



**Panasonic Laminate:
R-1566 / R-1566W
Prepreg: R-1551 / R-1551W**

Specification sheet #

IPC-4101C/127

Reinforcement

1: Woven E-Glass

2: N/A

Resin System:

Primary: Epoxy

Secondary 1: Multifunctional Epoxy

Secondary 2: N/A

Flam retardant mechanism

Phosphorous

Minimum UL94 Requirement: V1

Fillers:

Inorganic fillers

ID Reverence:

UL/ANSI: FR-4

Mil-S-13949: N/A

ANSI: FR4 / 127

secondary: 92/93/94/95/122/125/128
110°C minimum

Glass transition (TG):

Product name	Laminate: R-1566 / R-1566W	Prepreg: R-1551 / R-1551W
UL - Designation	R-1566	R-1551

1. Laminate		IPC Specification < 0, 5mm	IPC Specification >= 0, 5mm	Units	Typical Values < 0, 5mm	Typical Values >= 0, 5mm	Methods IPC-TM-650 (or as noted)	
Physical Property								
Peel strength, minimum		0,7	0,7		-	-		
A: Low profile and very low profile copper foil, all copper foils > 18µm	18µm			N/mm			2.4.8 2.4.8.2 2.4.8.3	
B: Standard profile copper foil	35µm	-	-					
1. after thermal stress		0,8	1,05			1,5		1,6
2. at 125°C		0,7	0,7			1,4		1,5
3. after process solutions		0,55	0,8			1,5		1,6
Moisture Absorptions, maximum		-	0,8	%	-	0,11	2.6.2.1	
Flexural strength, minimum	A: Length direction	-	415	N/mm ²	-	595	2.4.4	
	B: Cross direction	-	345		-	412		
Flammability (Laminate and prepreg as laminated)		V1 min.	V1 min	Rating	V0	V0	UL 94	
Electrical Property								
Volume resistivity, minimum	A: 96 / 35 / 90	1,0 E+06	-	MOhm-cm	5 E+07	-	2.5.17.1	
	B: after moisture resistance	-	1,0 E+06		-	1,0 E+07		
	C: at elevated temp. E-24/125	1,0 E+03	1,0 E+03		5,0 E+06	5,0 E+06		
Surface resistivity, minimum	A: 96 / 35 / 90	1,0 E+04	-	MOhm	5,0 E+08	-	2.5.17.1	
	B: after moisture resistance	-	1,0 E+04		-	N/A		
	C: at elevated temp. E-24/125	1,0 E+03	1,0 E+03		N/A	N/A		
Dielectric breakdown, minimum		-	40	kV	-	> 50	2.5.6	
Permittivity, maximum (laminate and prepreg as laminated)	at 1 MHz	5,4	5,4	-	N/A	4,95	2.5.5.2/3/9	
	at 1 GHz	-	-	-	N/A	4,7		
Loss tangent, maximum (laminate and prepreg as laminated)	at 1 MHz	0,035	0,035	-	0,014	0,014	2.5.5.2/3/9	
	at 1 GHz	-	-	-	0,011	0,011		
Arc resistance, minimum		60	60	sec	NI	NI	2.5.1	
Electrical strength, minimum (laminate and prepreg as laminated)		30	-	kV/mm	49	-	2.5.6.2	
CTI (comparative tracking index)		-	-	V	-	500	IEC 112	
Thermal Property								
Thermal stress 10 sec at 288°C, minimum	A: unetched	Pass	Pass	Rating	Pass	Pass	2.4.13.1	
	B: etched	Pass	Pass		Pass	Pass		
Tg by DSC (TMA / DMA)		110 min.	110min	°C	152,7	153(145/180)	2.4.25	
Thermal conductivity		-	-	W/mK	-	0,62	Laser flash	
Specific heat		-	-	J/kgK	-	950	DSC	
2. Prepreg Property		IPC-Specification		Units	Typical Values			
Shelf life, minimum (from date of delivery)	A: Condition <20°C, rel. H. <50%	90		Days	60		AABUS	
	B: Condition < 5°C	180			180			
Volatile content, maximum		0,75		%	meets requirements		2.3.19	
Prepreg parameters		-	-	-	AABUS		AABUS	