

Data Sheet

High Speed, Low Loss Multi-layer Materials

MEGTRON7

Laminate R-5785(N)
Prepreg R-5680(N)

Any letters with parentheses () at the end of a part number are for identification code in our company and are not included in the part numbers registered for UL certification.

Jul. 2024 No.240724

General Properties / Laminate R-5785(N)

Items			Units	Test Method	Condition	Typical Values
						R-5785(N) Low-Dk glass
THERMAL	Glass Transition Temp (Tg)		C	DSC	As received	200
				DMA	As received	210
	Thermal Decomposition Temp (Td)		C	TGA	As received	400
	Time to Delam (T288)	Without Cu	Min	IPC TM-650 2.4.24.1	As received	> 120
		With Cu	Min	IPC TM-650 2.4.24.1	As received	> 120
	CTE : α1	X – axis	ppm / C	IPC TM-650 2.4.24	< Tg	14 - 16
		Y – axis	ppm / C	IPC TM-650 2.4.24	< Tg	14 - 16
		Z – axis	ppm / C	IPC TM-650 2.4.24	< Tg	42
ELECTRICAL	CTE : α2		Z – axis	ppm / C	IPC TM-650 2.4.24	> Tg 280
	Volume Resistivity		MΩ - cm	IPC TM-650 2.5.17.1	C-96/35/90	1 x 10 ⁹
	Surface Resistivity		MΩ	IPC TM-650 2.5.17.1	C-96/35/90	1 x 10 ⁸
	Dielectric Constant (Dk)	@ 1GHz	-	IPC TM-650 2.5.5.9	C-24/23/50	3.37
		@ 14GHz	-	*Note 1	C-24/23/50	3.31
	Dissipation Factor (Df)	@ 1GHz	-	IPC TM-650 2.5.5.9	C-24/23/50	0.001
		@ 14GHz	-	*Note 1	C-24/23/50	0.0023
PHYSICAL	Water Absorption		%	IPC TM-650 2.6.2.1	D-24/23	0.06
	Peel Strength	1oz (H-VLP)	kN / m	IPC TM-650 2.4.8	As received	0.8
	Flammability		-	UL 94V	C-48/23/50	94V-0†1

†1 The value represents Panasonic internal test results based on the UL94 test method for flammability and is NOT intended to indicate that the product is UL certified. If UL certification is required, use R-578Y(N) for the UL recognized grades.

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 represents typical values for your reference and are not guaranteed values.

Dielectric Properties / Laminate R-5785(N) : 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 (%)	Typical Dk					
	mil	mm				1GHz	14GHz	25GHz	36GHz	48GHz	59GHz
2	2.0	0.050	1035	1	67	3.21	3.15	3.15	3.15	3.15	3.15
2.6	2.6	0.065	1078	1	59	3.32	3.25	3.25	3.25	3.25	3.25
3	3.0	0.075	1027	2	70	3.18	3.11	3.11	3.11	3.11	3.11
3	3.0	0.075	1078	1	65	3.24	3.17	3.17	3.17	3.17	3.17
3.2	3.2	0.080	1035	2	60	3.31	3.24	3.24	3.24	3.24	3.24
3.5	3.5	0.090	1078	1	70	3.18	3.11	3.11	3.11	3.11	3.11
3.5	3.5	0.090	1035	2	64	3.26	3.19	3.19	3.19	3.19	3.19
4	3.9	0.100	3313	1	55	3.37	3.31	3.31	3.31	3.31	3.31
4	3.9	0.100	1035	2	67	3.21	3.15	3.15	3.15	3.15	3.15
4.5	4.5	0.114	1027	3	70	3.18	3.11	3.11	3.11	3.11	3.11
5	5.0	0.127	1078	2	59	3.32	3.25	3.25	3.25	3.25	3.25
5	4.9	0.125	2116	1	55	3.37	3.31	3.31	3.31	3.31	3.31
5.2	5.2	0.135	1035	3	64	3.26	3.19	3.19	3.19	3.19	3.19
6	5.7	0.146	1078	2	65	3.24	3.17	3.17	3.17	3.17	3.17
7	7.0	0.178	1078	2	70	3.18	3.11	3.11	3.11	3.11	3.11
8	7.9	0.200	3313	2	55	3.37	3.31	3.31	3.31	3.31	3.31
10	9.8	0.250	2116	2	55	3.37	3.31	3.31	3.31	3.31	3.31
12	11.8	0.300	3313	3	55	3.37	3.31	3.31	3.31	3.31	3.31
16	15.7	0.400	3313	4	55	3.37	3.31	3.31	3.31	3.31	3.31
20	19.7	0.500	2116	4	55	3.37	3.31	3.31	3.31	3.31	3.31
25	24.6	0.625	2116	5	55	3.37	3.31	3.31	3.31	3.31	3.31
30	29.5	0.750	2116	6	55	3.37	3.31	3.31	3.31	3.31	3.31

* The data in the above table represents typical values for your reference and are not guaranteed values.

Dielectric Properties / Laminate R-5785(N) : 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 (%)	Typical Df					
	mil	mm				1GHz	14GHz	25GHz	36GHz	48GHz	59GHz
2	2.0	0.050	1035	1	67	0.001	0.0021	0.0023	0.0026	0.0028	0.0030
2.6	2.6	0.065	1078	1	59	0.001	0.0022	0.0025	0.0027	0.0030	0.0032
3	3.0	0.075	1027	2	70	0.001	0.0021	0.0023	0.0025	0.0028	0.0030
3	3.0	0.075	1078	1	65	0.001	0.0021	0.0024	0.0026	0.0028	0.0031
3.2	3.2	0.080	1035	2	60	0.001	0.0022	0.0024	0.0027	0.0029	0.0032
3.5	3.5	0.090	1078	1	70	0.001	0.0021	0.0023	0.0025	0.0028	0.0030
3.5	3.5	0.090	1035	2	64	0.001	0.0022	0.0024	0.0026	0.0029	0.0031
4	3.9	0.100	3313	1	55	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
4	3.9	0.100	1035	2	67	0.001	0.0021	0.0023	0.0026	0.0028	0.0030
4.5	4.5	0.114	1027	3	70	0.001	0.0021	0.0023	0.0025	0.0028	0.0030
5	5.0	0.127	1078	2	59	0.001	0.0022	0.0025	0.0027	0.0030	0.0032
5	4.9	0.125	2116	1	55	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
5.2	5.2	0.135	1035	3	64	0.001	0.0022	0.0024	0.0026	0.0029	0.0031
6	5.7	0.146	1078	2	65	0.001	0.0021	0.0024	0.0026	0.0028	0.0031
7	7.0	0.178	1078	2	70	0.001	0.0021	0.0023	0.0025	0.0028	0.0030
8	7.9	0.200	3313	2	55	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
10	9.8	0.250	2116	2	55	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
12	11.8	0.300	3313	3	55	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
16	15.7	0.400	3313	4	55	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
20	19.7	0.500	2116	4	55	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
25	24.6	0.625	2116	5	55	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
30	29.5	0.750	2116	6	55	0.001	0.0023	0.0025	0.0028	0.0030	0.0033

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Dielectric Properties / Prepreg R-5680(N) : 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 (μm)	Typical Dk					
			1GHz	14GHz	25GHz	36GHz	48GHz	59GHz
1027	77	49	3.09	3.03	3.03	3.03	3.03	3.03
1035	72	60	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	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	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
3313	56	98	3.37	3.30	3.30	3.30	3.30	3.30
	59	106	3.32	3.25	3.25	3.25	3.25	3.25
2116	58	132	3.33	3.27	3.27	3.27	3.27	3.27

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Cloth Style	Resin Content (%)	Typical Thickness (μm)	Typical Df					
			1GHz	14GHz	25GHz	36GHz	48GHz	59GHz
1027	77	49	0.001	0.0020	0.0022	0.0024	0.0026	0.0028
1035	72	60	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	0.001	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	0.001	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
3313	56	98	0.001	0.0023	0.0025	0.0028	0.0030	0.0033
	59	106	0.001	0.0022	0.0025	0.0027	0.0030	0.0032
2116	58	132	0.001	0.0022	0.0025	0.0027	0.0030	0.0032

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