

Data Sheet

High Speed, Low Loss Multi-layer Materials

MEGTRON⁷(G)

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 陈工10年PCB工程经验，专门为电子工程师提供2-36层（HDI任意阶阻抗）叠层阻抗设计 Tel：19195667992 0755-23599845

E glass type	Laminate	R-5785(GE)	R-5785(1)*
	Prepreg	R-5680(GE)	R-5680(1)*

*On the label, described as “GE type”

Low-Dk glass type	Laminate	R-5785(GN)	R-5785(2)**
	Prepreg	R-5680(GN)	R-5680(2)**

**On the label, described as “GN type”

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Electronic Materials
Panasonic Industry

Specification / Laminate R-5785(GE) & R-5785(GN)

Property			Units	Test Method	Condition	Typical Value	
						R-5785(GE) E glass	R-5785(GN) Low-Dk glass
THERMAL	Glass Transition Temp (Tg)		C	DSC	As received	200	200
				TMA	As received	190	190
				DMA	As received	210	210
	Thermal Decomposition Temp (Td)		C	TGA	As received	400	400
	Time to Delam (T288)	Without Cu	Min	IPC TM-650 2.4.24.1	As received	> 120	> 120
		With Cu	Min	IPC TM-650 2.4.24.1	As received	> 120	> 120
	CTE : $\alpha 1$	X – axis	ppm / C	IPC TM-650 2.4.24	< Tg	14 - 16	14 - 16
		Y – axis	ppm / C	IPC TM-650 2.4.24	< Tg	14 - 16	14 - 16
		Z – axis	ppm / C	IPC TM-650 2.4.24	< Tg	42	42
	CTE : $\alpha 2$	Z – axis	ppm / C	IPC TM-650 2.4.24	> Tg	280	280
ELECTRICAL	Volume Resistivity		M Ω - cm	IPC TM-650 2.5.17.1	C-96/35/90	1 x 10 ⁹	1 x 10 ⁹
	Surface Resistivity		M Ω	IPC TM-650 2.5.17.1	C-96/35/90	1 x 10 ⁸	1 x 10 ⁸
	Dielectric Constant (Dk)	@ 1GHz	-	IPC TM-650 2.5.5.9	C-24/23/50	3.63	3.37
		@ 13, 14GHz	-	*Note 1	C-24/23/50	3.60 @13GHz	3.31 @14GHz
	Dissipation Factor (Df)	@ 1GHz	-	IPC TM-650 2.5.5.9	C-24/23/50	0.002	0.001
		@ 13, 14GHz	-	*Note 1	C-24/23/50	0.0034 @13GHz	0.0023 @14GHz
PHYSICAL	Water Absorption		%	IPC TM-650 2.6.2.1	D-24/23	0.06	0.06
	Peel Strength	1oz (H-VLP2)	kN / m	IPC TM-650 2.4.8	As received	0.8	0.8
	Flammability		-	UL	C-48/23/50	94V-0	94V-0

Sample thickness : 29.5 mil = 0.750 mm (Core Type 30)

Note 1 : Balanced-type Circular Disk Resonance Method [IEC 63185 (2020)]

* The data in the above table are not guaranteed values.

Specification / Laminate R-5785(GE) : E glass

1GHz ; IPC TM650-2.5.5.9

13-58GHz ; Balanced-type Circular Disk Resonance Method [IEC 63185 (2020)]

Core Type	Actual Thickness		Cloth Style	ply	Typical Resin Content (%)	Core Labeling	Typical Dk					
	mil	mm					1GHz	13GHz	24GHz	36GHz	47GHz	58GHz
2	2.0	0.050	1035	1	65	0.05	3.37	3.34	3.34	3.34	3.34	3.34
2.6	2.6	0.065	1078	1	57	0.07	3.55	3.51	3.51	3.51	3.51	3.51
3	3.0	0.075	1078	1	63	0.08	3.41	3.38	3.38	3.38	3.38	3.38
3.5	3.5	0.090	1078	1	68	0.09	3.30	3.29	3.29	3.29	3.29	3.29
4	3.9	0.100	3313	1	53	0.1	3.63	3.60	3.60	3.60	3.60	3.60
4	3.9	0.100	1035	2	65	0.1	3.37	3.34	3.34	3.34	3.34	3.34
5	5.0	0.127	1078	2	57	0.12	3.55	3.51	3.51	3.51	3.51	3.51
5	4.9	0.125	2116	1	53	0.13	3.63	3.60	3.60	3.60	3.60	3.60
6	5.7	0.146	1078	2	63	0.14	3.41	3.38	3.38	3.38	3.38	3.38
7	7.0	0.178	1078	2	68	0.18	3.30	3.29	3.29	3.29	3.29	3.29
8	7.9	0.200	3313	2	53	0.2	3.63	3.60	3.60	3.60	3.60	3.60
10	9.8	0.250	2116	2	53	0.25	3.63	3.60	3.60	3.60	3.60	3.60
12	11.8	0.300	3313	3	53	0.3	3.63	3.60	3.60	3.60	3.60	3.60
16	15.7	0.400	3313	4	53	0.4	3.63	3.60	3.60	3.60	3.60	3.60
20	19.7	0.500	2116	4	53	0.5	3.63	3.60	3.60	3.60	3.60	3.60
25	24.6	0.625	2116	5	53	0.63	3.63	3.60	3.60	3.60	3.60	3.60
30	29.5	0.750	2116	6	53	0.75	3.63	3.60	3.60	3.60	3.60	3.60

* The data in the above table are not guaranteed values.

Specification / Laminate R-5785(GE) : E glass

1GHz ; IPC TM650-2.5.5.9

13-58GHz ; Balanced-type Circular Disk Resonance Method [IEC 63185 (2020)]

Core Type	Actual Thickness		Cloth Style	ply	Typical Resin Content (%)	Core Labeling	Typical Df					
	mil	mm					1GHz	13GHz	24GHz	36GHz	47GHz	58GHz
2	2.0	0.050	1035	1	65	0.05	0.002	0.0029	0.0032	0.0035	0.0038	0.0041
2.6	2.6	0.065	1078	1	57	0.07	0.002	0.0032	0.0035	0.0039	0.0043	0.0046
3	3.0	0.075	1078	1	63	0.08	0.002	0.0029	0.0033	0.0036	0.0039	0.0043
3.5	3.5	0.090	1078	1	68	0.09	0.002	0.0028	0.0031	0.0034	0.0037	0.0040
4	3.9	0.100	3313	1	53	0.1	0.002	0.0034	0.0037	0.0041	0.0045	0.0049
4	3.9	0.100	1035	2	65	0.1	0.002	0.0029	0.0032	0.0035	0.0038	0.0041
5	5.0	0.127	1078	2	57	0.12	0.002	0.0032	0.0035	0.0039	0.0043	0.0046
5	4.9	0.125	2116	1	53	0.13	0.002	0.0034	0.0037	0.0041	0.0045	0.0049
6	5.7	0.146	1078	2	63	0.14	0.002	0.0029	0.0033	0.0036	0.0039	0.0043
7	7.0	0.178	1078	2	68	0.18	0.002	0.0028	0.0031	0.0034	0.0037	0.0040
8	7.9	0.200	3313	2	53	0.2	0.002	0.0034	0.0037	0.0041	0.0045	0.0049
10	9.8	0.250	2116	2	53	0.25	0.002	0.0034	0.0037	0.0041	0.0045	0.0049
12	11.8	0.300	3313	3	53	0.3	0.002	0.0034	0.0037	0.0041	0.0045	0.0049
16	15.7	0.400	3313	4	53	0.4	0.002	0.0034	0.0037	0.0041	0.0045	0.0049
20	19.7	0.500	2116	4	53	0.5	0.002	0.0034	0.0037	0.0041	0.0045	0.0049
25	24.6	0.625	2116	5	53	0.63	0.002	0.0034	0.0037	0.0041	0.0045	0.0049
30	29.5	0.750	2116	6	53	0.75	0.002	0.0034	0.0037	0.0041	0.0045	0.0049

* The data in the above table are not guaranteed values.

Specification / Prepreg R-5680(GE) : E glass

1GHz ; IPC TM650-2.5.5.9

13-58GHz ; Balanced-type Circular Disk Resonance Method [IEC 63185 (2020)]

Cloth Style	Resin Content (%)	Typical Thickness (um)	Prepreg labeling	Typical Dk					
				1GHz	13GHz	24GHz	36GHz	47GHz	58GHz
1035	70	60	0.04	3.26	3.25	3.25	3.25	3.25	3.25
	73	68		3.20	3.20	3.20	3.20	3.20	3.20
	75	74		3.18	3.16	3.16	3.16	3.16	3.16
1080	64	76	0.06	3.39	3.36	3.36	3.36	3.36	3.36
	68	87		3.30	3.29	3.29	3.29	3.29	3.29
	72	101		3.22	3.21	3.21	3.21	3.21	3.21
	75	115		3.18	3.16	3.16	3.16	3.16	3.16
1078	64	77	0.06	3.39	3.36	3.36	3.36	3.36	3.36
	68	89		3.30	3.29	3.29	3.29	3.29	3.29
	72	104		3.22	3.21	3.21	3.21	3.21	3.21
	75	118		3.18	3.16	3.16	3.16	3.16	3.16
3313	54	98	0.08	3.63	3.58	3.58	3.58	3.58	3.58
	57	106		3.55	3.51	3.51	3.51	3.51	3.51
2116	56	132	0.1	3.57	3.53	3.53	3.53	3.53	3.53

* The data in the above table are not guaranteed values.

Specification / Prepreg R-5680(GE) : E glass

1GHz ; IPC TM650-2.5.5.9

13-58GHz ; Balanced-type Circular Disk Resonance Method [IEC 63185 (2020)]

Cloth Style	Resin Content (%)	Typical Thickness (um)	Prepreg labeling	Typical Df					
				1GHz	13GHz	24GHz	36GHz	47GHz	58GHz
1035	70	60	0.04	0.002	0.0027	0.0030	0.0033	0.0036	0.0039
	73	68		0.002	0.0026	0.0028	0.0031	0.0034	0.0037
	75	74		0.002	0.0025	0.0028	0.0031	0.0033	0.0036
1080	64	76	0.06	0.002	0.0029	0.0032	0.0036	0.0039	0.0042
	68	87		0.002	0.0028	0.0031	0.0034	0.0037	0.0040
	72	101		0.002	0.0026	0.0029	0.0032	0.0035	0.0038
	75	115		0.002	0.0025	0.0028	0.0031	0.0033	0.0036
1078	64	77	0.06	0.002	0.0029	0.0032	0.0036	0.0039	0.0042
	68	89		0.002	0.0028	0.0031	0.0034	0.0037	0.0040
	72	104		0.002	0.0026	0.0029	0.0032	0.0035	0.0038
	75	118		0.002	0.0025	0.0028	0.0031	0.0033	0.0036
3313	54	98	0.08	0.002	0.0033	0.0037	0.0041	0.0044	0.0048
	57	106		0.002	0.0032	0.0035	0.0039	0.0043	0.0046
2116	56	132	0.1	0.002	0.0032	0.0036	0.0040	0.0043	0.0047

* The data in the above table are not guaranteed values.

Specification / Laminate R-5785(GN) : Low-Dk glass

1GHz ; IPC TM650-2.5.5.9

14-59GHz ; Balanced-type Circular Disk Resonance Method [IEC 63185 (2020)]

Core Type	Actual Thickness		Cloth Style	ply	Typical Resin Content (%)	Core Labeling	Typical Dk					
	mil	mm					1GHz	14GHz	25GHz	36GHz	48GHz	59GHz
2	2.0	0.050	1035	1	67	0.05	3.21	3.15	3.15	3.15	3.15	3.15
2.6	2.6	0.065	1078	1	59	0.07	3.32	3.25	3.25	3.25	3.25	3.25
3	3.0	0.075	1078	1	65	0.08	3.24	3.17	3.17	3.17	3.17	3.17
3.5	3.5	0.090	1078	1	70	0.09	3.18	3.11	3.11	3.11	3.11	3.11
4	3.9	0.100	2013	1	55	0.1	3.37	3.31	3.31	3.31	3.31	3.31
4	3.9	0.100	1035	2	67	0.1	3.21	3.15	3.15	3.15	3.15	3.15
5	5.0	0.127	1078	2	59	0.12	3.32	3.25	3.25	3.25	3.25	3.25
5	4.9	0.125	2116	1	55	0.13	3.37	3.31	3.31	3.31	3.31	3.31
6	5.7	0.146	1078	2	65	0.14	3.24	3.17	3.17	3.17	3.17	3.17
7	7.0	0.178	1078	2	70	0.18	3.18	3.11	3.11	3.11	3.11	3.11
8	7.9	0.200	2013	2	55	0.2	3.37	3.31	3.31	3.31	3.31	3.31
10	9.8	0.250	2116	2	55	0.25	3.37	3.31	3.31	3.31	3.31	3.31
12	11.8	0.300	2013	3	55	0.3	3.37	3.31	3.31	3.31	3.31	3.31
16	15.7	0.400	2013	4	55	0.4	3.37	3.31	3.31	3.31	3.31	3.31
20	19.7	0.500	2116	4	55	0.5	3.37	3.31	3.31	3.31	3.31	3.31
25	24.6	0.625	2116	5	55	0.63	3.37	3.31	3.31	3.31	3.31	3.31
30	29.5	0.750	2116	6	55	0.75	3.37	3.31	3.31	3.31	3.31	3.31

* The data in the above table are not guaranteed values.

Specification / Laminate R-5785(GN) : Low-Dk glass

1GHz ; IPC TM650-2.5.5.9

14-59GHz ; Balanced-type Circular Disk Resonance Method [IEC 63185 (2020)]

Core Type	Actual Thickness		Cloth Style	ply	Typical Resin Content (%)	Core Labeling	Typical Df					
	mil	mm					1GHz	14GHz	25GHz	36GHz	48GHz	59GHz
2	2.0	0.050	1035	1	67	0.05	0.001	0.0021	0.0023	0.0026	0.0028	0.0030
2.6	2.6	0.065	1078	1	59	0.07	0.001	0.0022	0.0025	0.0027	0.0030	0.0032
3	3.0	0.075	1078	1	65	0.08	0.001	0.0021	0.0024	0.0026	0.0028	0.0031
3.5	3.5	0.090	1078	1	70	0.09	0.001	0.0021	0.0023	0.0025	0.0028	0.0030
4	3.9	0.100	2013	1	55	0.1	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
4	3.9	0.100	1035	2	67	0.1	0.001	0.0021	0.0023	0.0026	0.0028	0.0030
5	5.0	0.127	1078	2	59	0.12	0.001	0.0022	0.0025	0.0027	0.0030	0.0032
5	4.9	0.125	2116	1	55	0.13	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
6	5.7	0.146	1078	2	65	0.14	0.001	0.0021	0.0024	0.0026	0.0028	0.0031
7	7.0	0.178	1078	2	70	0.18	0.001	0.0021	0.0023	0.0025	0.0028	0.0030
8	7.9	0.200	2013	2	55	0.2	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
10	9.8	0.250	2116	2	55	0.25	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
12	11.8	0.300	2013	3	55	0.3	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
16	15.7	0.400	2013	4	55	0.4	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
20	19.7	0.500	2116	4	55	0.5	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
25	24.6	0.625	2116	5	55	0.63	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
30	29.5	0.750	2116	6	55	0.75	0.001	0.0023	0.0025	0.0028	0.0030	0.0033

* The data in the above table are not guaranteed values.

Specification / Prepreg R-5680(GN) : Low-Dk glass

1GHz ; IPC TM650-2.5.5.9

14-59GHz ; Balanced-type Circular Disk Resonance Method [IEC 63185 (2020)]

Cloth Style	Resin Content (%)	Typical Thickness (um)	Prepreg labeling	Typical Dk					
				1GHz	14GHz	25GHz	36GHz	48GHz	59GHz
1035	72	60	0.04	3.15	3.09	3.09	3.09	3.09	3.09
	75	68		3.11	3.05	3.05	3.05	3.05	3.05
	77	74		3.09	3.03	3.03	3.03	3.03	3.03
1080	66	77	0.06	3.23	3.16	3.16	3.16	3.16	3.16
	70	87		3.18	3.11	3.11	3.11	3.11	3.11
	74	102		3.12	3.06	3.06	3.06	3.06	3.06
	77	115		3.09	3.03	3.03	3.03	3.03	3.03
1078	66	77	0.06	3.23	3.16	3.16	3.16	3.16	3.16
	70	89		3.18	3.11	3.11	3.11	3.11	3.11
	74	104		3.12	3.06	3.06	3.06	3.06	3.06
	77	118		3.09	3.03	3.03	3.03	3.03	3.03
2013	56	100	0.08	3.37	3.30	3.30	3.30	3.30	3.30
	59	109		3.32	3.25	3.25	3.25	3.25	3.25
2116	58	132	0.1	3.33	3.27	3.27	3.27	3.27	3.27

* The data in the above table are not guaranteed values.

Specification / Prepreg R-5680(GN) : Low-Dk glass

1GHz ; IPC TM650-2.5.5.9

14-59GHz ; Balanced-type Circular Disk Resonance Method [IEC 63185 (2020)]

Cloth Style	Resin Content (%)	Typical Thickness (um)	Prepreg labeling	Typical Df					
				1GHz	14GHz	25GHz	36GHz	48GHz	59GHz
1035	72	60	0.04	0.001	0.0020	0.0023	0.0025	0.0027	0.0029
	75	68		0.001	0.0020	0.0022	0.0024	0.0027	0.0029
	77	74		0.001	0.0020	0.0022	0.0024	0.0026	0.0028
1080	66	77	0.06	0.001	0.0021	0.0024	0.0026	0.0028	0.0031
	70	87		0.001	0.0021	0.0023	0.0025	0.0028	0.0030
	74	102		0.001	0.0020	0.0022	0.0025	0.0027	0.0029
	77	115		0.001	0.0020	0.0022	0.0024	0.0026	0.0028
1078	66	77	0.06	0.001	0.0021	0.0024	0.0026	0.0028	0.0031
	70	89		0.001	0.0021	0.0023	0.0025	0.0028	0.0030
	74	104		0.001	0.0020	0.0022	0.0025	0.0027	0.0029
	77	118		0.001	0.0020	0.0022	0.0024	0.0026	0.0028
2013	56	100	0.08	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
	59	109		0.001	0.0022	0.0025	0.0027	0.0030	0.0032
2116	58	132	0.1	0.001	0.0022	0.0025	0.0027	0.0030	0.0032

* The data in the above table are not guaranteed values.