FR408HR

Lead Free, Mid Loss Laminate and Prepreg

Revision No: G | January 5, 2026

Dielectric Constant(Dk) / Dissipation factor (Df) Table

Core Data

Construction	Resin Content %	Standard/ Alternate	Thickness (inch)	Thickness (mm)	Dielectric Constant (DK)/ Dissipation Factor (DF)					
					100 MHz	500 MHz	1 GHz	2 GHz	5 GHz	10 Ghz
1x106	72.0%	Standard	0.0020	0.051	3.37 0.0075	3.36 0.0089	3.34 0.0096	3.32 0.0101	3.30 0.0107	3.30 0.0107
1x1080	57.0%	Standard	0.0025	0.064	3.67 0.0071	3.64 0.0079	3.62 0.0089	3.61 0.0092	3.60 0.0097	3.59 0.0095
1x1067	69.0%	Alternate	0.0025	0.064	3.42 0.0075	3.40 0.0084	3.38 0.0095	3.36 0.0100	3.34 0.0105	3.33 0.0104
1x1080	63.0%	Standard	0.0030	0.076	3.54 0.0074	3.52 0.0082	3.50 0.0092	3.48 0.0096	3.47 0.0102	3.47 0.0101
1x1086	59.0%	Alternate	0.0030	0.076	3.65 0.0072	3.63 0.0079	3.60 0.0091	3.59 0.0092	3.57 0.0098	3.57 0.0095
2x106	67.0%	Standard	0.0035	0.089	3.46 0.0074	3.45 0.0083	3.42 0.0094	3.40 0.0098	3.38 0.0104	3.37 0.0102
1x3313	51.0%	Standard	0.0035	0.089	3.82 0.0068	3.79 0.0076	3.77 0.0084	3.77 0.0087	3.74 0.0092	3.74 0.0090
1x106/1x1080	59.0%	Standard	0.0040	0.102	3.63 0.0072	3.61 0.0080	3.58 0.0090	3.57 0.0093	3.55 0.0098	3.54 0.0096
1x3313	55.0%	Standard	0.0040	0.102	3.72 0.0071	3.70 0.0077	3.68 0.0087	3.66 0.0090	3.65 0.0095	3.65 0.0094
1x106/1x1080	61.0%	Alternate	0.0043	0.109	3.57 0.0073	3.56 0.0081	3.54 0.0092	3.52 0.0095	3.51 0.0099	3.50 0.0098
1x2116	50.0%	Standard	0.0045	0.114	3.82 0.0068	3.81 0.0075	3.80 0.0083	3.79 0.0086	3.78 0.0091	3.76 0.0089
1x106/1x1080	62.0%	Standard	0.0045	0.114	3.55 0.0073	3.54 0.0082	3.52 0.0092	3.50 0.0095	3.48 0.0100	3.48 0.0098
2x1067	69.0%	Alternate	0.0050	0.127	3.42 0.0075	3.40 0.0084	3.38 0.0095	3.36 0.0100	3.34 0.0105	3.33 0.0104
2x1080	57.0%	Standard	0.0050	0.127	3.67 0.0071	3.64 0.0079	3.62 0.0089	3.61 0.0092	3.60 0.0097	3.59 0.0095
1x2116	54.0%	Standard	0.0050	0.127	3.72 0.0070	3.71 0.0077	3.70 0.0086	3.69 0.0089	3.67 0.0095	3.67 0.0093
2x1080	58.0%	Standard	0.0055	0.140	3.65 0.0072	3.63 0.0079	3.60 0.0091	3.59 0.0092	3.57 0.0098	3.57 0.0095
2x1086	58.0%	Alternate	0.0060	0.152	3.65 0.0072	3.63 0.0079	3.60 0.0091	3.59 0.0092	3.57 0.0098	3.57 0.0095
1x1652	50.0%	Standard	0.0060	0.152	3.82 0.0068	3.81 0.0075	3.80 0.0083	3.79 0.0086	3.78 0.0091	3.76 0.0089
2x3313	50.0%	Standard	0.0070	0.178	3.82 0.0068	3.81 0.0075	3.80 0.0083	3.79 0.0086	3.78 0.0091	3.76 0.0089
2x3313	55.0%	Standard	0.0080	0.203	3.72 0.0071	3.70 0.0077	3.68 0.0087	3.66 0.0090	3.65 0.0095	3.65 0.0094

2x2116	54.0%	Standard	0.0100	0.254	3.72 0.0070	3.71 0.0077	3.70 0.0086	3.69 0.0089	3.67 0.0095	3.67 0.0093
2x1652	42.0%	Standard	0.0100	0.254	4.02 0.0065	4.01 0.0072	3.99 0.0080	3.98 0.0083	3.97 0.0088	3.96 0.0085
3x3313	55.0%	Standard	0.0120	0.305	3.72 0.0071	3.70 0.0077	3.68 0.0087	3.66 0.0090	3.65 0.0095	3.65 0.0094
1x1080/2x1652	49.0%	Standard	0.0140	0.356	3.86 0.0068	3.83 0.0074	3.81 0.0083	3.80 0.0086	3.78 0.0090	3.78 0.0089
3x1652	45.0%	Standard	0.0160	0.406	3.95 0.0066	3.92 0.0072	3.91 0.0080	3.90 0.0083	3.89 0.0086	3.88 0.0085
3x1652	50.0%	Standard	0.0180	0.457	3.82 0.0068	3.81 0.0075	3.80 0.0083	3.79 0.0086	3.78 0.0091	3.76 0.0089
2x2116/2x1652	46.0%	Alternate	0.0190	0.483	3.92 0.0066	3.90 0.0073	3.89 0.0081	3.87 0.0089	3.86 0.0087	3.85 0.0086
2x2116/2x1652	47.0%	Alternate	0.0200	0.508	3.89 0.0067	3.88 0.0074	3.87 0.0083	3.85 0.0085	3.84 0.0089	3.83 0.0088
2x2116/2x1652	50.0%	Alternate	0.0210	0.533	3.82 0.0068	3.81 0.0075	3.80 0.0083	3.79 0.0086	3.78 0.0091	3.76 0.0089
2x2116/3x1652	52.0%	Alternate	0.0280	0.711	3.77 0.0073	3.76 0.0080	3.76 0.0088	3.75 0.0091	3.73 0.0093	3.73 0.0093

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Prepreg Dielectric Constant(Dk) / Dissipation factor (Df) Table

Prepreg Data

Glass Style	Resin Content %	Standard/Alternate	Thickness (inch)	Thickness (mm)	Dielectric Constant (DK)/ Dissipation Factor (DF)					
					100 MHz	500 MHz	1 GHz	2 GHz	5 GHz	10 GHz
106	70.00%	Standard	0.0019	0.048	3.40 0.0080	3.38 0.0090	3.36 0.0100	3.34 0.0100	3.32 0.0110	3.31 0.0110
106	75.00%	Standard	0.0023	0.058	3.30 0.0080	3.27 0.0090	3.26 0.0100	3.23 0.0110	3.22 0.0110	3.22 0.0110
1067	69.00%	Standard	0.0023	0.058	3.42 0.0080	3.40 0.0080	3.38 0.0100	3.36 0.0100	3.34 0.0110	3.33 0.0100
1067	73.00%	Standard	0.0027	0.069	3.33 0.0080	3.32 0.0090	3.30 0.0100	3.28 0.0100	3.26 0.0110	3.26 0.0110
1086	62.00%	Standard	0.0032	0.081	3.55 0.0070	3.54 0.0080	3.52 0.0090	3.50 0.0100	3.48 0.0100	3.48 0.0100
1080	65.50%	Standard	0.0032	0.081	3.50 0.0070	3.49 0.0080	3.46 0.0090	3.44 0.0100	3.42 0.0100	3.42 0.0100
1086	65.00%	Standard	0.0035	0.089	3.50 0.0070	3.49 0.0080	3.46 0.0090	3.44 0.0100	3.42 0.0100	3.42 0.0100
1080	71.00%	Standard	0.0040	0.102	3.37 0.0080	3.36 0.0090	3.34 0.0100	3.32 0.0100	3.30 0.0110	3.30 0.0110
2313	56.00%	Standard	0.0040	0.102	3.70 0.0070	3.67 0.0080	3.65 0.0090	3.64 0.0090	3.63 0.0100	3.62 0.0100
3313	57.00%	Standard	0.0040	0.102	3.67 0.0070	3.64 0.0080	3.62 0.0090	3.61 0.0090	3.60 0.0100	3.59 0.0100
2113	57.50%	Alternate	0.0041	0.104	3.67 0.0070	3.64 0.0080	3.62 0.0090	3.61 0.0090	3.60 0.0100	3.59 0.0100
3313	59.00%	Standard	0.0042	0.107	3.63 0.0070	3.61 0.0080	3.58 0.0090	3.57 0.0090	3.55 0.0100	3.54 0.0100
2116	55.00%	Standard	0.0049	0.124	3.72 0.0070	3.70 0.0080	3.68 0.0090	3.66 0.0090	3.65 0.0100	3.65 0.0090
2116	58.00%	Alternate	0.0054	0.137	3.65 0.0070	3.63 0.0080	3.60 0.0090	3.59 0.0090	3.57 0.0100	3.56 0.0100

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NOTE

Revisions:
A-Original-4/17
B-Added Standard & Alternate construction-8/18
C-Removed Low Dk glass option 10/18
D-1086 71% PP changed to Std/Spread-2/19
E-Corrected RC% on 3 mil 1086 from 58% to 59% 11/22
F-Corrected RC% on 2113 prepreg to 57.5% 2/23
G-Corrected RC% on 1080 prepreg from 65.0 to 65.5% 1/26

All FR408HR glass is Spread Weave in both directions

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