

KB-6167F High Performance Laminates



High Reliability, High Tg, FR-4 Multilayer Material

KB-6167F is specifically formulated to withstand increasingly stringent demands of high complexity, high layer, lead-free PCB designs and applications.

This high Tg, multi-functional phenolic cured resin system with inorganic fillers result in high performing PCB structures.

Benefits

- Able to withstand multiple thermal excursions during PCB fabrication and assembly
- High Thermal Resistance and Long-Term Reliability
- Wide operating window for multilayer processing
- Excellent Thermal Shock Reliability
- Withstands Thermal Cycling, IST and other accelerated testing methods
- UV blocking for maximum compatibility with automated optical inspection
- Excellent Dimensional Stability
- RoHS/REACH Compliant

Applications

- High Layer Count PCBs
- Backplanes
- High Complexity Multilayers
- Industrial Electronics
- Commercial Electronics
- High-End Servers
- Wireless Communication Infrastructure
- Automotive Applications Requiring High Thermal Resistance

KB-6167F offers very high heat resistance. It is particularly well-suited for lead-free soldering processes.

Features

- High Tg (DSC) value of 170-180°C
- Low Moisture Absorption
- CAF-Enhanced
- High Decomposition Temperature: > 340°C
- Lead-Free Assembly Compatible
- Low Z-Axis Expansion

Laminate Properties

Item		Typical Value	Test Method (IPC-TM-650)	Test Condition	Unit	Specification	
Thermal	Thermal Stress	≥ 240	2.4.13.1	Float 288°C/ unetched	sec	≥ 10	
	Glass Transition (Tg)	175	2.4.25	E-2/105 DSC	°C	≥ 170	
	CTE/Z-Axis Expansion	40	2.4.24	Alpha 1	ppm/°C	≤ 60	
		230		Alpha 2		≤ 300	
		2.6		50 - 260°C	%	≤ 3.0	
	X/Y CTE	12/15	2.4.24	40 - 125°C	ppm/°C	—	
	T-260	> 60	2.4.24.1	TMA	min	≥ 30	
	T-288	> 35	2.4.24.1	TMA	min	≥ 15	
	TD (5% weight loss)	349	2.4.24.6	TGA	°C	> 340	
Flammability	V-0	UL94	E-24/23	Rating	V-0		
Electrical	Surface Resistivity	≥ 10 ⁹	2.5.17.1	C-96/35/90	MΩ	≥ 10 ⁴	
	Volume Resistivity	≥ 10 ¹⁰	2.5.17.1	C-96/35/90	MΩ-cm	≥ 10 ⁶	
	Dielectric Breakdown	67	2.5.6	D-48/50+D0.5/23	kV	≥ 40	
	Dielectric Constant	4.8	2.5.5.2	Etched (R/C 50%)	@ 1MHz	—	≤ 5.4
		4.6			@ 1GHz		
	Loss Tangent	0.015	2.5.5.2	Etched (R/C 50%)	@ 1MHz	—	≤ 0.035
		0.016			@ 1GHz		
CTI	> 175	IEC60112	A	V	—		
Arc Resistance	129	2.5.1	D-48/50+D0.5/23	sec	≥ 60		
Mechanical	Peel Strength (1 oz)	1.2	2.4.8	125°C	N/mm	≥ 0.70	
		1.3		Float 288°C/10 sec		≥ 1.05	
		1.1		After Process Solution		≥ 0.80	
	Flexural Strength	540	2.4.4	Length Direction	N/mm ²	≥ 415	
		480		Cross Direction		≥ 345	
Moisture Absorption	0.09	2.6.2.1	D-24/23	%	≤ 0.5		

Remarks:

- Typical values for reference only.
- Standard values according to IPC-4101E/126
- Typical value of specimen thickness is 1.6mm (8 * 7628)

KB-6167 Laminate Constructions

Thickness (mil)	Layup	RC (%)	Dk				Df			
			1G	2G	5G	10G	1G	2G	5G	10G
2.0	106x1	73	4.1	4.0	3.9	3.9	0.017	0.017	0.018	0.019
2.5	1067x1	71	4.1	4.1	4.0	3.9	0.017	0.017	0.018	0.019
3.0	1080x1	67	4.2	4.1	4.1	4.0	0.016	0.016	0.017	0.018
3.5	3313x1	52	4.5	4.4	4.4	4.3	0.015	0.015	0.016	0.017
4.0	2116x1	47	4.6	4.5	4.5	4.4	0.014	0.015	0.016	0.017
4.5	2116x1	51	4.5	4.5	4.4	4.3	0.015	0.015	0.016	0.017
5.0	2165x1	49	4.6	4.5	4.4	4.4	0.015	0.015	0.016	0.017
5.5	1056x1	42	4.7	4.6	4.6	4.5	0.014	0.014	0.015	0.016
6.0	1506x1	46	4.6	4.6	4.5	4.4	0.014	0.014	0.015	0.016
7.5	7628x1	45	4.6	4.6	4.5	4.5	0.014	0.014	0.015	0.016
8.0	7628x1	48	4.6	4.5	4.4	4.4	0.015	0.015	0.016	0.017
10.0	2165x2	50	4.5	4.5	4.4	4.4	0.015	0.015	0.016	0.017
12.0	1506x2	42	4.7	4.6	4.6	4.5	0.014	0.014	0.015	0.016
15.0	7628x2	45	4.6	4.6	4.5	4.5	0.014	0.014	0.015	0.016
18.0	7628x2+1080x1	47	4.6	4.5	4.5	4.4	0.014	0.015	0.016	0.017
21.0	7628x3	42	4.7	4.6	4.6	4.5	0.014	0.014	0.015	0.016
25.0	7628x3	50	4.5	4.5	4.4	4.4	0.015	0.015	0.016	0.017
30.0	7628x4	45	4.6	4.6	4.5	4.5	0.014	0.014	0.015	0.016
35.0	7628x5	42	4.7	4.6	4.6	4.5	0.014	0.014	0.015	0.016
40.0	7628x5	48	4.6	4.5	4.4	4.4	0.015	0.015	0.016	0.017
47.0	7628x6	44	4.7	4.6	4.5	4.5	0.014	0.014	0.015	0.016
59.0	7628x8	42	4.7	4.6	4.6	4.5	0.014	0.014	0.015	0.016

KB-6067F Prepreg Specifications

Glass Style	RC (%)	Thickness (mil)	Dk				Df			
			1G	2G	5G	10G	1G	2G	5G	10G
106	71	1.97	4.1	4.1	4.0	3.9	0.017	0.017	0.018	0.019
	73	2.14	4.1	4.0	3.9	3.9	0.017	0.017	0.018	0.019
1080	62	2.75	4.3	4.2	4.2	4.1	0.016	0.016	0.017	0.018
	65	3.03	4.2	4.2	4.1	4.0	0.016	0.016	0.017	0.018
	68	3.37	4.2	4.1	4.0	4.0	0.016	0.017	0.018	0.019
3313	70	3.58	4.1	4.1	4.0	3.9	0.017	0.017	0.018	0.019
	52	3.5	4.5	4.4	4.4	4.3	0.015	0.015	0.016	0.017
	55	3.75	4.4	4.4	4.3	4.3	0.015	0.015	0.016	0.017
2116	58	4.05	4.4	4.3	4.2	4.2	0.016	0.016	0.017	0.018
	50	4.27	4.5	4.5	4.4	4.4	0.015	0.015	0.016	0.017
	52	4.49	4.5	4.4	4.4	4.3	0.015	0.015	0.016	0.017
	54	4.74	4.5	4.4	4.3	4.3	0.015	0.015	0.016	0.017
1506	56	5.02	4.4	4.4	4.3	4.2	0.015	0.015	0.016	0.017
	58	5.31	4.4	4.3	4.2	4.2	0.016	0.016	0.017	0.018
	44	5.78	4.7	4.6	4.5	4.5	0.014	0.014	0.015	0.016
7628	46	6.06	4.6	4.6	4.5	4.4	0.014	0.014	0.015	0.016
	48	6.36	4.6	4.5	4.4	4.4	0.015	0.015	0.016	0.017
	42	7.03	4.7	4.6	4.6	4.5	0.014	0.014	0.015	0.016
	44	7.34	4.7	4.6	4.5	4.5	0.014	0.014	0.015	0.016
7630	47	7.90	4.6	4.5	4.5	4.4	0.014	0.015	0.016	0.017
	50	8.52	4.5	4.5	4.4	4.4	0.015	0.015	0.016	0.017
	48	8.48	4.6	4.5	4.4	4.4	0.015	0.015	0.016	0.017
7630	50	8.93	4.5	4.5	4.4	4.4	0.015	0.015	0.016	0.017

Standard Sizes: Panel yields based on 48"x42", 48"x36" Sheets (Other sizes may be available by special request)
Copper Cladding: Hoz, 1oz, 2oz, 3oz (Heavier copper may be available by special request)



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