To： CUSTOMER Date: April. 19, 2010

CCP-308 (TC)

銅箔積層板

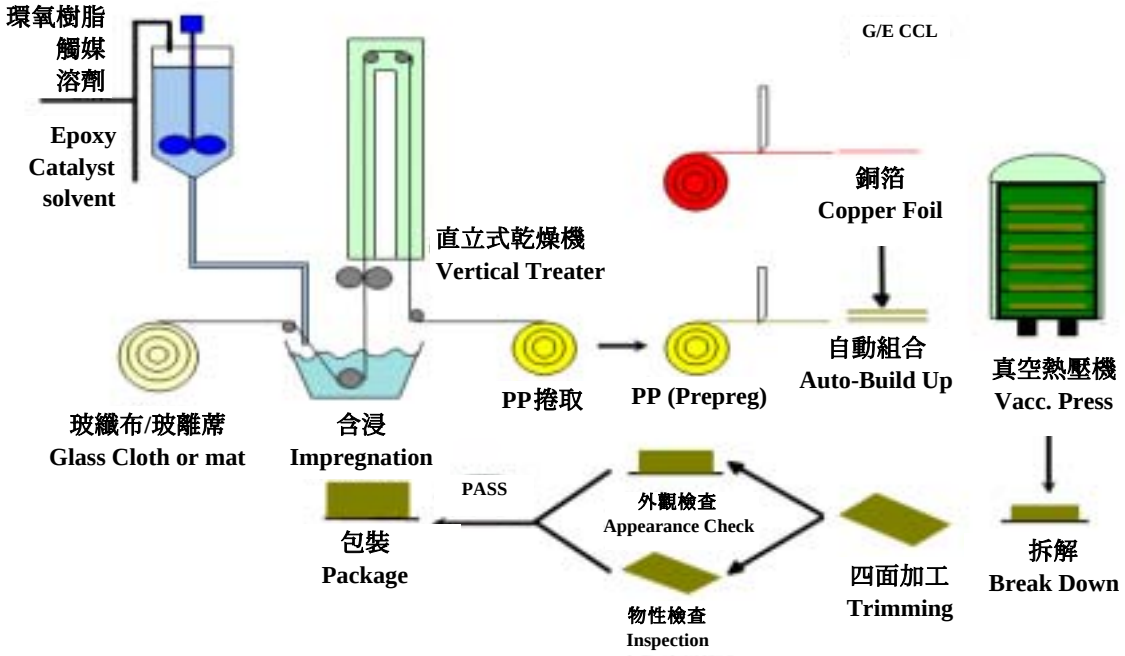
COPPER CLAD LAMINATE

長春人造樹脂廠股份有限公司
CHANG CHUN PLASTICS CO., LTD.

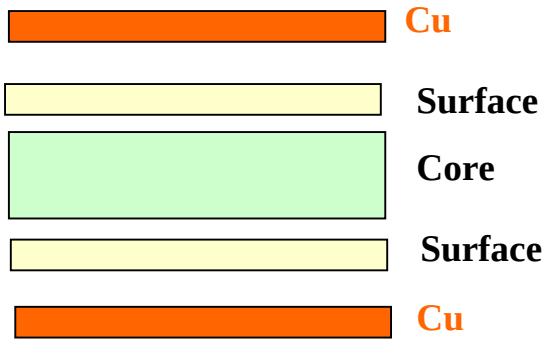
CCP-308 (TC)

Manufacturing Process	Copper clad Laminate

Manufacturing Process of Copper Clad Laminate



Construction	Woven Glass Cloth, non-Woven Glass Mat, Epoxy Resin, high purity of Electrolytic Copper Foil



SPECIFICATION SHEET #:	IPC- 4101/12	
REINFORCEMENT	1: Woven E-glass, surface	2: Nonwoven E-glass (chopped felt), core
RESIN SYSTEM	Primary: Epoxy Secondary 1: N/A	Secondary 2: N/A
FLAME RETARDANT MECHANISM:	Bromine	
FILLERS:	N/A	
ID REFERENCE	NEMA: CEM-3 ANSI: CEM-3/12	MIL-S-13949: N/A
GLASS TRANSITION RANGE (T_g):	N/A	

Surface: Glass cloth (Epoxy)

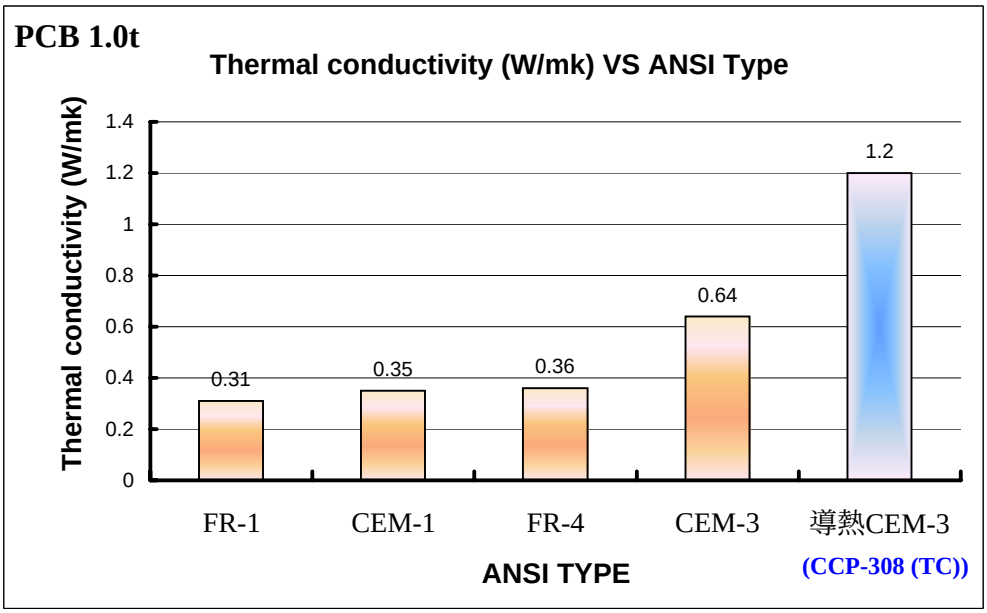
Core : Nonwoven-E-glass (Epoxy)

ANSI TYPE: CEM-3

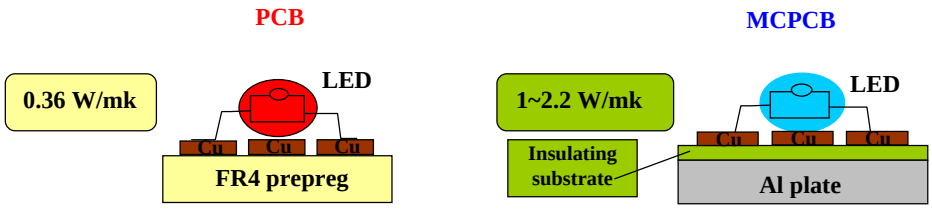
CCP-308 (TC)

*熱導特性比較

*COMPARISON OF THERMAL CONDUCTIVITY



PCB VS MCPCB



項目		熱導係數 (W/mk)	加工性	價位
硬式印刷電路板(PCB)	FR-1, CEM-1, FR-4, CEM-3	~0.36(FR-4)	佳	低
	CCP-308 (TC)	1.2	佳	低
金屬芯印刷電路板 (MCPCB)	Al基板	1~2.2	差	中,高

CCP-308 (TC)

***一般性能**

***GENERAL PROPERTIES**

檢驗項目 Test Item		單位 Unit	處理條件 Condition	保證值 Guaranteed Value	CCP-308 (TC) 實績值 Typical Values	CCP-308(S) 實績值 Typical Values
焊錫耐熱性 Solder Float	S-260℃	sec	A	≧ 40	200↑	200↑
	S-288℃	sec	A	≧ 10	60↑	60↑
抗撕強度 Peel Strength (1 OZ)		Kgf/cm	A	≧ 1.1	2.2	2.1
			S-260℃ / 20sec	≧ 1.1	2.1	2.1
耐燃性 Flammability	UL94	----	---	V-0	PASS	PASS
絕緣阻抗 Insulation Resistance		Ω	C-96/20/65	≧ $5x10^{12}$	5.0×10^{14}	2.3×10^{14}
			+D-2/100	≧ $5x10^{10}$	7.8×10^{13}	2.5×10^{13}
曲折強度 Flexural Strength	橫向 CD	Kgf/mm^2	A	≧ 25	33	33
	縱向 MD			≧ 30	41	41
耐漏電絕緣性 CTI		Volt	IEC-112 Method	≥600	>600	>600
體積阻抗率 Volume Resistivity		Ω-cm	C-96/20/65	≧ $1x10^{13}$	3.0×10^{15}	2.8×10^{15}
			+C-96/40/90	≧ $5x10^{12}$	6.3×10^{14}	2.4×10^{14}
表面阻抗 Surface Resistance	蝕刻面 Etched-Side	Ω	C-96/20/65	≧ $1x10^{12}$	5.5×10^{13}	3.5×10^{13}
			+C-96/40/90	≧ $1x10^{11}$	7.1×10^{12}	4.9×10^{12}
	基板面 Unclad-Side	Ω	C-96/20/65	≧ $1x10^{12}$	5.4×10^{13}	3.0×10^{13}
			+C-96/40/90	≧ $1x10^{11}$	6.7×10^{12}	4.1×10^{12}
介質常數 (1 MHZ) Dielectric Constant		----	C-96/20/65	≦ 5.5	4.4	4.5
			+D-48/50	≦ 5.8	4.7	4.6
散失因子 (1 MHZ) Dissipation Factor		----	C-96/20/65	≦ 0.035	0.020	0.020
			+D-24/23	≦ 0.045	0.022	0.022
吸水率 Water Absorption		%	E-24/50	≦ 0.25	0.09	0.1
			+D-24/23			
玻璃轉移溫度 Glass Transition Temperature (Tg)		℃	TMA 法	NA	122	122
膨脹係數 CTE	橫向 CD	ppm/℃	Ambience to 100℃	NA	18.0	21.3
	縱向 MD				17.0	19.2
	Z-axis				28.7	55.4
熱導係數 Thermal conductivity(Hot Disk)		W/mk	A	NA	1.20	0.64
耐熱性 Heat Resistance		----	E-1hr/140℃	No Blistering	PASS	PASS
			E-30min/190℃			
耐藥品性 Chemical Resistance		Trichloroethylene/ 3 min		No Apparent Change	PASS	PASS
		FeCl3 (37%) / 40℃ / 3min				
		NaOH (3%) / 40℃ / 3min				

*所表示之特性為實測之參考值 (All of the data are for reference)