

# ITEQ IT-180A

UL File Number: E178114  
Data Sheet Rev.: 030411

Lead-Free Compatible, High-Tg, Low CTE, Multifunctional Filled Epoxy

IPC-4101C /126

Laminate Properties	Values	Units	Specifications	Test Methods	
				IPC-TM-650	Ref. Para.
1. <b>Glass Transition Temperature (Tg)- DSC</b>	180	°C	170 minimum	2.4.25 2.4.24	3.10.1.6
2. <b>Decomposition Temperature (Td)</b>	350	°C	340 minimum	2.4.24.6 (5% wt loss)	3.10.1.10
3. <b>Coefficient of Thermal Expansion (CTE)</b> A. X/ Y Axis: [40°C to 125°C] B. Z- Axis: Alpha 1 C. Z-Axis: Alpha 2 D. Z-Axis: 50 to 260°C	10-13 45 210 2.7	ppm/°C ppm/°C ppm/°C %	AABUS 60 max 300 max 3.0 max	2.4.24	3.10.1.11
4. <b>Thermal Resistance-</b> (Time to Delaminate) A. T <sub>260</sub> B. T <sub>288</sub>	>60 >30	Minutes	30 minimum 15 minimum	2.4.24.1	3.10.1.12
5. <b>Thermal Stress-</b> 10 Sec @ 288°C, minimum A. Unetched B. Etched	Pass Pass	Rating	Pass Visual	2.4.13.1	3.10.1.2
6. <b>Permittivity (Dk)</b> A. 1 MHz (HP4291B 50%) B. 1 GHz (HP4291B 50%) C. 2 GHz (Resonate Cavity 53%) D. 5 GHz (Resonate Cavity 53%) E. 10 GHz (Resonate Cavity 53%)	4.4 4.4 4.3 4.1 4.1	---	<5.2	2.5.5.9 2.5.5.13	3.11.1.1 3.11.2.1
7. <b>Loss Tangent (Df)</b> A. 1 MHz (HP4291B 50%) B. 1 GHz (HP4291B 50%) C. 2 GHz (Resonate Cavity 53%) D. 5 GHz (Resonate Cavity 53%) E. 10 GHz (Resonate Cavity 53%)	0.014 0.015 0.015 0.016 0.016	---	<.035	2.5.5.9 2.5.5.13	3.11.1.1 3.11.2.1
8. <b>Volume Resistivity</b> , minimum A. C-96/ 35/ 90 B. After Moisture Resistance C. At Elevated Temperature: E- 24/ 125	3.0x10 <sup>10</sup> 3.0x10 <sup>10</sup> 5.0x10 <sup>10</sup>	MΩ-cm	10 <sup>6</sup> 10 <sup>4</sup> 10 <sup>3</sup>	2.5.17.1	3.11.1.3
9. <b>Surface Resistivity</b> , minimum A. C-96/ 35/ 90 B. After Moisture Resistance C. At Elevated Temperature: E- 24/ 125	3.0x10 <sup>10</sup> 3.0x10 <sup>10</sup> 4.0x10 <sup>10</sup>	MΩ	10 <sup>4</sup> 10 <sup>4</sup> 10 <sup>3</sup>	2.5.17.1	3.11.1.4
10. <b>Electric Strength</b> , minimum	45	kV/ mm	30	2.5.6.2	3.11.1.7
11. <b>Arc Resistance</b> , minimum	125	Sec	60	2.5.1	3.11.1.5
12. <b>Dielectric Breakdown</b> , minimum	60	kV	40	2.5.6	3.1.11.6
13. <b>Flexural Strength</b> , minimum A. Length Direction B. Cross Direction	84,300 65,400	lb/ in <sup>2</sup>	60,190 50,040	2.4.4	3.9.1.3
14. <b>Peel Strength</b> , minimum A. Low & Very Low Profile Cu Foil- Wts< 17µm B. Standard Profile Cu Foil 1. After Thermal Stress 2. At 125°C 3. After Process Solutions	5 8 7 7	lb/ in <sup>2</sup>	4 6 4 4.57	2.48 2.4.8.2 2.4.8.3	3.9.1.1 3.9.1.1.1 3.9.1.1.2 3.9.1.1.3
15. <b>Moisture Absorption</b> , maximum	0.12	%	0.5	2.6.2.1	3.12.1.1
16. <b>Flammability</b>	V-0	Rating	V-0	UL 94	3.10.2.1
17. <b>Maximum Operating Temperature (MOT)</b>	130	°C	AABUS	UL Tested	

Meets or Exceeds IPC-4101C /21,/24,/26,/98,/99,/101,/121,/124,/129 and /126

AABUS = As agreed upon between user and supplier.