceramic	
TacPreg TPG-35	Taconic	3.50	-	-	0.0050	21	23	28	0.13	-	13.00	0.25	54.00	V0	PTFE/ceramic/ woven glass/ BT resin	Bonds at 205C
TacPreg TPN-35 (0.11)	Taconic	3.50	-	-	0.0050	21	23	28	0.13	-	8.00	0.25	-	-	PTFE/ceramic/ woven glass/ BT resin	Bonds at 205C - resin flow 1~7%
TacPreg TPN-35 (0.25)	Taconic	3.50	-	-	0.0030	8	12	61	0.16	-	8.00	0.27	-	-	PTFE/ceramic/ woven glass/ BT resin	Bonds at 205C - resin flow 1~7%
Ro4450F	Rogers	3.52	-	+/-0.05	0.0041	19	17	50	0.07	-	-	0.65	-	-	ceramic/hydrocarbon prepreg	Hydrocarbon ceramic prepreg
Ro4450B 0.0040 thick	Rogers	3.54	-	+/-0.05	0.0040	19	17	50	0.08	-	-	0.60	-	-	ceramic/hydrocarbon prepreg	Hydrocarbon ceramic prepreg
25FR	Arlon	3.58	-	-	0.0035	16	18	59	0.09	95-100	5.0	0.45	-	V0	ceramic / hydrocarbon	
Multiclad HF	Arlon	3.70	-	-	0.0040	14	16	20	0.09	190	8.0	0.64	36	V0	woven glass/ thermoset resin	prepreg
Multiclad HF	Arlon	3.70	-	-	0.0040	14	16	20	0.09	190	8.0	0.64	36	V0	woven glass/ thermoset resin	

Material Comparison Chart

Material	Supplier	Dk @10GHz Process	Dk @10GHz Design	Tolerance	Df @10GHz	CTE			Moisture Absorption %	Tg °C	Copper peel strength lbs/in	Thermal Cond. W/m/K	Diel. Break down kV/mil	UL-94	Material components	Comments
						X	Y	Z								
						ppm/°C										
N4380-13RF	Neltec	3.80	-	+/-0.05	0.0070	10	14	70	0.1	200	7.5	0.35	>50	V0	woven glass/thermoset resin	
AD 410	Arlon	4.10	-	-	0.0030	9	9	40	0.06	-	17.0	0.46	-	V0	PTFE/Glass/ceramic	
TLF-41	Taconic	4.10	-	+/-0.15	0.0035	9	9	40	0.06	-	>8.00	0.43	-	-	PTFE/ woven glass/ceramic	
RF-41	Taconic	4.10	-	+/-0.15	0.0038	9	12	93	0.02	-	8.00	0.29	-	V0	PTFE/ woven glass/ceramic	
AD 430	Arlon	4.30	-	-	0.0030	9	9	40	0.06	-	17.0	0.46	-	V0	PTFE/Glass/ceramic	
TLF-43	Taconic	4.30	-	+/-0.15	0.0035	9	9	40	0.06	-	>8.00	0.43	-	-	PTFE/ woven glass/ceramic	
RF-43	Taconic	4.30	-	+/-0.15	0.0033	9	11	96	0.02	-	7.00	0.30	-	V0	PTFE/ woven glass/ceramic	
TMM 4	Rogers	4.50	4.50	+/-0.045	0.0020	16	16	21	0.07	-	6.0	0.70	-	Non FR	ceramic/hydrocarbon	
AD 450	Arlon	4.50	-	-	0.0035	8	11	42	0.07	-	>12.0	0.38	-	V0	PTFE/Glass/ceramic	
AD 450A	Arlon	4.50	-	-	0.0030	10	10	40	0.06	-	12.0	0.40	-	V0	PTFE/Glass/ceramic	
TLF-45	Taconic	4.50	-	+/-0.15	0.0035	9	9	40	0.06	-	>8.00	0.43	-	-	PTFE/ woven glass/ceramic	
RF-45	Taconic	4.50	-	+/-0.15	0.0037	9	13	96	0.04	-	10.00	0.33	-	V0	PTFE/ woven glass/ceramic	
TMM 6	Rogers	6.00	6.00	+/-0.08	0.0023	18	18	26	0.06	-	6.2	0.72	-	Non FR	ceramic/hydrocarbon	
Ro3006	Rogers	6.15	6.50	+/-0.15	0.0020	17	17	24	0.02	-	7.1	0.79	-	V0	ceramic/ PTFE	
Ro3206	Rogers	6.15	6.60	+/-0.15	0.0027	13	13	34	0.05	-	10.7	0.67	-	V0	ceramic/ PTFE/ woven glass	
Ro4360	Rogers	6.15	6.15	+/-0.15	0.0038	17	15	30	0.12	-	5.0	0.80	-	V0 pend	ceramic/hydrocarbon	
AD 600	Arlon	6.15	-	-	0.0030	11	10	45	0.04	-	12.0	0.46	-	V0	PTFE/Glass/ceramic	
TC600	Arlon	6.15	-	-	0.0020	9	9	35	0.03	-	8.0	.1(z)1.4(xy)	-	V0	PTFE/Glass/ceramic	
RF-60	Taconic	6.15	-	+/-0.25	0.0038	9	8	69	0.02	-	8.00	0.40	53	V0	PTFE/ woven glass/ceramic	
Ro 3006	Rogers	6.15	-	+/-0.15	0.0020	17	17	24	0.02	-	-	0.79	-	-	ceramic/PTFE/bond-ply	Ceramic PTFE bond ply
Fastrise -77	Taconic	7.70	-	-	0.0034	10	17	62	0.10	188	N/A	0.43	40	V0	PTFE/ceramic/ woven glass/ thermoset resin	Bonds at 216C - resin flow 5%
TMM 10	Rogers	9.20	9.56	+/-0.23	0.0022	21	21	20	0.09	-	5.1	0.76	-	Non FR	ceramic/hydrocarbon	
TMM 10i	Rogers	9.80	9.96	+/-0.245	0.0020	19	19	20	0.16	-	4.8	0.76	-	Non FR	ceramic/hydrocarbon	
AR 1000	Arlon	10.0	-	-	0.0030	14	16	37	0.08	-	5.0	0.645	-	-	PTFE/ ceramic	
CER10	Taconic	10.00	-	+/-0.50	0.0035	13	15	46	0.02	-	9.00	0.63	44	V0	PTFE/ woven glass/ceramic	
Ro3010	Rogers	10.20	11.20	+/-0.30	0.0022	13	11	16	0.05	-	9.4	0.95	-	V0	ceramic/ PTFE	
RT/duroid 6010LM	Rogers	10.20	10.90	+/-0.25	0.0023	24	24	47	0.01	-	12.30	0.86	-	V0	ceramic/PTFE	
Ro3210	Rogers	10.20	10.80	+/-0.50	0.0027	13	13	34	0.13	-	11	0.81	-	V0	ceramic/PTFE/woven	
AD 1000	Arlon	10.20	-	-	0.0023	8	10	20	0.03	-	>12.0	0.81	-	V0	PTFE/Glass/ceramic	
Ro 3010	Rogers	10.20	-	+/-0.30	0.0022	13	11	16	0.03	-	-	0.95	-	-	ceramic/PTFE/bond-ply	Ceramic PTFE bond ply
IS680-280	Isola	2.80	-	-	0.028	12	13	45/191	0.1	200	4.01	0.32	45	V0	-	
IS680-300	Isola	3.00	-	-	0.030	12	13	45/191	0.1	200	4.01	0.32	45	V0	-	
GML 1000	GIL	3.20	-	-	0.004	32	32	70/400	0.06	135	5.0	0.228	-	V0	plastic (polyester)	
IS680-320	Isola	3.20	-	-	0.032	12	13	45/191	0.1	200	4.01	0.32	45	V0	-	
IS680-333	Isola	3.33	-	-	0.034	12	13	45/191	0.1	200	4.01	0.32	45	V0	-	
IS680-338	Isola	3.38	-	-	0.035	12	13	45/191	0.1	200	4.01	0.32	45	V0	-	
IS680-345	Isola	3.45	-	-	0.036	12	13	45/191	0.1	200	4.01	0.32	45	V0	-	
GETEK	Isola	3.50	-	-	0.010	13	14	55/275	0.15	180	3.0	0.15	>50	V0	-	
Cyanate Ester	IPC-4101/2	3.60	-	-	0.011	11	13	70/375	<0.05	240	8.00	0.34	1	V0	-	
BT-Epoxy	IPC-4101/2	4.10	@1MHz	-	0.013	15	18	140	0.14	185	7.00	-	-	V0	-	
FR402	Isola	4.25	@1GHz	-	0.016	13	13	165	-	140	5.00	-	-	-	-	
Polyimide	Nelco	4.30	@1MHz	-	0.015@1MH	15	15	55	0.35	260	7.5	-	-	-	-	

Note: All values are nominal. For not listed (-) values please contact Optiprint or the supplier.
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1lbs/in=0.175N/mm

PTFE=Polytetrafluorethylene
03.07.12