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SPECIFICATION FOR APPROVAL

規格承認書

CUSTOMER 客 戶	
P/N 料 號	J24189BS-2 J24189PS-2
DESCRIPTION 品 名	
ISSUED REV. 發行版本	00
DATE 日 期	2007-08-13

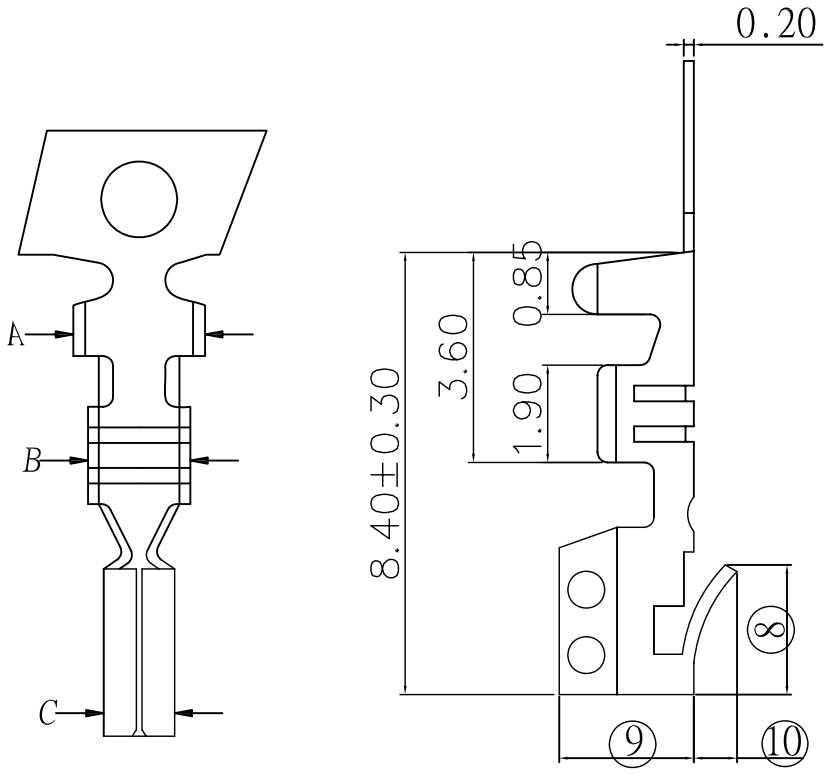
CUSTOMER'S APPROVED:	APPROVED:	QC:	PREPARED: 伍立群

Please return to us one of "SPECIFICATION FOR APPROVAL" with your approved signatures.（敬請承認後回簽！）

承　認　書

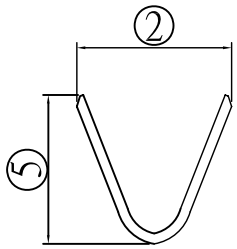
SPECIFICATION FOR APPROVAL SHEET

A: Terminal

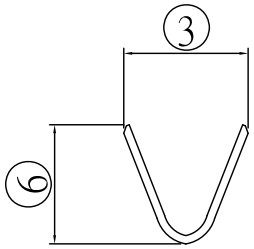


PART NO: J24189BS-2
J24189PS-2
MATERIAL: BRASS(青銅) SH
PHOS(磷銅) H
THICKNESS: 0.20mm
PLATING: TIN 40 μ "MIN.

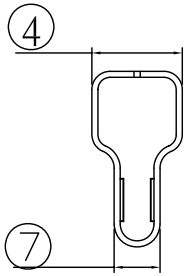
DIMENSION:(mm)
1: 外觀:(不可氧化/變形)
2: 2.50±0.30
3: 2.00±0.30
4: 1.45±0.15
5: 2.20±0.25
6: 1.80±0.25
7: 0.80±0.08
8: 2.35±0.15
9: 2.60±0.15
10: 0.70±0.15



Section A-A



Section B-B



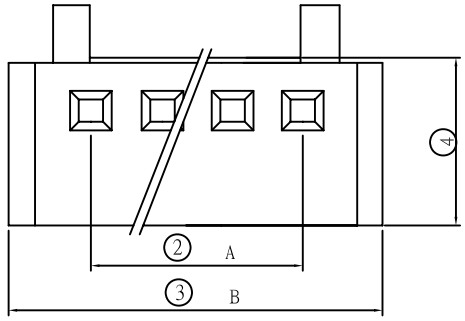
Section C-C

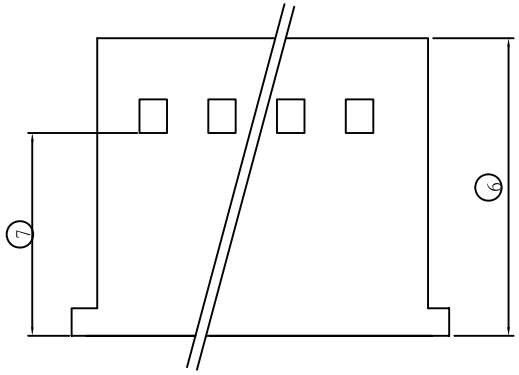
版本 REVISION	設變編號 ECN NO.	設 變 內 容 MODIFICATION
A		

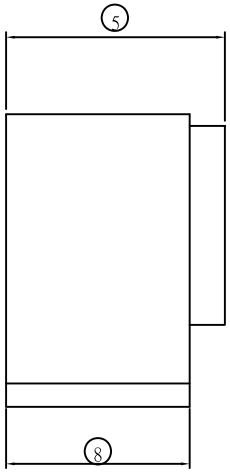
東莞捷仕美電子有限公司
Just Make Electronics Co., Ltd.

料號 PART NO	J24189B/PS-2	UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE IN mm		品名 PART NAME		
設計 DESIGNER	伍立群	日期 DATE 2007.07.02	DIMENSION TOLERANCE . xxx ± 0.10 . xx ± 0.25 . x ± 0.38 ANGULAR ∠θ ± 1°	圖號 DWG. NO.		
審核 CHECKED		日期 DATE		材質 MATERIAL		頁碼 PAGE 1/2
核准 APPROVED		日期 DATE		比例 SCALE		版次 REVISION A

PART NO: JP24189-(2~15)
MATERIAL:NYLON66 UL94V-0







Circuits	Dimensions	
	A	B
2	2.50	7.50
3	5.00	10.00
4	7.50	12.50
5	10.00	15.00
6	12.50	17.50
7	15.00	20.00
8	17.50	22.50
9	20.00	25.00
10	22.50	27.50
11	25.00	30.00
12	27.50	32.50
13	30.00	35.00
14	32.50	37.50
15	35.00	40.00

DIMENSION:(mm)
1: 外觀(無破損,缺料,污點)
2: A(2-5:±0.10; 6-10:±0.15; 11-15:±0.20)
3: B(2-5:±0.10; 6-10:±0.15; 11-15:±0.20)
4: 5.20±0.15
5: 6.50±0.20
6: 10.70±0.30
7: 6.90±0.15
8: 4.80±0.10

版本 REVISION	設變編號 ECN NO.	設 變 內 容 MODIFICATION
B		Add Dimension

東莞捷仕美電子有限公司
Just Make Electronics Co., Ltd.

料號 PART NO	JP24189-(2~15)	UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE IN mm		品名 PART NAME	
設計 DESIGNER	龔翼	日期 DATE 2007.05.16	DIMENSION TOLERANCE . xxx ± 0.10 . xx ± 0.25 . x ± 0.38 ANGULAR ∠θ ± 1°	圖號 DWG. NO.	
審核 CHECKED		日期 DATE		材質 MATERIAL	頁碼 PAGE 2/2
核准 APPROVED		日期 DATE		比例 SCALE	版次 REVISION A

24189 SERIES

Scope:

This specification covers the 2.50mm Series WIRE TO BOARD CONNECTOR series.

Index:

REV	ECN NO.	REV	ECN NO.	DRAWING	CHECK	APPROVAL
1	NEW SPEC.			唐寧		

1. PRODUCT NAME AND PART NUMBER

Product Name	Part Number
Terminal	J24189BS-2/J24189PS-2
Housing	JP24189-(2~15)
Wafer Assembly S.T	
Wafer Assembly R.A	

N: Refer to the drawing.

2. RATINGS AND APPLICABLE WIRES

Item	Part Number
Current rating	3A AC,DC
Voltage rating	250V AC,DC
Temperature range	-25˚C to +85˚C (including temperature rise)
Applicable wire Insulation O.D	AWG #28~22 ⌀1.20~1.58mm

3. PERFORMANCE

3-1. Electrical performance :

Item		Test Condition	Requirement
3-1-1	Contact Resistance	Mate connectors, measure by dry circuit, 20mv MAX, 10mA (Based upon JIS C5402 5.4)	20mΩMAX
3-1-2	Insulation Resistance	Mate connectors, apply 1000V DC between adjacent terminal or ground. (Based upon JIS C5402 5.2/MIL-STD -202 Method 302 Cond.B)	1000MΩMIN
3-1-3	Dielectric Strength	Mate connectors, apply 1000V AC for 1 minute between adjacent terminal or ground.(Based upon JIS C5402 5.1 /MIL-STD-202 Method 301)	No Breakdown and Flashover
3-1-4	Contact Resistance on Crimped Portion	Crimp the applicable wire on to the terminal measureby dry circuit 20mV MAX, 10mA	20mΩMAX

3-2. Mechanical Performance.

Item		Test Condition	Requirement	
3-2-1	Insertion and Withdrawal Force	Insert and withdraw connectors at the speed rate of 25±3mm/minute.	Refer to paragrah 5	
3-2-2	Crimping Pull Out Force	Fix the crimped terminal,apply axial pull out force on the wire at the speed rate of 25±3mm/minute. (Based upon JIS C5402 6.8)	AWG #28	1.0kgf MIN
			AWG #26	1.5kgf MIN
			AWG #24	2.0kgf MIN
			AWG #22	3.0kgf MIN
3-2-3	Terminal Insertion Force	Insert the crimped terminal into the housing.	1.5 kgf MAX	
3-2-4	Terminal/ Housing Retention Force	Apply axial pull out force at the speed rate of 25±3 mm/minute on the terminal assembled in the housing	2.0 kgf MIN	

3-3. Environmental Performance and Others:

Item		Test Condition	Requirement	
3-3-1	Repeated Insertion/ Withdrawal	When mated up to 30 cycles repeatedly by the rate of 10 cycles per minute	Contact Resistance	40mΩ MAX
3-3-2	Temperature Rise	Carrying rated current load (Based upon UL 1997)		30°C MAX
3-3-3	Vibration	Amplitude: 1.52mm P.P Sweep time: 10-55-10 Hz in 1 minute Duration: 2 hours in each X.Y.Z axials. (Based upon MIL-STD-202Method 201A)	Appearance	No Damage
			Contact Resistance	40mΩ MAX
			Discon -tinuity	1 μ sec. MAX
3-3-4	Shock	50G 3 strokes in each X.Y.Z. axials. (Based upon JIS C0041 MIL-STD-202 Method 213B Cond.A)	Appearance	No Damage
			Contact Resistance	40mΩ MAX
			Discon -tinuity	1 u sec. MAX

Item		Test Condition	Requirement	
3-3-5	Heat Resistance	85°±2° 96 hours (Based upon JIS C0021/MIL-STD-202 Method 108A Cond. A)	Appearance	No Damage
			Contact Resistance	40mΩ MAX
3-3-6	Cold Resistance	-25°±°C, 96 hours (Based upon JIS C0020)	Appearance	No Damage
			Contact Resistance	40mΩ MAX
3-3-7	Humidity	Temperature: 40±2° Relative Humidity:90~95%(RH) Duration:96 hours(Based upon JIS C0022/MIL-STD-202 Metod 103B Cond.B)	Appearance	No Damage
			Contact Resistance	40mΩ MAX
			Dielectric Strength	Must meet 3-1-3
			Insulation Resistance	100MΩMIN
3-3-8	Temperature Cycle	5 Cycles: a) -25°C 30 minutes. b) +85°C 30 minutes. (Based upon JIS C0025)	Appearance	No Damage
			Contact Resistance	40mΩ MAX
3-3-9	Salt Spray	48±4 hours exposure to a salt spray from the 5±1% solution at 35±2°C (Based upon JIS C502B/MIL-STD-202 Method101D Cond.B)	Appearance	No Damage
			Contact Resistance	40mΩ MAX
3-3-10	SO_2 Gas	24 hours exposure to 50±5 ppm. SO_2 gas at 40±2°C	Appearance	No Damage
			Contact Resistance	40mΩ MAX
3-3-11	NH_3 Gas	40 minutes exposure to NH_3 gas evaporating from 28% Ammonia solution	Appearance	No Damage
			Contact Resistance	40mΩ MAX
3-3-12	Solder-ability	Soldering Time : 3±0.5sec Solder Temperature: 230±5°C	95% of immersed area must show no voids pin holes	
3-3-13	Resistance to Solder-ing Heat	Soldering Time: 5±1 sec Solder Temperature: 260±5°C	No Damage	

4. PRODUCT SHAPE, DLMENSIONS AND MATERIALS Refer to the drawing.

5. INSERTION/WITHDRAWAL FORCE

UNIT:Kgf

Circuits	Insertion(MAX)	Withdrawal(MIN)		
	Initial	Initial	10 th	30 th
Single	0.60	0.10	0.08	0.08
2	1.40	0.20	0.16	0.16
3	1.60	0.25	0.21	0.21
4	1.80	0.30	0.26	0.26
5	2.00	0.35	0.31	0.31
6	2.20	0.40	0.36	0.36
7	2.40	0.45	0.41	0.41
8	2.60	0.50	0.46	0.46
9	2.80	0.55	0.51	0.51
10	3.00	0.60	0.56	0.56
11	3.20	0.65	0.61	0.61
12	3.40	0.70	0.66	0.66
13	3.60	0.75	0.71	0.71
14	3.80	0.80	0.76	0.76
15	4.00	0.85	0.81	0.81

第一伸銅科技股份有限公司　　銅合金片表（3）

合金種類		Corson 合金		含錫 / 磷青銅合金					洋白 & 白銅合金			
		C7025	C7026	C1441	C5050	C5102	C5191	C5210	CN25	C7451	C7521	C7701
化性成份(%)		銅:餘量. 鎳:2.2~4.2 矽:0.25~1.20 鎂:0.05~0.30	銅:餘量. 鎳:1.0~3.0 矽:0.20~0.70 鎂:0.05~0.30	銅:餘量. 錫:0.10~0.20 磷 0.003~0.024	銅:餘量.. 錫:1.0~1.7 磷 0.004~0.01	銅:餘量. 錫:4.5~5.5 磷:0.09~0.11 鋅≦0.2 鉛≦0.01	銅:餘量. 錫:5.5~7.0 磷:0.11~0.13 鋅≦0.2 鉛≦0.01	銅:餘量. 錫:7.0~9.0 磷:0.15~0.17 鋅≦0.2 鉛≦0.05	銅:餘量. 鎳:24~26 錳≦0.5 鋅≦0.05 碳≦0.1	銅:63.5~66.5 鎳:9.0~11.0 錳≦0.5 鋅:餘量. 鉛≦0.05	銅:62.0~66.0 鎳:16.5~19.5 錳≦0.5 鋅:餘量. 鉛≦0.1	銅:54.0~58.0 鎳:16.5~19.5 錳≦0.5 鋅:餘量. 鉛≦0.1
比重 (gm/cm^3)		8.82	8.9	8.90	8.89	8.86	8.83	8.80	8.9	8.7	8.73	8.70
熱膨脹係數 (10^{-6}/℃)		17.3	18.0	17.7	17.8	17.8	18	18.2	17.5	16.4	16.2	16.7
熱傳導係數 (Cal/ cm^2 /cm/sec/℃)		0.4	0.37	0.81	0.49	0.17	0.16	0.15	0.09	0.089	0.08	0.09
導電率 (%IACS, 20℃)		≧40	≧40	≧85	≧45	≧20	≧13	≧12	--	≧9	≧6	≧5.5
抗張強度 (N/mm^2)	燒炖軟化	620~ 755	590 ~ 655	195~245	≧245	≧300	310~395	--	290~345	320~395	≧375	--
	1/4H	--	--	215~275	--	370~470	395~490	--	320~395	395~425	--	--
	1/2H	655 ~ 825	675~ 745	245~315	360~425	470~570	490~590	470~610	395~445	425~470	440~570	540~655
	3/4H	685～860	725～795	--	--	--	--	--	--	--	--	--
	H	795～900	755～835	275~345	390~470	570~670	525~670	585~710	445~530	450~530	≧540	630~735
	EH	--	--	≧315	440~510	≧615	≧670	635~735	530~610	--	--	705~805
	SH	--	--	--	≧490	--	--	≧725	610~660	--	--	760~860
	ESH	--	--	--	--	--	--	--	--	--	--	--
伸長率 (%)	燒炖軟化	≧10	≧25	≧35	≧25	≧40	≧42	--	≧32	≧20	≧20	--
	1/4H	--	--	≧25	--	≧28	≧35	--	≧20	≧10	--	--
	1/2H	≧7	≧7	≧15	≧15	≧15	≧20	≧27	≧10	≧5	≧5	≧8
	3/4H	≧5	≧5	--	--	--	--	--	--	--	--	--
	H	≧1	≧1	≧4	≧5	≧7	≧10	≧20	≧4	--	≧3	≧4
	EH	--	--	≧2	≧2 .	≧4	≧5	≧11	≧2	--	--	--
	SH	--	--	--	--	--	--	≧9 .	--	--	--	--
	ESH	--	--	--	--	--	--	--	--	--	--	--
硬度 (Hv)	燒炖軟化	180～210	170～200	≦55	≦110	--	90~110	--	80~100	≦100	--	--
	1/4H	--	--	55~75	--	90~130	110~140	--	100~120	100~120	--	--
	1/2H	200～230	190～220	75~90	105~135	130~170	140~170	170~190	120~140	120~140	120~180	140~200
	3/4H	220～250	210～240	--	--	--	--	--	--	--	--	--
	H	240～270	230～260	90~105	125~155	170~190	170~200	190~210	140~160	140~160	≧150	175~220
	EH	--	--	≧100	135~165	≧190	≧200	210~230	160~180	--	--	195~240
	SH	--	--	--	≧155	--	--	230~250	180~200	--	--	210~250
	ESH	--	--	--	--	--	--	--	--	--	--	--
軟化溫度.(℃)				390℃								
彈性係數 (KN/mm^2)		132	130	118	118	107	109	109	147	121	125	127

第一伸銅科技股份有限公司　　銅合金片表（1）

合金種類		丹銅&黃銅合金									含錫黃銅		
		C2100	C2200	C2300	C2400	C260S	C2600	C2680	C2720	C2801	C2801S	C4250	C425M
化性成份(%)		銅:94.0~96.0 鋅:餘量	銅:89.0~91.0 鋅:餘量	銅:84.0~86.0 鋅:餘量	銅:78.5~81.5 鋅:餘量	銅:70.5~73.5 鋅:餘量	銅:68.5~71.5 鋅:餘量	銅:64.0~68.0 鋅:餘量	銅:62.0~64.0 鋅:餘量	銅:59.0~62.0 鋅:餘量	銅:59.0~62.0 錫:0.3~0.6 鋅:餘量	銅:87~90. 錫:1.5~3.0 鋅:餘量. 磷 ≦0.35	銅:86~88 錫:2.5~4.0 鋅:餘量. 磷 ≦0.35
比重 (gm/cm^3)		8.86	8.80	8.75	8.67	8.53	8.53	8.50	8.45	8.39	8.39	8.78	8.78
熱膨脹係數 (10^{-6}/℃)		18.1	18.4	18.7	19.1	19.9	19.9	20.3	20.6	20.8	20.8	18.5	18.5
熱傳導係數 (Cal/ cm^2 /cm/sec/℃)		0.56	0.45	0.38	0.33	0.29	0.29	0.29	0.30	0.29	0.29	0.29	0.25
導電率 (%IACS, 20℃)		≧56	≧44	≧37	≧32	≧25	≧25	≧24	≧26	≧23	≧23	≧26	≧24
抗張強度 (N/mm^2)	燒炖軟化	≧205	≧225	≧245	≧255	≧295	≧295	≧295	≧295	≧320	≧320	295~380	295~380
	1/4H	250~305	275~335	295~365	295~375	330~415	330~415	330~415	330~415	350~440	350~440	340~405	340~405
	1/2H	270~345	295~365	310~385	320~405	370~440	370~440	370~440	370~440	410~490	410~490	390~475	390~475
	3/4H	--	--	--	--	410~470	410~470	410~470	410~470	--	--	430~510	430~510
	H	≧280	≧320	≧340	≧375	430~510	430~510	430~510	430~510	≧450	≧450	480~565	480~565
	EH	--	--	--	--	510~610	510~610	510~610	510~610	--	--	525~605	525~605
	SH	--	--	--	--	565~630	565~630	565~630	565~630	--	--	580~650	580~650
	ESH	--	--	--	--	610~725	610~725	610~725	610~725	--	--	≧635	≧635
伸長率 (%)	燒炖軟化	≧33	≧35	≧40	≧44	≧45	≧45	≧45	≧45	≧35	≧35	≧35	≧40
	1/4H	≧23	≧25	≧28	≧30	≧40	≧40	≧40	≧40	≧25	≧25	≧25	≧30
	1/2H	≧18	≧20	≧23	≧25	≧30	≧30	≧30	≧30	≧15	≧15	≧15	≧20
	3/4H	--	--	--	--	≧20	≧20	≧20	≧20	--	--	≧10	>15
	H	--	--	--	--	≧14	≧14	≧14	≧14	--	--	≧5	>10
	EH	--	--	--	--	≧8	≧8	≧8	≧8	--	--	--	--
	SH	--	--	--	--	≧5	≧5	≧5	≧5	--	--	--	--
	ESH	--	--	--	--	--	--	--	--	--	--	--	--
硬度 (Hv)	燒炖軟化	≦65	≦70	≦70	≦80	≦90	≦90	≦90	≦90	--	--	50~100	50~100
	1/4H	65~80	70~95	70~95	75~105	90~105	90~105	90~105	90~105	85~105	85~105	80~130	80~130
	1/2H	80~100	95~120	95~120	100~130	105~130	105~130	105~130	105~130	105~130	105~130	110~160	110~160
	3/4H	--	--	--	--	130~145	130~145	130~145	130~145	--	--	120~170	120~170
	H	≧100	≧120	≧120	≧125	145~160	145~160	145~160	145~160	≧130	≧130	140~180	140~180
	EH	--	--	--	--	160~175	160~175	160~175	160~175	--	--	150~190.	150~190.
	SH	--	--	--	--	175~190	175~190	175~190	175~190	--	--	165~205	165~205
	ESH	--	--	--	--	190~210	190~210	190~210	190~210	--	--	≧180	≧180
軟化溫度.(℃)													
彈性係數 (KN/mm^2)		118	118	118	110	110	110	103	103	103	103	112	112

QMFZ2 Component - Plastics | Friday, October 24, 2003 | E44716

RHODIA ENGINEERING PLASTICS
QUARTIER BELLE-ETOILE AVE RAMBOZ BOITE POSTALE 64 69192 ST FONS CEDEX FRANCE

Material Designation: **B 50H1(r1)**

Product Description: Polyamide 66/6 (PA66/6), designated "Technyl" furnished as pellets.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	0.38	V-0	4	0	120	-	-	-	-
	0.75	V-0	4	0	120	90	95	-	-
BK	1.0	V-0, 5VB	4	0	120	90	95	-	-
	1.5	V-0	4	0	120	90	95	-	-
	3.0	V-0	3	0	120	90	95	-	-

CTI: 0 **HVTR:** 0 **D495:** 6 **IEC BP:** -

(r1) Virgin and regrind up to 50% by weight incl. have the same basic material characteristics, except for the 5VB rating.

Report Date: 10/21/1993 | Underwriters Laboratories Inc® | 585521001

JUST MAKE TERMINAL & MACHINE CO LTD E127691

85 WEISWEI W RD

KANGSHAN

KAOHSIUNG HSIEN, TAIWAN

Connectors. Model JM2416 followed by 2 thru 24, may be followed by R; Model JP2416 followed by 2 thru 24; Model JM24188, JP24188 followed by 2 thru 15; Model JP3301 followed by 2 thru 40; Model JP3304 followed by 2 thru 25.

Model J1012BS.
Models JP2015, -2413 followed by 2 thru 15; Model JM2413 followed by 2 thru 15, may be followed by S.

Connectors, Model Nos. JP2030, JP2130 followed by 2 thru 6, 9, or 12; Model Nos. JP2030, JP2130 followed by 2 thru 4, 6, 9 or 12 followed by A or B; Model Nos. JP2030, JP2130 followed by 1 thru 4, 6, 9 or 12 followed by K; Model Nos. JP1631, JP1731 followed by 3, 4, 6 or 9; Model Nos. JP1631, JP1731 followed by 2 thru 4, 6, or 9, followed by K; Model Nos. JP1661, JP1761 followed by 1 thru 4 or 6, may be followed by A; Model Nos. JP1661, JP1761 followed by 2 thru 4 or 6, followed by K.

Low voltage connector. Model JP2017 followed by 2 thru 15.

Socket connectors. Series JP1017, -1019, -1020, -1120, -1130, -1030, -1135, -1138, -1158, -1058, -11635-4, -2120, -2020, -2411, -2418, -2422 -3101, -3102 -3175-20, -3201, -3304, -3966-6; Pin Plug Series JM1135, -1138, -2411, -2418, -2422 -2541, -2542 -3175-20.

Series JP24118, -24181, -24182 -24186, -24228; Pin plug Series JM24118, -24181, -24182 -24186, -24228.

Terminals. Cat. Nos. J1010BS, J1018BS, J10181PS-2, J1041BS, J1042BS, J1051BS, J1110BS, J1119PS, J11202BS, J1136BS, J1141BS, J1151BS, J1161BS, J1710BS, J1711BS, J1736BS, J1841BS, J2121BS, J2133BS, J2134BS, J2143BS, JR2121BS, JS2122BS.

Connectors, Models JP1020V2, JP1120V2 followed by 2 or 4. Models JP2422V2, JM2422V2 followed by 2 thru 20. Models JP2020V2, JP2120V2 followed by 1, 2 3, 4, 6, 9, 12 or 15. Model JP3960V2 followed by 6. Model JM3960V2 followed by 6 or 12. Models JP1135V2, JM1135V2, JP1138V2, JM1138V2 followed by 1 thru 6. Models JP11635V2, JM11635V2 followed by 2 or 4. Models JP2411V2, JM2411V2 followed by 2 thru 20. Models JP2016V2, JP2416V2 followed by 2 4, 6, 8, 10, 12 14, 16, 18, 20, 22 or 24. Models JP24182V2, JM24182V2 followed by 2 thru 20.

Low voltage connectors, Model JP24125 followed by 2 thru 15; Model JM24125 followed by 2 thru 15, may be followed by R.

Connectors, Models JP24189, JM24189, followed by 02 thru 15.

Low voltage connector, Model JP125FFC, followed by 3 thru 40, may be followed by R.

Uninsulated connectors , Cat. Nos. J1011BS-2, J1011BS-2A, J1011PS-2, J1011PS-2A, J1012BS-2, J1012BS-2A, J1012PS-2, J1012PS-2A, J11186BS-2, J11186BS-2A, J11186PS-2, J11186PS-2A, J11188BS-2, J11188BS-2A, J11188PS-2, J11188PS-2A, J11189BS-2, J11189BS-2A, J11189PS-2, J11189PS-2A, J10181BS-2, J10181BS-2A, J10181PS-2, J10181PS-2A, J10182BS-2, J10182BS-2A, J10182PS-2, J10182PS-2A, J10185BS-2, J10185BS-2A, J10185PS-2, J10185PS-2A, J10186BS-2, J10186BS-2A, J10186PS-2, J10186PS-2A, J10188BS-2, J10188BS-2A, J10188PS-2, J10188PS-2A, J10180BS-2, J10180BS-2A, J10180PS-2, J10180PS-2A, J10183BS-2, J10183BS-2A, J10183PS-2, J10183PS-2A, J10184BS-2, J10184BS-2A, J10184PS-2, J10184PS-2A, J10187BS-2, J10187BS-2A, J10187PS-2 and J10187PS-2A.

Connectors , Cat. Nos. JM6758, JP0303-7A, JP0303-15A, JP6758-15, JP0302-15A; Cat. Nos. JM2350-2 and JP2350-2; Cat. No. JM2351, followed by 2A, 2B, 2C or 3 thru 5, followed by R or blank; Cat. No. JP2351, followed by 2A, 2B, 2C or 3 thru 5; Cat. No. JP2540, followed by 2 thru 12; Cat. No. JP2500, followed by 2 thru 6.

Connectors , Cat. No. JM1000, followed by 02 thru 16, followed by R or blank; Cat. No. JP1000, followed by 02 thru 16; Cat. Nos. JM1121-4, JP0301-4A, JP0301-4B, JP0301-4C; Cat. No. JM24150, followed by 2 thru 15, followed by R or blank; Cat. No. JP24150, followed by 2 thru 15.

Marking: Company name or trademark  or tradename "JMT" or file number E127691 and model, catalog or series designation on device or carton.

SGS

Test Report

No. 2082320/EC Date : Nov 30 2006

JUST MAKE ELECTRONICS CO., LTD
XI NIU PI INDUSTRIAL ESTATE,
DA LANG TOWN, DONGGUAN

Report on the submitted sample said to be TERMINAL.

SGS Job No.	:	1040466
SGS Ref. No.	:	SZ10158994-4.2
Terminal Lot No.	:	J1011、J1012、J1017、J1018、J1019、J10181、J10182、J10183、J10185、J10186、J11186、J10187、J10188、J11188、J10189、J11189、J1000、J1051、J1431、J14311、J14312、J1432、J1441、J1445、J1543、J1535、J14451、J14452、J1473、J1425、J1439、J14392、J1456、J15351、J1660、J1661、J1612、J1631、J1730、J1732、J1735、J1740、J1741、J1749、J1751、J1752、J1753、J1764、J1130、J1030、J1158、J1058、J1020、J0301、J1120、J11202、J1135、J1138、J11636、J1119、J2000、J2016、J2416、J2020、J2120、J20201、J21201、J24111、J24221、J24228、J2350、J2351、J23125、J24125、J24150、J24181、J24182、J24188、J24189、J6425、J2413、J2133、J2143、J24118、J2540、J2015、J2017、J2027、J2318、J16312、J2030、J2130、10082、J2316、J2426、J2436、J2025、J2347、J2362、J2363、J2418、J2423、J742411、J742462、C2680、J24231、J3301、J5127
Lot No.	:	061101
Main Substance	:	Cu
Material	:	Cu
Buyer	:	惠州三星
Supplier	:	臺灣第一伸銅
Sample Receiving Date	:	NOV 24 2006
Testing Period	:	NOV 24 - 30 2006

H 14304516

Test Requested : (1) To determine the Cadmium, Lead, Mercury on the submitted metal sample.
(2) Determination of the presence of Hexavalent Chromium Cr(VI) in the submitted metal samples.

Test Method : (1) With reference to IEC 62321 (Ed. 1) 111/54/CDV for Cadmium, Lead, Mercury content of metal sample.
Analysis was performed by ICP/ AAS.
(2) With reference to IEC 62321 (Ed. 1) 111/54/CDV – Section 8 for the presence of Hexavalent Chromium on the metal sample.
Analysis was performed by spot-test/ boiling-water-extraction.

Test Results : Please refer to next page.

Conclusion : When tested as specified, the results shown on the report do not exceed the limit in Operation Standard OQA-2049 of HUIZHOU SAMSUNG.

Signed for and on behalf of
SGS Hong Kong Ltd

Wan Chi Wai, Leo
Technical Manager

H14304517

Test results by chemical method (Unit: mg/kg)

1-2)

	1	MDL	Limit
Cadmium(Cd)	n.d.	2	80
Lead (Pb)	29	5	800
Mercury (Hg)	n.d.	2	800
Hexavalent Chromium (CrVI) by spot-test/ boiling-water-extraction	Negative (Note 4)		#

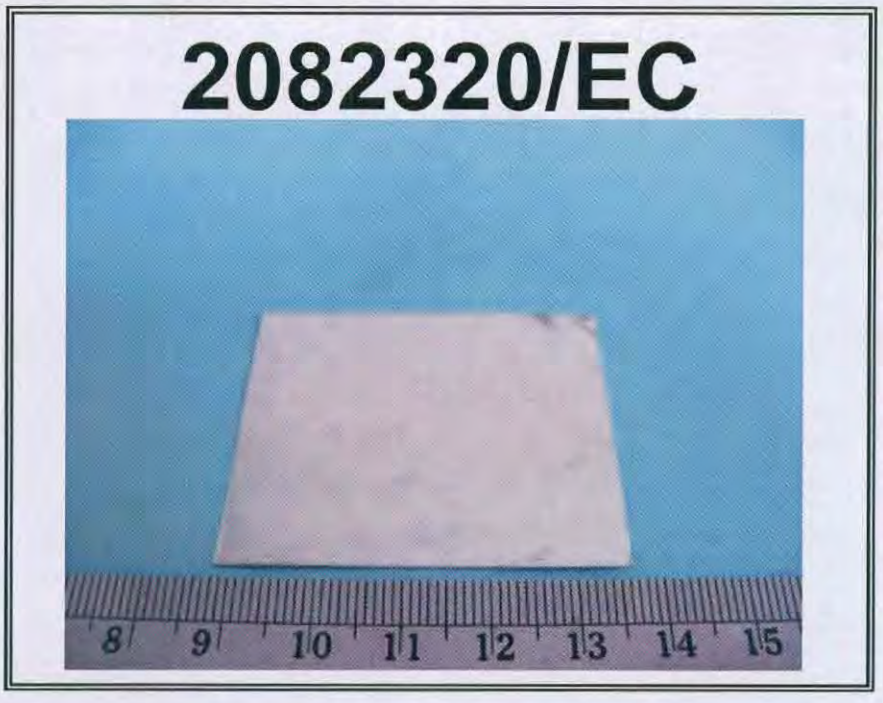
Note :

(1) mg/kg = ppm; 0.1% = 1000 ppm
(2) MDL = Method Detection Limit
(3) n.d. = Not Detected (Less than MDL)
(4) **Spot-test:**
Negative = Absence of CrVI coating; Positive = Presence of CrVI coating;
(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)
Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm^2 sample surface area.
(5) # = Positive indicates the presence of Hexavalent Chromium on the tested areas and result be regarded as conflict with RoHS requirement.
Negative indicates the absence of CrVI on the tested areas and result be regarded as no conflict with RoHS requirement.

Sample Description :
1. Silvery Metal

SGS Hong Kong Ltd. | 5/F - 8/F, 12/F & 28/F - 29/F., Metropole Square, 2 On Yiu Street, Siu Lek Yuen, Shatin, N.T., Hong Kong. t (852) 2334 4481 f (852) 2764 3126 www.hk.sgs.com

Sample photo :



SGS authenticate the photo on original report only

End of Report

SGS

Test Report

No. 2084198/EC Date : Dec 14 2006 Page 1 of 6

JUST MAKE ELECTRONICS CO.,LTD
XI NIU PI INDUSTRIAL ESTATE,
DA LANG TOWN, DONGGUAN

Reported results are referred to test report number 2083191/EC.

Report on the submitted sample said to be HOUSING.

SGS Job No.	:	1040519
SGS Ref. No.	:	SZ10158994-4.1
Lot No.	:	061102
Main Substance	:	PA66
Material	:	PA66
Model No.	:	JP1017, JP1019, JP1120, JP1020, JP1130, JP1030, JP1158, JP1058, JP0301, JP0302, JP2017, JP1138, JP1135, JP1000, JP2000, JP11635, JP2130, JP2030, JP2120, JP2020, JP2413, JP2422, JP24228, JP24181, JP24118, JP24182, JP24188, JP24189, JP24125, JP24150, JP23125, JP2000, JP2318, JP24118, JP2418, JP2350, JP2351, JP3960, JP2540, JP2316, JP2416, JP2016, JP1732A, JP1741H, JP1741A, JP1752A, JP1764A, JP1661, JP1761, JP2015, JP2001, JP1121, JP2500, JP2140, JP5127, JP3301
Supplier	:	DUPONT / BASF
Sample Receiving Date	:	NOV 24 2006
Testing Period	:	NOV 24 - 30 2006

Test Requested : (1-5) In accordance with RoHS Directive 2002/95/EC, and its amendment directives.
(6) To determine Polynuclear Aromatic Hydrocarbons (PAHs).
(7) To determine the phthalate contents.
(8) Determination of TBBP-A of the submitted sample.
(9) To determine of Chlorinated Paraffin (C10~C13) of the submitted sample.

H14250515

Test Method : (1-5) With reference to IEC 62321 (Ed. 1) 111/54/CDV. Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products
(1) Determination of Lead & Cadmium by ICP/ AAS (Clause 12/ 13/ 14)
(2) Determination of Mercury by ICP/ CV-AAS (Clause 11)
(3) Determination of Hexavalent Chromium by Colorimetric Method (Clause 9/ 10)
(4) The presence of Hexavalent Chromium on the metal sample. Analysis was performed by spot-test/ boiling-water-extraction. (Clause 8)
(5) Determination of PBB and PBDE by GC/MS (Clause 7)
(6) With reference to EPA Method 8270D. Analysis was performed by GC/MS.
(7) With reference to ASTM Method Designation D3421-75. Analysis was performed by Gas Chromatography / Mass Spectrometry.
(8) With reference to SGS in-house method. Analysis was performed by GC/MS.
(9) With reference to SGS in-house method. Analysis was performed by GC/ECD.

Test Results : Please refer to next page.

Conclusion : 1-5) Based on the performed tests on submitted sample, the results comply with the RoHS Directive 2002/95/EC and its subsequent amendments

Signed for and on behalf of
SGS Hong Kong Ltd

Ho Ka Ting, Family
Laboratory Executive

SGS Hong Kong Ltd. | 5/F - 8/F, 12/F & 28/F - 29/F., Metropole Square, 2 On Yiu Street, Siu Lek Yuen, Shatin, N.T., Hong Kong. t (852) 2334 4481 f (852) 2764 3126 www.hk.sgs.com

Test results by chemical method (Unit: mg/kg)

1-5)

	1	MDL	Limit
Cadmium(Cd)	n.d.	2	100
Lead (Pb)	n.d.	2 (5*)	1000
Mercury (Hg)	n.d.	2	1000
Hexavalent Chromium (CrVI) by colorimetric method	n.d.	2	1000
Hexavalent Chromium (CrVI) by spot-test/ boiling-water-extraction	--		#
Sum of PBBs	**n.d.**	-	**1000**
Monobromobiphenyl	n.d.	5	
Dibromobiphenyl	n.d.	5	
Tribromobiphenyl	n.d.	5	
Tetrabromobiphenyl	n.d.	5	
Hexabromobiphenyl	n.d.	5	
Pentabromobiphenyl	n.d.	5	
Heptabromobiphenyl	n.d.	5	
Octabromobiphenyl	n.d.	5	
Nonabromobiphenyl	n.d.	5	
Decabromobiphenyl	n.d.	5	
Sum of PBDEs (Note 4)	**n.d.**	-	**1000**
Monobromodiphenyl ether	n.d.	5	
Dibromodiphenyl ether	n.d.	5	
Tribromodiphenyl ether	n.d.	5	
Tetrabromodiphenyl ether	n.d.	5	
Pentabromodiphenyl ether	n.d.	5	
Hexabromodiphenyl ether	n.d.	5	
Heptabromodiphenyl ether	n.d.	5	
Octabromodiphenyl ether	n.d.	5	
Nonabromodiphenyl ether	n.d.	5	
Decabromodiphenyl ether	n.d.	5	
Sum of PBDEs (Mono to Deca)	n.d.	-	

Note :

(1) mg/kg = ppm; 0.1% = 1000 ppm
(2) MDL = Method Detection Limit
(3) n.d. = Not Detected (Less than MDL)
(4) Sum of Mono to NonaBDE & according to 2005/717/EC DecaBDE is exempt.
(5) **Spot-test:**
Negative = Absence of CrVI coating; Positive = Presence of CrVI coating;
(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)
Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm^2 sample surface area.
(6) # = Positive indicates the presence of Hexavalent Chromium on the tested areas and result be regarded as not comply with RoHS requirement.
Negative indicates the absence of CrVI on the tested areas and result be regarded as comply with RoHS requirement.
(7) * = MDL for metal sample
(8) - = Not Regulated
(9) -- = Not Conducted

6)

Compounds	CAS Number	Sample 1 (mg/kg)	Quantitation Limit (QL) (mg/kg)
Naphthalene (NAP)	91-20-3	n.d.	0.1
Acenaphthylene (ANY)	208-96-8	n.d.	0.1
Acenaphthene (ANA)	83-32-9	n.d.	0.1
Fluorene (FLU)	86-73-7	n.d.	0.1
Phenanthrene (PHE)	85-01-8	n.d.	0.1
Anthracene (ANT)	120-12-7	n.d.	0.1
Fluoranthene (FLT)	206-44-0	n.d.	0.1
Pyrene (PYR)	129-00-0	n.d.	0.1
Benz(a)anthracene (BaA)	56-55-3	n.d.	0.1
Chrysene (CHR)	218-01-9	n.d.	0.1
Benzo(b)fluoranthene (BbF)	205-99-2	n.d.	0.1
Benzo(k)fluoranthene (BkF)	207-08-9	n.d.	0.1
Benzo(a)pyrene (BaP)	50-32-8	n.d.	0.1
Indeno(1,2,3-cd)pyrene (IPY)	193-39-5	n.d.	0.1
Dibenz(a,h)anthracene (DBA)	53-70-3	n.d.	0.1
Benzo(g,h,i)perylene (BPE)	191-24-2	n.d.	0.1
Total of above PAHs		n.d.	

Note :

(1) mg/kg = ppm; 0.1% = 1000 ppm
(2) n.d. = Not Detected (Less than QL)

7)

Phthalate	1	MDL
Dimethyl Phthalate (DMP)	n.d.	0.005%
Diethyl Phthalate (DEP)	n.d.	0.005%
Dibutyl Phthalate (DBP)	n.d.	0.003%
Benzylbutyl Phthalate (BBP)	n.d.	0.003%
Bis-(2-ethylhexyl) Phthalate (DEHP)	n.d.	0.003%
Diisononyl Phthalate (DINP)	n.d.	0.01%
Di-n-octyl Phthalate (DNOP)	n.d.	0.003%
Diisodecyl Phthalate (DIDP)	n.d.	0.01%
Diiso butyl Phthalate (DIBP)	n.d.	0.01%
Dinonyl Phthalate (DNP)	n.d.	0.01%
Diisooctyl Phthalate (DIOP)	n.d.	0.01%
Dipropyl Phthalate (DPrP)	n.d.	0.005%
Dicyclohexyl Phthalate (DCHP)	n.d.	0.005%
Dipentyl Phthalate (DPP)	n.d.	0.005%
Dibenzyl Phthalate	n.d.	0.005%
Diphenyl Phthalate	n.d.	0.005%

Note :

(1) mg/kg = ppm; 0.1% = 1000 ppm
(2) MDL = Method Detection Limit
(3) n.d. = Not Detected (Less than MDL)

8)

Compound	CAS No.	1	MDL
Tetrabromobisphenol-A (TBBP-A)	79-94-7	n.d.	5 ppm

Note :

(1) mg/kg = ppm; 0.1% = 1000 ppm
(2) MDL = Method Detection Limit
(3) n.d. = Not Detected (Less than MDL)

9)

Test Item	1	MDL
Chlorinated Paraffin	n.d.	50 ppm

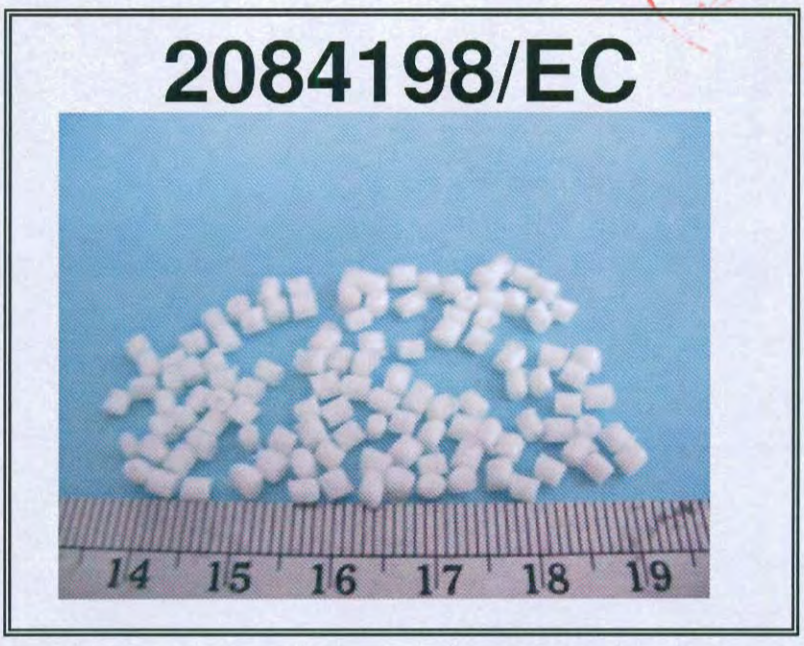
Note :

(4) mg/kg = ppm; 0.1% = 1000 ppm
(5) MDL = Method Detection Limit
(6) n.d. = Not Detected (Less than MDL)

Sample Description :
1. White Plastic Pellet

H14250519

Sample photo :



SGS authenticate the photo on original report only

End of Report

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