

Data Sheet

**High Speed, Low Loss Multi-layer Materials**

Low Dk glass cloth version

**MEGTRON6**

Laminate R-5775(N)  
Prepreg R-5670(N)

Nov. 2014 No.14110730

Partnering to go beyond.

**Electronic Materials**  
Panasonic Corporation

# Specification / Laminate R-5775(N)

Property		Units	Test Method	Condition	Value	
THERMAL	Glass Transition Temp ( Tg )	C	DSC	As received	185	
			DMA	As received	210	
	Thermal Decomposition Temp ( Td )		C	TGA	As received	410
	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 : $\alpha 1$	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	45
CTE : $\alpha 2$	Z - axis	ppm / C	IPC TM-650 2.4.24	> Tg	260	
ELECTRICAL	Volume Resistivity		M $\Omega$ - cm	IPC TM-650 2.5.17.1	C-96/35/90	1 x 10 <sup>9</sup>
	Surface Resistivity		M $\Omega$	IPC TM-650 2.5.17.1	C-96/35/90	1 x 10 <sup>8</sup>
	Dielectric Constant ( Dk )	@1GHz	-	IPC TM-650 2.5.5.9	C-24/23/50	3.40
		@12GHz	-	*Note 1	C-24/23/50	3.35
	Dissipation Factor ( Df )	@1GHz	-	IPC TM-650 2.5.5.9	C-24/23/50	0.002
		@12GHz	-	*Note 1	C-24/23/50	0.004
PHYSICAL	Water Absorption		%	IPC TM-650 2.6.2.1	D-24/23	0.14
	Peel Strength	1oz ( H-VLP )	kN / m	IPC TM-650 2.4.8	As Received	0.8
	Flammability		-	UL	C-48/23/50	94V-0

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

Note 1: The method by H. Kawabata, Proceedings of the 36th European Microwave Conference, 388-391 (2006)

\*The data above show actual values and are not guaranteed.

# Specification / Laminate R-5775(N)

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 (%)	Typical Dk										
	mil	mm				1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz	
2	2.0	0.050	1035	1	67	3.25	3.23	3.22	3.21	3.21	3.21	3.21	3.21	3.21	3.21	
2.6	2.6	0.065	1078	1	59	3.37	3.33	3.31	3.31	3.30	3.30	3.30	3.30	3.30	3.30	
3	3.0	0.075	1078	1	65	3.28	3.25	3.24	3.23	3.23	3.23	3.23	3.23	3.23	3.23	
4	3.9	0.100	2013	1	56	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	
4	3.9	0.100	1035	2	67	3.25	3.20	3.19	3.19	3.19	3.19	3.18	3.18	3.18	3.18	
5	5.0	0.127	1078	2	59	3.37	3.33	3.31	3.31	3.30	3.30	3.30	3.30	3.30	3.30	
5	4.9	0.125	2116	1	56	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	
6	5.7	0.146	1078	2	65	3.28	3.25	3.24	3.23	3.23	3.23	3.23	3.23	3.23	3.23	
8	7.9	0.200	2013	2	56	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	
10	9.8	0.250	2116	2	56	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	
12	11.8	0.300	2013	3	56	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	
16	15.7	0.400	2013	4	56	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	
20	19.7	0.500	2116	4	56	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	
25	24.6	0.625	2116	5	56	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	
30	29.5	0.750	2116	6	56	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34	

\*The data above show actual values and are not guaranteed.

## Specification / Laminate R-5775(N)

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 (%)	Typical Df									
	mil	mm				1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz
2	2.0	0.050	1035	1	67	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005
2.6	2.6	0.065	1078	1	59	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
3	3.0	0.075	1078	1	65	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005
4	3.9	0.100	2013	1	56	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
4	3.9	0.100	1035	2	67	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
5	5.0	0.127	1078	2	59	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
5	4.9	0.125	2116	1	56	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
6	5.7	0.146	1078	2	65	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005
8	7.9	0.200	2013	2	56	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
10	9.8	0.250	2116	2	56	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
12	11.8	0.300	2013	3	56	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
16	15.7	0.400	2013	4	56	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
20	19.7	0.500	2116	4	56	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
25	24.6	0.625	2116	5	56	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
30	29.5	0.750	2116	6	56	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005

\*The data above show actual values and are not guaranteed.

# Specification / Prepreg R-5670(N)

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)	Typical Dk									
			1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz
1035	72	60	3.20	3.18	3.17	3.16	3.16	3.16	3.16	3.16	3.16	3.16
	75	68	3.16	3.14	3.13	3.12	3.12	3.12	3.12	3.12	3.12	3.12
	77	74	3.13	3.11	3.10	3.09	3.09	3.09	3.09	3.09	3.09	3.09
1078	66	77	3.26	3.24	3.23	3.22	3.22	3.22	3.22	3.22	3.22	3.22
	70	89	3.22	3.20	3.19	3.18	3.18	3.18	3.18	3.18	3.18	3.18
	74	104	3.17	3.15	3.14	3.13	3.13	3.13	3.13	3.13	3.13	3.13
	77	118	3.13	3.11	3.10	3.09	3.09	3.09	3.09	3.09	3.09	3.09
2013	56	98	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34
	59	106	3.37	3.33	3.31	3.31	3.30	3.30	3.30	3.30	3.30	3.30
2116	56	125	3.40	3.37	3.35	3.35	3.34	3.34	3.34	3.34	3.34	3.34
	58	132	3.37	3.34	3.32	3.32	3.31	3.31	3.31	3.31	3.31	3.31

\*The data above show actual values and are not guaranteed.

## Specification / Prepreg R-5670(N)

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)	Typical Df									
			1GHz	6GHz	12GHz	18GHz	23GHz	29GHz	34GHz	40GHz	45GHz	50GHz
1035	72	60	0.002	0.003	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005
	75	68	0.002	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.006
	77	74	0.002	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.006
1078	66	77	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005
	70	89	0.002	0.003	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005
	74	104	0.002	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.006
	77	118	0.002	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.006
2013	56	98	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
	59	106	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
2116	56	125	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
	58	132	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005

\*The data above show actual values and are not guaranteed.

## ++ Before purchase ++

- \* If delivery specifications have been agreed upon, descriptions in the delivery specifications take precedence.
- \* Specifications and appearances are subject to change without prior notice for product improvement.
- \* For details of the products contained in this catalog, contact your dealer or our sales representative.
- \* ALL data are our actual values and not assured values.

### Please Contact us of more

#### 【Technical Marketing】

- |                     |                      |
|---------------------|----------------------|
| * Japan (Osaka)     | TEL: 81-6-6908-8132  |
| • USA (Cupertino)   | TEL: 1-408-861-8414  |
| • Austria (Enns)    | TEL: 43-7223-883-0   |
| • China (Guangzhou) | TEL: 86-20-8713-0888 |

#### 【Sales Offices】

- |                        |                      |
|------------------------|----------------------|
| • China (Hong Kong)    | TEL: 852-2529-3956   |
| • China (Suzhou)       | TEL: 86-512-68252697 |
| • China (Guangzhou)    | TEL: 86-20-8713-0888 |
| • Korea (Seoul)        | TEL: 82-2-2052-1050  |
| • Taiwan (Hsinchu)     | TEL: 886-3-598-3201  |
| • Thailand (Ayuthaya)  | TEL: 66-35-330-846   |
| • Singapore (Joo Koon) | TEL: 65-6861-8385    |
| • Austria (Enns)       | TEL: 43-7223-883-0   |
| • Japan (Osaka)        | TEL: 81-6-6904-2771  |
| • USA (Cupertino)      | TEL: 1-408-861-8414  |

Panasonic Corporation  
 Automotive & Industrial Systems Company  
 Electronic Materials Business Division  
 Circuit Board Materials Division.  
 Head Office :1006 Kadoma. Kadoma. Osaka 571-8506  
 TEL: 81-6-6908-1101  
<http://industrial.panasonic.com/>