

# ETL-XPC-601

## (For HB Grade Laminate)

### ■特性

- 高密度裝配用非難燃性類型之 Paper-Phenol 通用材料
- 優越之低溫打孔性
- 尺寸變化及彎曲度小
- 符合 UL746E DSR (▲標誌)
- 符合 RoHS 法規要求

### ■用途 APPLICATIONS

- 收音機、錄音機、時鐘、數字處理機、電腦鍵盤等

Radios, Radio-cassette recorder/players, Clocks, Word processor, Personal computer keyboards, etc.

### ■一般物性 GENERAL PROPERTIES

### ■CHARACTERS

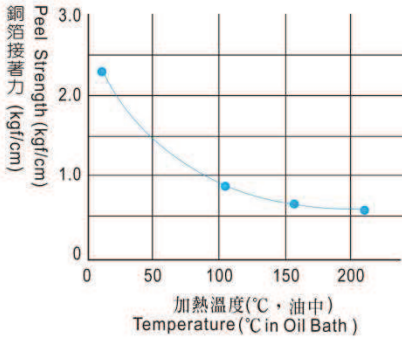
- Among the paper phenol material, this is the lowest cost universal use material for high density assembly processes and non-flame retardant.
- Excellent low temperature punchability.
- Meet UL746E Direct Support Requirement(▲MARK)
- Conform to the claim of RoHS

試驗項目 Test Item		單位 Unit	處理條件 Condition	品管規格值 Guarantee Value	實測標準值 Standard Value
體積阻抗 Volume Resistivity		Ω-cm	C-96/20/65	Above 1 X 10 <sup>12</sup>	5 X 10 <sup>12</sup> ~5 X 10 <sup>13</sup>
			C-96/20/65+C-96/40/90	Above 1 X 10 <sup>11</sup>	1 X 10 <sup>12</sup> ~1 X 10 <sup>13</sup>
表面阻抗 Surface Resistance	接著劑面 Adhesive Surface	Ω	C-96/20/65	Above 1 X 10 <sup>10</sup>	1 X 10 <sup>11</sup> ~1 X 10 <sup>12</sup>
			C-96/20/65+C-96/40/90	Above 1 X 10 <sup>9</sup>	1 X 10 <sup>10</sup> ~1 X 10 <sup>11</sup>
	積層板面 Laminate Surface		C-96/20/65	Above 1 X 10 <sup>9</sup>	5 X 10 <sup>9</sup> ~1 X 10 <sup>11</sup>
			C-96/20/65+C-96/40/90	Above 1 X 10 <sup>8</sup>	5 X 10 <sup>8</sup> ~1 X 10 <sup>9</sup>
絕緣阻抗 Insulation Resistance		Ω	C-96/20/65	Above 1 X 10 <sup>10</sup>	1 X 10 <sup>11</sup> ~1 X 10 <sup>12</sup>
			C-96/20/65+D-2/100	Above 1 X 10 <sup>7</sup>	5 X 10 <sup>7</sup> ~5 X 10 <sup>8</sup>
介電常數(1 MHz) Dielectric Constant		—	C-96/20/65	Less than 5.5	4.3~5.0
			C-96/20/65 +D-24/23	Less than 6.0	5.3~5.8
散發因子(1 MHz) Dissipation Factor		—	C-96/20/65	Less than 0.05	0.035~0.046
			C-96/20/65 +D-24/23	Less than 0.08	0.050~0.060
焊錫耐熱性(260°C) Solder Heat Resistance		sec	A	Above 10	20~35
銅箔剝離強度 Peel Strength	銅箔(35μm) Copper Foil	kgf/cm	A	Above 1.5	1.90~2.30
			S (260°C, 10 sec)	Above 1.5	1.90~2.30
彎曲強度 Flexural Strength		kgf/mm <sup>2</sup>	A	Above 10	12~16
吸水率 Water Absorption		%	E-24/50+D-24/23	Less than 1.8	0.90~1.20
耐熱性 Heat Resistance		—	A	190°C 30 min no blistering	205-210°C 30 min no blistering
難燃性 Flame Resistance (UL 94 method)		sec	A& E-168/70	94 HB	94 HB
耐藥品性 Alkali Resistance		—	Immersion in 3% NaOH 40°C (3 mins)	無異常 No abnormality	無異常 No abnormality
加工沖孔性 Punchability		—	A	Suitable temp. 50~70 °C	GOOD
耐漏電破壞性 CTI (IEC 60112)		Volt	A	≥600	≥600

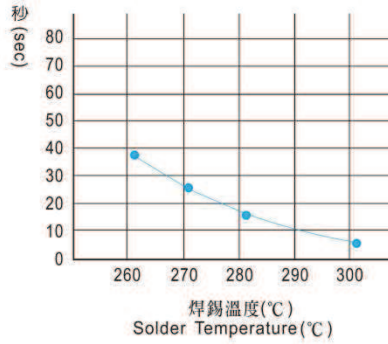
◎以上數據試片厚度 1.6mm (Note : Test specimen thickness is 1.6mm )

## PAPER PHENOLIC LAMINATE

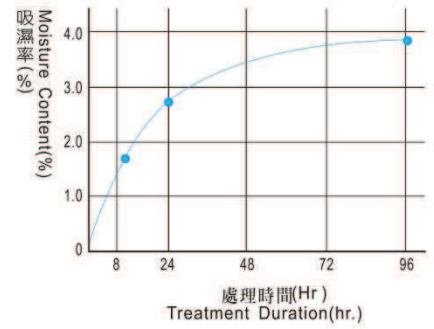
■銅箔接著力之溫度特性  
Characteristics of Peel Strength vs. Temperature



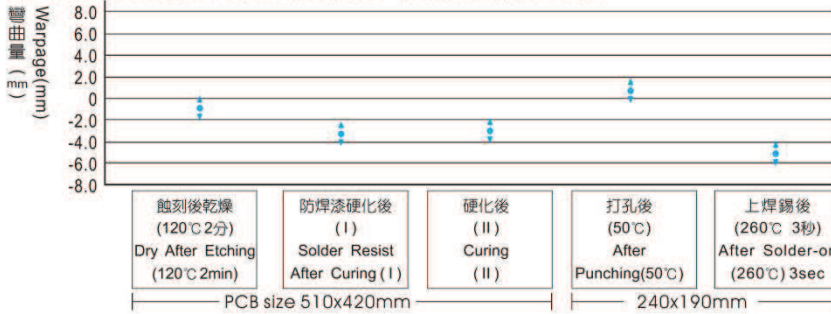
■焊錫中的耐熱之溫度特性  
Characteristics of Solder Heat Resistance



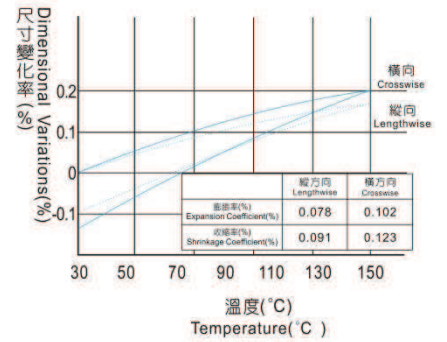
■吸濕性(耐濕性) (60°Cx95%R.H.)  
Variations of Moisture Absorption (60°Cx95%R.H.)



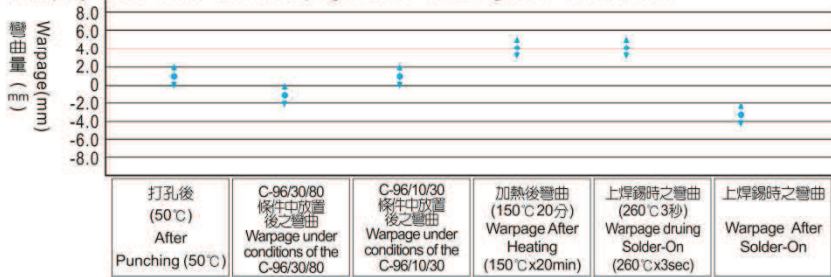
■印刷電路板加工時之彎曲(板厚1.6mm單面銅箔)  
Warpage During Process (thickness 1.6mm, single side)



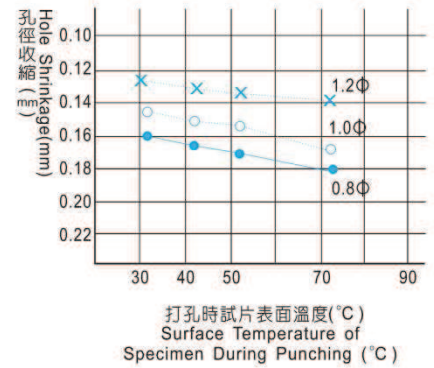
■加熱膨脹收縮率  
Heat Expansion and Cooling Shrinkage



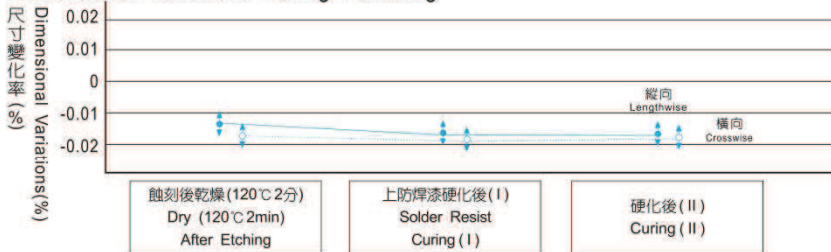
■彎曲隨時間之變化，加熱後及上焊錫後之彎曲  
Warpage vs. Time and Warpage after Heating and Solder-On



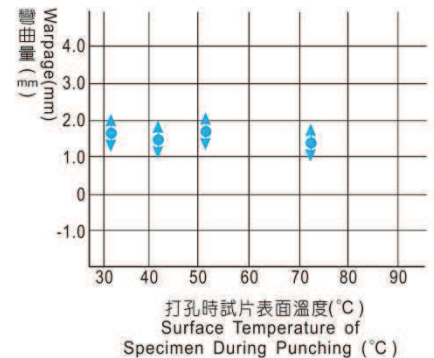
■打孔後孔徑收縮  
Hole Shrinkage after Punching



■在印刷工程中之尺寸變化  
Dimensional Variations During Punching



■打孔溫度與彎曲量  
Warpage vs. Punching Temperature



■在打孔工程中之尺寸變化  
Dimensional Variations During Punching

