TECHNICAL DATA SHEET

FINAL PROPERTIES FOR IJR-4000 MW300

General Properties

Test	Test Method / Requirement	Results
Pencil Hardness	Internal Test	≥ 5H
Adhesion after Cure – Rigid Boards	Cross Cut 10 X 10 Tape Test	Pass
Solder Heat Resistance	Solder float test; No-clean Flux 260 ± 5°C / 10 sec, 3 cycles	Pass
Appearance/Color	Visual Inspection	Pass
Solvent Resistance	PGM-Ac, 20°C / 30 min, Tape Test	Pass
Acid & Alkaline Resistance	10 vol.% H_2SO_4, 20°C / 30 min 10 wt.% NaOH 20°C / 30 min	Pass Pass

Reliability

Test	Test Method / Requirement	Results
Dielectric Strength	Raise DC 500V/sec; 500V minimum	Pass (1.1 KV)
RoHS Approved	2005/618/EC(IEC62321 Edition 1.0:2008)	Pass
Halogen-Free	JPCA-ES01-2003	Pass – 106 ppm Total

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TECHNICAL DATA SHEET

IPC4781 Legend Ink - Requirements per Table 1

Requirement	IPC-4781 Paragraph	Test Method	Requirement	Result
Hardness	3.5.1	ASTM D3363	2H minimum	Pass - >4H
Adhesion*: Rigid Boards, Solder Mask & Base Material	3.5.2.1	IPC-TM-650, 2.4.28.1	n/a	Pass
FTIR	3.2.3.1	n/a	n/a	Spectra on File
Environmental Compliance	3.12	TSCA	Approved	Pass
		RoHS	Compliant	Approved
		REACH	Compliant	Pass
		Halogen Free JPCA-ES01-2003	< 900 ppm Cl < 900 ppm Br	Pass
Resistance to Solvents & Cleaning Agents	3.6.1	IPC-TM-650, 2.3.42	No Degradation	Pass
Hydrolytic Stability	3.6.2	IPC-TM-650, 2.6.11	No Reversion, Etc	Pass
Resistance to Tin-Lead Solder	3.7.2	IPC TM-650, 2.6.8 J-STD-004	No Residue	Pass
Resistance to Lead-Free Solder	3.7.3	IPC TM-650, 2.6.8 J-STD-006	No Residue	Pass
Simulation of Lead-Free Reflow	3.7.3.1	IPC-TM-650, 2.6.8 J-STD-006	No Residue	Pass
M&IR (SIR)	3.9.1	IPC-TM-650, 2.6.3.1	> 500MΩ	Cycling: 4.0 E11 Ω @ 50°C: 1.2 E 12 Ω
Electrochemical Migration	3.9.2	IPC-TM-650, 2.6.14	No migration > 500 MΩ	Pass
Thermal Shock	3.9.3	IPC-TM-650, 2.6.7.3	No Blistering, Crazing or Delamination	Pass
Shelf Life	3.2.5	n/a	n/a	5 months
Cure	3.2.7	n/a	n/a	Pass
Non-Nutrient	3.2.8	IPC-TM-650, 2.6.1	Not support Growth	Pass
Visual Requirements	3.3	Visual Examination	No Discoloration or Degradation	Pass
Outgassing	3.13	ASTM E595	TML <1% CVCM < 0.1%	TML = 1.18% CVCM = 0.02%

* - NOTE: Although this product is not specifically recommended for application to flexible circuitry, it has been judged acceptable for some applications. This product must be tested for acceptability before it is to be used on flex circuits.

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TECHNICAL DATA SHEET

CID A-A-56032D Performance Requirements

Test	A-A-56032D Paragraph	Requirements	Results
Adhesion	3.7	Cured ink impressions shall not deteriorate when subjected to trichloroethylene vapors at 86.5 to 88C for a period of not less than three minutes and not greater than six minutes.	Passes on FR-4, Copper and Glass
Electrical Resistance (Type II) Before Conditioning After Conditioning	3.8	 1×10^{12} ohms minimum 1×10^{10} ohms minimum	 1×10^{12} ohms (prelim) 3.1×10^{10} ohms
Abrasion Resistance	3.9.1	Cured ink impressions shall retain their legibility after subjection to 300 to 303 revolutions of the CS-10 abrasive wheel while under a minimum load of 2.2 pounds in accordance with ASTM D4060.	Pass
Chemical Resistance	3.9.2	Cured Ink impressions shall retain their legibility when immersed for a minimum of 30 minutes in water, denatured ethyl alcohol, and non-ODC (Ozone Depleting Chemical) cleaning solvent.	Pass
Chemical Resistance (Type II)	3.9.2.1	In addition to 3.9.2, Type II cured ink shall be resistant to hot solder and flux.	Pass
Salt Spray Resistance	3.9.3	Cured Ink impressions shall not deteriorate when exposed to a 5 percent salt spray solution at 33 to 37°C for a period of not less than 48 hours.	Pass
Light Fastness	3.9.4	Cured ink impressions shall not fade and shall remain legible when tested by a light fastness test. To determine conformance, one half of the surface of the test specimens shall be covered to obscure the light, and the remaining half shall be exposed for 24 hours to the light source outlined in ASTM G153 using daylight filter and exposure cycle 7 or ASTM G155 using window glass filter and exposure cycle 4.	Pass
Stability	3.9.5	Cured ink impressions shall not fade, chip, peel, or flow and shall remain legible when exposed to a temperature of 118 to +/- 3°C for a period of not less than 24 hours.	Pass
Fungus Resistance	3.9.6	Cured ink impressions shall not support fungi growth when inspected.	Pass

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