

Data Sheet

High Speed, Low Loss Multi-layer Materials

MEGTRON7(G)

		Guangzhou	Koriyama
E glass type	Laminate	R-5785(GE)	R-5785(1)*
	Prepreg	R-5680(GE)	R-5680(1)*
Low-Dk glass type	Laminate	R-5785(GN)	R-5785(2)**
	Prepreg	R-5680(GN)	R-5680(2)**

*On the label, described as "GE type"

**On the label, described as "GN type"

Sep. 2019 No.19071228

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
				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
		@ 12GHz	-	*Note 1	C-24/23/50	3.61	3.35
	Dissipation Factor (Df)	@ 1GHz	-	IPC TM-650 2.5.5.9	C-24/23/50	0.002	0.001
		@ 12GHz	-	*Note 1	C-24/23/50	0.003	0.002
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

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

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

1GHz ; IPC TM650-2.5.5.9

6-50GHz ; The method by H. Kawabata, Proceedings of the 36th European Microwave Conference, 388-391 (2006)

Core Type	Actual Thickness		Cloth Style	ply	Typical Resin Content (%)	Core Labeling	Typical Dk									
	mil	mm					1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz
2	2.0	0.050	1035	1	65	0.05	3.37	3.36	3.35	3.35	3.35	3.34	3.34	3.34	3.34	3.34
2.6	2.6	0.065	1078	1	57	0.07	3.55	3.54	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53
3	3.0	0.075	1078	1	63	0.08	3.41	3.40	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39
3.5	3.5	0.090	1078	1	68	0.09	3.30	3.29	3.29	3.28	3.28	3.28	3.28	3.28	3.28	3.28
4	3.9	0.100	3313	1	53	0.1	3.63	3.61	3.61	3.60	3.60	3.60	3.60	3.60	3.60	3.60
4	3.9	0.100	1035	2	65	0.1	3.37	3.36	3.35	3.35	3.35	3.34	3.34	3.34	3.34	3.34
5	5.0	0.127	1078	2	57	0.12	3.55	3.54	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53
5	4.9	0.125	2116	1	53	0.13	3.63	3.61	3.61	3.60	3.60	3.60	3.60	3.60	3.60	3.60
6	5.7	0.146	1078	2	63	0.14	3.41	3.40	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39
7	7.0	0.178	1078	2	68	0.18	3.30	3.29	3.29	3.28	3.28	3.28	3.28	3.28	3.28	3.28
8	7.9	0.200	3313	2	53	0.2	3.63	3.61	3.61	3.60	3.60	3.60	3.60	3.60	3.60	3.60
10	9.8	0.250	2116	2	53	0.25	3.63	3.61	3.61	3.60	3.60	3.60	3.60	3.60	3.60	3.60
12	11.8	0.300	3313	3	53	0.3	3.63	3.61	3.61	3.60	3.60	3.60	3.60	3.60	3.60	3.60
16	15.7	0.400	3313	4	53	0.4	3.63	3.61	3.61	3.60	3.60	3.60	3.60	3.60	3.60	3.60
20	19.7	0.500	2116	4	53	0.5	3.63	3.61	3.61	3.60	3.60	3.60	3.60	3.60	3.60	3.60
25	24.6	0.625	2116	5	53	0.63	3.63	3.61	3.61	3.60	3.60	3.60	3.60	3.60	3.60	3.60
30	29.5	0.750	2116	6	53	0.75	3.63	3.61	3.61	3.60	3.60	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

6-50GHz ; The method by H. Kawabata, Proceedings of the 36th European Microwave Conference, 388-391 (2006)

Core Type	Actual Thickness		Cloth Style	ply	Typical Resin Content (%)	Core Labeling	Typical Df											
	mil	mm					1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz		
2	2.0	0.050	1035	1	65	0.05	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	
2.6	2.6	0.065	1078	1	57	0.07	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.005
3	3.0	0.075	1078	1	63	0.08	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004
3.5	3.5	0.090	1078	1	68	0.09	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004
4	3.9	0.100	3313	1	53	0.1	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005
4	3.9	0.100	1035	2	65	0.1	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004
5	5.0	0.127	1078	2	57	0.12	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.005
5	4.9	0.125	2116	1	53	0.13	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005
6	5.7	0.146	1078	2	63	0.14	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004
7	7.0	0.178	1078	2	68	0.18	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004
8	7.9	0.200	3313	2	53	0.2	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005
10	9.8	0.250	2116	2	53	0.25	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005
12	11.8	0.300	3313	3	53	0.3	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005
16	15.7	0.400	3313	4	53	0.4	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005
20	19.7	0.500	2116	4	53	0.5	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005
25	24.6	0.625	2116	5	53	0.63	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005
30	29.5	0.750	2116	6	53	0.75	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005

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

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

1GHz ; IPC TM650-2.5.5.9

6-50GHz ; The method by H. Kawabata, Proceedings of the 36th European Microwave Conference, 388-391 (2006)

Cloth Style	Resin Content (%)	Typical Thickness (um)	Prepreg labeling	Typical Dk									
				1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz
1035	70	60	0.04	3.26	3.25	3.25	3.24	3.24	3.24	3.24	3.24	3.24	3.24
	73	68		3.20	3.19	3.19	3.19	3.18	3.18	3.18	3.18	3.18	3.18
	75	74		3.18	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15
1080	64	76	0.06	3.39	3.38	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37
	68	87		3.30	3.29	3.29	3.28	3.28	3.28	3.28	3.28	3.28	3.28
	72	101		3.22	3.21	3.21	3.20	3.20	3.20	3.20	3.20	3.20	3.20
	75	115		3.18	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16
1078	64	77	0.06	3.39	3.38	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37
	68	89		3.30	3.29	3.29	3.28	3.28	3.28	3.28	3.28	3.28	3.28
	72	104		3.22	3.21	3.21	3.20	3.20	3.20	3.20	3.20	3.20	3.20
	75	118		3.18	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16
3313	54	98	0.08	3.63	3.61	3.61	3.60	3.60	3.60	3.60	3.60	3.60	3.60
	57	106		3.55	3.54	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53
2116	56	132	0.1	3.57	3.56	3.56	3.55	3.55	3.55	3.55	3.55	3.55	3.55

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

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Cloth Style	Resin Content (%)	Typical Thickness (um)	Prepreg labeling	Typical Df											
				1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz		
1035	70	60	0.04	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	
	73	68		0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004
	75	74		0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004
1080	64	76	0.06	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	
	68	87		0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	
	72	101		0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	
	75	115		0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	
1078	64	77	0.06	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	
	68	89		0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	
	72	104		0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	
	75	118		0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	
3313	54	98	0.08	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	
	57	106		0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	
2116	56	132	0.1	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.005	

* 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

6-50GHz ; The method by H. Kawabata, Proceedings of the 36th European Microwave Conference, 388-391 (2006)

Core Type	Actual Thickness		Cloth Style	ply	Typical Resin Content (%)	Core Labeling	Typical Dk									
	mil	mm					1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz
2	2.0	0.050	1035	1	67	0.05	3.21	3.20	3.20	3.20	3.19	3.19	3.19	3.19	3.19	3.19
2.6	2.6	0.065	1078	1	59	0.07	3.32	3.31	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30
3	3.0	0.075	1078	1	65	0.08	3.24	3.23	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22
3.5	3.5	0.090	1078	1	70	0.09	3.18	3.17	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16
4	3.9	0.100	2013	1	55	0.1	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	3.34
4	3.9	0.100	1035	2	67	0.1	3.21	3.20	3.20	3.20	3.19	3.19	3.19	3.19	3.19	3.19
5	5.0	0.127	1078	2	59	0.12	3.32	3.31	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30
5	4.9	0.125	2116	1	55	0.13	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	3.34
6	5.7	0.146	1078	2	65	0.14	3.24	3.23	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22
7	7.0	0.178	1078	2	70	0.18	3.18	3.17	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16
8	7.9	0.200	2013	2	55	0.2	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	3.34
10	9.8	0.250	2116	2	55	0.25	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	3.34
12	11.8	0.300	2013	3	55	0.3	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	3.34
16	15.7	0.400	2013	4	55	0.4	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	3.34
20	19.7	0.500	2116	4	55	0.5	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	3.34
25	24.6	0.625	2116	5	55	0.63	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	3.34
30	29.5	0.750	2116	6	55	0.75	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	3.34

* 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

6-50GHz ; The method by H. Kawabata, Proceedings of the 36th European Microwave Conference, 388-391 (2006)

Core Type	Actual Thickness		Cloth Style	ply	Typical Resin Content (%)	Core Labeling	Typical Df									
	mil	mm					1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz
2	2.0	0.050	1035	1	67	0.05	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003
2.6	2.6	0.065	1078	1	59	0.07	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
3	3.0	0.075	1078	1	65	0.08	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
3.5	3.5	0.090	1078	1	70	0.09	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
4	3.9	0.100	2013	1	55	0.1	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
4	3.9	0.100	1035	2	67	0.1	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
5	5.0	0.127	1078	2	59	0.12	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
5	4.9	0.125	2116	1	55	0.13	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
6	5.7	0.146	1078	2	65	0.14	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
7	7.0	0.178	1078	2	70	0.18	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
8	7.9	0.200	2013	2	55	0.2	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
10	9.8	0.250	2116	2	55	0.25	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
12	11.8	0.300	2013	3	55	0.3	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
16	15.7	0.400	2013	4	55	0.4	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
20	19.7	0.500	2116	4	55	0.5	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
25	24.6	0.625	2116	5	55	0.63	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
30	29.5	0.750	2116	6	55	0.75	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004

* 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

6-50GHz ; The method by H. Kawabata, Proceedings of the 36th European Microwave Conference, 388-391 (2006)

Cloth Style	Resin Content (%)	Typical Thickness (um)	Prepreg labeling	Typical Dk									
				1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz
1035	72	60	0.04	3.15	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14
	75	68		3.11	3.11	3.11	3.10	3.10	3.10	3.10	3.10	3.10	3.10
	77	74		3.09	3.09	3.09	3.09	3.08	3.08	3.08	3.08	3.08	3.08
1080	66	77	0.06	3.23	3.22	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21
	70	87		3.18	3.17	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16
	74	102		3.12	3.12	3.12	3.11	3.11	3.11	3.11	3.11	3.11	3.11
	77	115		3.09	3.09	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08
1078	66	77	0.06	3.23	3.22	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21
	70	89		3.18	3.17	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16
	74	104		3.12	3.12	3.12	3.11	3.11	3.11	3.11	3.11	3.11	3.11
	77	118		3.09	3.09	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08
2013	56	100	0.08	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	3.34
	59	109		3.33	3.32	3.32	3.31	3.31	3.31	3.31	3.31	3.31	3.31
2116	58	132	0.1	3.33	3.33	3.33	3.33	3.32	3.32	3.32	3.32	3.32	3.32

* 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

6-50GHz ; The method by H. Kawabata, Proceedings of the 36th European Microwave Conference, 388-391 (2006)

Cloth Style	Resin Content (%)	Typical Thickness (um)	Prepreg labeling	Typical Df									
				1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz
1035	72	60	0.04	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003
	75	68		0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003
	77	74		0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003
1080	66	77	0.06	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003
	70	87		0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003
	74	102		0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003
	77	115		0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003
1078	66	77	0.06	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003
	70	89		0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003
	74	104		0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003
	77	118		0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003
2013	56	100	0.08	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
	59	109		0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
2116	58	132	0.1	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003

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

++ Before purchase ++

【Notes before you use】

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