Specification for Approval

Customer	:	**Linkman Co.,Ltd.**
Part Name	:	**AC ADAPTER**
Description	:	**12 Volts / 5Amps**
Model No.	:	**ATS065- A120 (Level V)**
Customer P / N	:	
Product P / N	:	**ATS065A120415206**
Issued Date	:	**21-Dec.-2013**
Version	:	**A2**

Issued Stamp :

Customer's Approval Signature

60 W
AC ADAPTER
SPECIFICATION

Model No.	:	**ATS065-A120 (Level V)**
Description	:	**12Volts / 5Amps**
Part No.	:	**ATS065A120415206**
Version	:	**A2**
Date	:	**21-Dec.-2013**

Approved	Reviewed	Checked	Prepared	Sales

■ Approval Documents/Spec. Revised Records

- Customer : Linkman Co.,Ltd.
- Model No. : ATS065-A120
- Original Documents Content : Spec. 10 Pages, Attachment 4 Pages

Revised Records : No.	Date	Description (Before / After)	Page(s) Revised	Revised By (Adapter/Customer)	Remark
1	Oct./21/2013	ISSUE	-	Sun	A1
2	Dec./21/2013	Modify packing	A4	Sun	A2

1. Feature：

- ♦ **Input** ： **Universal 100 ~ 240 Vac / 50 ~ 60 Hz Input, without any slide switch.**
- ♦ **Output** ： **+12V / 0~5A**
- ♦ **Case Dimension** ： **115 (L) *53 (W) * 38 (H) mm**
- ♦ **Efficiency** ： **Eff (av) ≧ 87%**
- ♦ **Safety** ： **UL / cUL / GS / PSE / BSMI / CB / RCM**
- ♦ **EMI** ： **CE / FCC Class B ； Conduction & Radiation Met.**
- ♦ **Protection** ： **OVP (Over Voltage Protection)、SCP (Short Circuit Protection)、OCP (Over Current Protection)**
- ♦ **High frequency design，less power consumption.**
- ♦ **Suitable for usage at Telecommunication, Computer, Industrial Controller, & OA System.**
- ♦ **Meet DoE / ErP (Stage 2) / GEMS / NRCan**

2. Input：

2.1 Voltage	**Universal 100~240Vac, single phase**
2.2 Frequency	**50 ~ 60 Hz**
2.3 Current	**1.4A Max.**
2.4 Inrush Current	**80A Max. / 240Vac (Cold start at 25 ºC，full load)**
2.5 Efficiency	**Eff (av) ≧ 87% (At 115 Vac & 230 Vac)**
2.6 Power Consumption	**Pi ≦ 0. 5 W (At 230Vac & No load)**

$$※Eff_{(av)} = \frac{E_1 + E_2 + E_3 + E_4}{4}$$

E1=efficiency with 25% rated load ; E2= efficiency with 50% rated load

E3=efficiency with 75% rated load ; E4= efficiency with 100% rated load

3. Output：

3.1 DC Output	**Voltage**	**+12V ± 5%**
	Current	**5 A Max.**
	Regulation	**11.40Vmin. ~ 12.00Vtyp. ~ 12.60Vmax.**
	Ripple & Noise	**120mV Max.**
	Total Power	**60 W Max.**

Remark：For ripple & noise measurement, use a 20MHz bandwidth frequency oscilloscope, and add a 0.1μF multilayer Cap. and a Low ESR Electrolytic Cap. (10 μF) at output connector terminals. (At nominal line voltage, full load)

4. Protection :

4.1 Over Voltage Protection (OVP)	(V out *150%) Max.
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	(I out *180%) Max.

Remark ： When Short Circuit Protection or Over Current Protection is activated,the power supply will shutdown automatically. Once the abnormal condition resulting in the failure being removed, the power supply will restart accordingly. When Over Voltage Protection is activated, the power supply will shutdown latch .

5. Safety、EMI and EMC Requirement：

5.1 Safety Requirement

a. Safety ： UL / cUL / GS / PSE / BSMI / CB / RCM

b. Dielectric Strength ： Cut off current 10mA

	Primary to Secondary	3000Vac for 1 Minute

c. Insulation Resistance ：

	Primary to Secondary	10 M ohm for 500Vdc

5.2 EMI Requirement ： CE / FCC Class B ； Conduction & Radiation Met.

5.3 Leakage Current ： Less than 0.25 mA

6. Operation and Environment Performance：

6.1 Temperature Range

Operating	+ 0ºC ~ + 40ºC
Storage	- 20 ºC ~ + 80ºC

6.2 Humidity Range(Non-condensing)

Operating	20% ~ 80% RH
Storage	10% ~ 90% RH

6.3 Cooling：By natural air.

7. M.T.B.F.： 300,000 Hrs.(Calculated Hours At 25ºC，By Telcordia SR-332)

8.Mechanical :

8.1 Weight : 310 g Typical

8.2 Cable Type : Black UL1185 AWG16

(Wire + Plug)

Plug : ø5.5*ø2.1*9.5mm

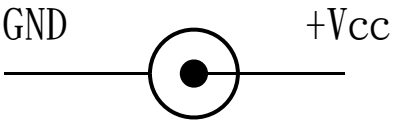
(Cannelure)

8.3 Cable Length : 1500mm

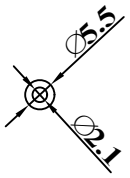
8.4 Case Dimension : 115mm(L)*53mm(W)*38mm(H)

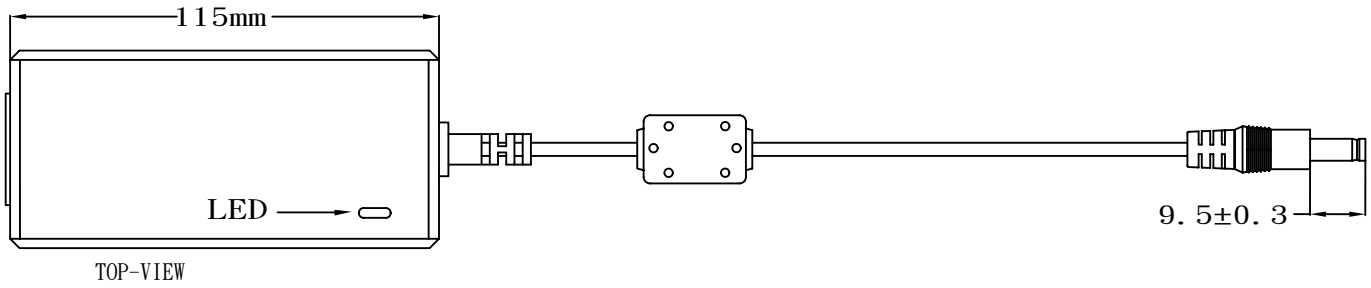
8.5 Material Flammability : UL 94V-0

8.6 External Apperance : As drawing below (Scale → mm)

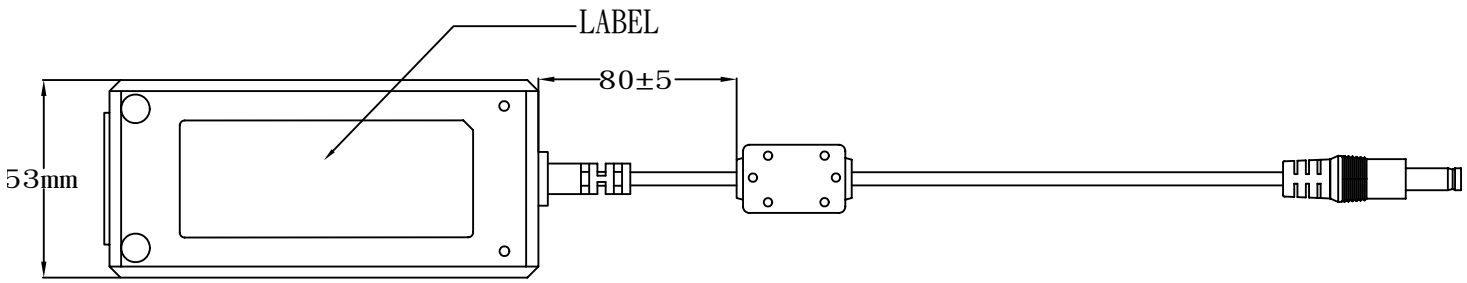


Output Cable Plug Pin Assignment

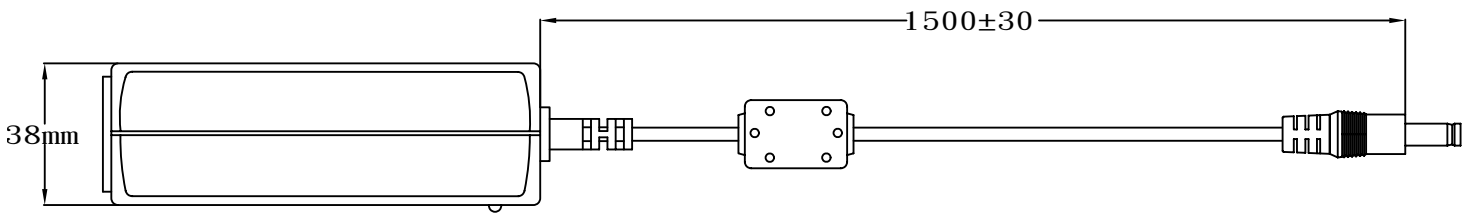




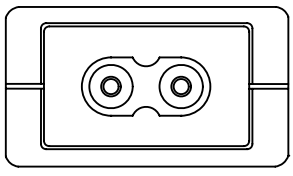
TOP-VIEW



BOTTOM-VIEW



SIDE-VIEW



FRONT-VIEW

8.7 Spec. Label Materials : Metalized Polyester Label (Silver Gloss)
Color : Black Background with Silver Printing
Label Dimension : 70.8mm(L)*40.4mm(W)+/-0.1mm
Label Thickness : 75#

100%

200%

"XXX"
Label supplier's code.
It is accurate that the number of words depends on the real finished product.

ID NO."X"
Manufacturer's code.
It is accurate that the number of words depends on the real finished product.

Label Part No.:9443042420
REV.:A

A. Line Regulation Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.09 V	12.08 V
115Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.09 V	12.08 V
132Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.10 V	12.09 V
180Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.10 V	12.09 V
230Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.09 V	12.09 V
264Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.10 V	12.10 V

B. Efficiency Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	87 % Min.	87.12 %	87.32 %	87.08 %
230Vac	87 % Min.	87.36 %	87.55%	87.16 %

$$Eff_{(av)} = \frac{E_1 + E_2 + E_3 + E_4}{4}$$

E1=efficiency with 25% rated load ; E2= efficiency with 50% rated load

E3=efficiency with 75% rated load ; E4= efficiency with 100% rated load

C. Load Regulation Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	11.4 V ~ 12.6 V	12.25 V	12.23 V	12.22 V
115Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.09 V	12.08 V
115Vac / 100 % Load	11.4 V ~ 12.6 V	11.97 V	11.95 V	11.94 V
230Vac / 0 % Load	11.4 V ~ 12.6 V	12.25 V	12.23 V	12.22 V
230Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.09 V	12.09 V
230Vac / 100 % Load	11.4 V ~ 12.6 V	11.97 V	11.95 V	11.93 V

D. Ripple & Noise Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	120mV Max.	63.4 mV	60.8 mV	65.4 mV
230Vac / 100 % Load	120mV Max.	61.2 mV	62.1 mV	63.3 mV

E. Inrush Current

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
240Vac / 100 % Load	80A Max	63 A	65 A	64 A

F. Over Current Protection

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	(I out *180%) Max.	122 %	120 %	121 %
230Vac / 100 % Load	(I out *180%) Max.	121 %	122 %	123 %

G. Short Circuit Protection

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	Auto Recovery	OK	OK	OK
230Vac / 100 % Load	Auto Recovery	OK	OK	OK

H. Input Power Consumption(No Load)

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230Vac / 0 % Load	≦ 0.5 W	0.25 W	0.28 W	0.27 W

Efficiency Test Report

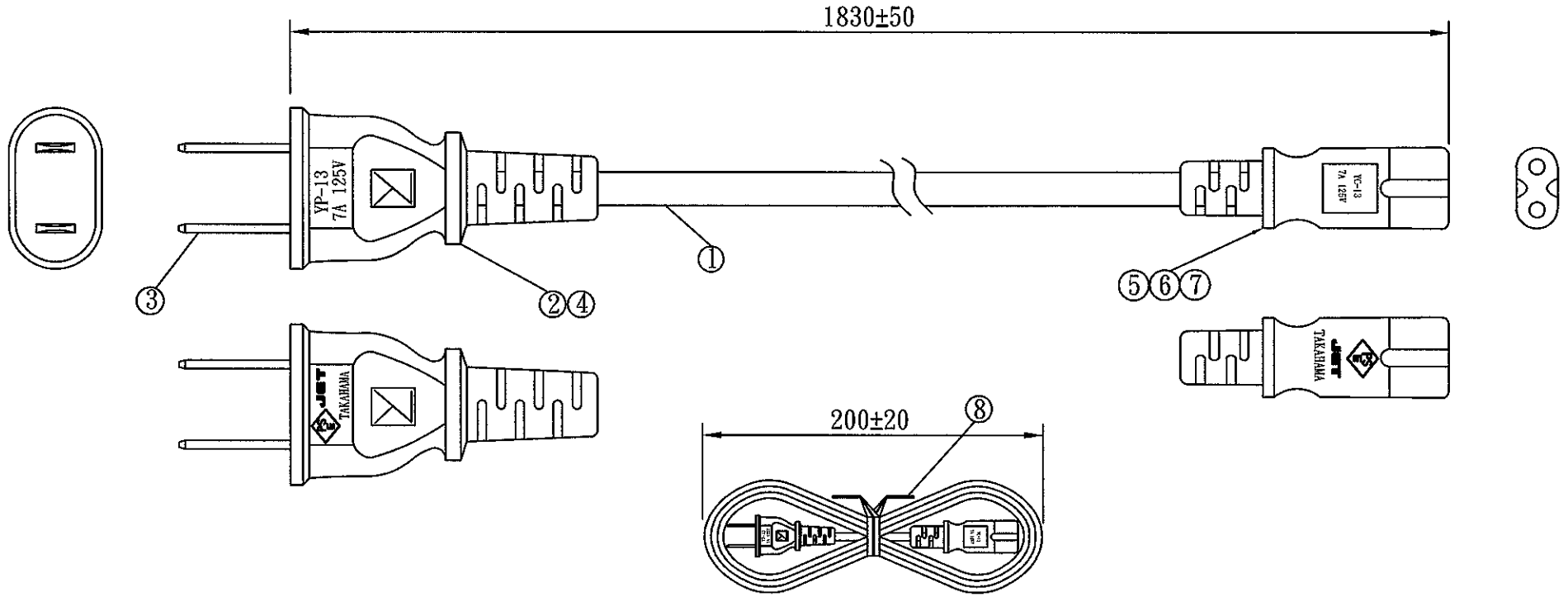
A. Model Number : ATS065-A120 (12.0V/5.0A/60.0W)
B. DC Power Cord : UL1185,16AWG,1.5M
C. Average Efficiency :
LEVEL V : 87%Min.
D. NO Load Power Consumption :
LEVEL V : 0.5W max.
E. Testing equipment :
1. AC Power Source : " ALL POWER " APW-110N
2. Electronic Load : " PRODIGIT " 3311C
3. Power Meter : " Zentech " WT210
4. Digital Meter : " FLUKE " 79III
F. AC Input Voltage : 115Vac/60Hz

Load Conditions / Reported Quantity	100%* I_0	75%* I_0	50%* I_0	25%* I_0	0%* I_0
Rms Output Current(mA)	5000mA	3750mA	2500mA	1250mA	0mA
Rms Output Voltage(V)	11.970V	12.040V	12.110V	12.180V	12.250V
Active Output Power(W)	59.85W	45.15W	30.28W	15.23W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	1.198A	0.957	0.687A	0.372A	0.015A
Rms Input Power(W)	69.81W	52.05W	34.45W	17.28W	0.15W
Voltage T.H.D.(%)	0.51	0.46	0.35	0.21	0.11
True Power Factor	0.507	0.473	0.436	0.403	0.086
Power Consumed by UUT(W)	9.96W	6.90W	4.18W	2.06W	0.15W
Efficiency	85.73%	86.74%	87.88%	88.11%	*
Average Efficiency	87.12%				*

G. AC Input Voltage : 230Vac/50Hz

Load Conditions / Reported Quantity	100%* I_0	75%* I_0	50%* I_0	25%* I_0	0%* I_0
Rms Output Current(mA)	5000mA	3750mA	2500mA	1250mA	0mA
Rms Output Voltage(V)	11.970V	12.040V	12.110V	12.180V	12.250V
Active Output Power(W)	59.85W	45.15W	30.28W	15.23W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current(A)	0.700A	0.532A	0.369A	0.204A	0.024A
Rms Input Power(W)	69.32W	51.09W	34.13W	17.70W	0.25W
Voltage T.H.D.(%)	0.50	0.42	0.32	0.22	0.11
True Power Factor	0.431	0.417	0.402	0.378	0.045
Power Consumed by UUT(W)	9.47W	5.94W	3.86W	2.48W	0.25W
Efficiency	86.34%	88.37%	88.70%	86.02%	*
Average Efficiency	87.36%				*

Tester : Mingan



線材印字:

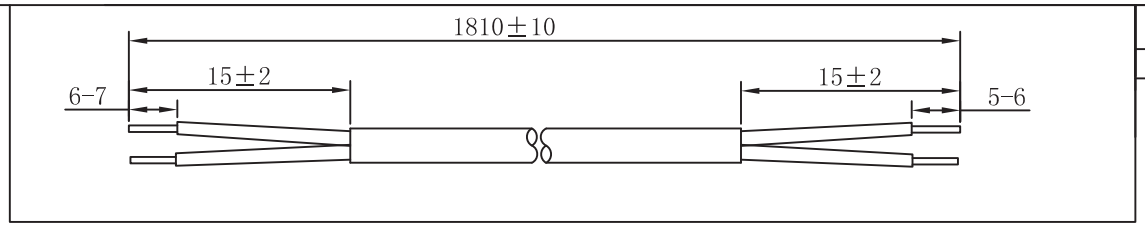
PS E JET TAKAHAMA VCTFK 2X0.75mm² 20XX -F-

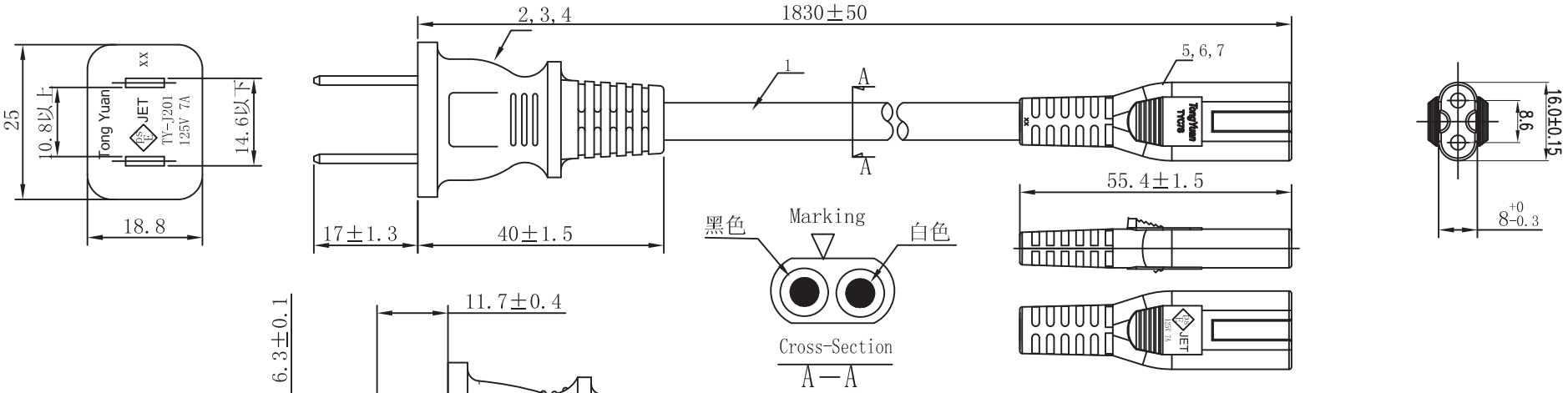
序號	名　　稱	用量	備　　注
1	PSE規格:VCTFK 2x0.75mm² 黑色	1PC	1810±20(YL)
2	YP-13　黑色50P膠料	15g/PC	
3	銅片:98675BS-1	2PCS	
4	兩插內模	1PC	
5	YC-13　黑色50P膠料	9g/PC	
6	三爪磷青銅管	2PCS	
7	"8"字內模 黑色	1PC	
8	魔帶:L=130mm 黑色	1PC	

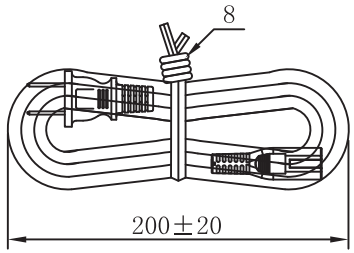
一般寸法公差:
>0±0.30
>1.0±0.50
>10.0±1.0
>20.0±2.0
Angle:±1°

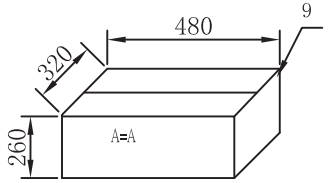
核准		日期			
審核		日期			
制圖		日期		客　戶	
型號	YP-13/YC-13			客戶料號	R426A11801A
圖號	CY-P0061	版本	B	材　質	P.V.C　單位　mm
				單重(g)	

版本	改变内容	制作人	日期
A/0	初版发行	彭力	2013/09/27









S/N	DESCRIPTION	ITEM NO	QTY
9	纸箱A=A 48*32*26CM 普通	41-0001N	0.0067PCS
8	PE扎带,黑色，6"	52-0006N	1PCS
7	C7连接器塑料内架	82-0002N	1PCS
6	C7连接器插套	92-0012N	2PCS
5	普通插头PVC 黑色 75A	12-P700175-100N	0.008KG
4	普通插头PVC 黑色 75A	12-P700175-100N	0.011KG
3	插头二插内架	81-0005N	1PCS
2	插头片状日本全裸端子	91-0023N	2PCS
1	PSE VCTFK 2X0.75 黑色 油印	T15035-7001N	1810MM

电线印字(油印)

<PS>E JET TYAI S.TONGYUAN.I VCTFK 2×0.75mm2 --F-- XXXX LF
XXXX表示生产年份

电线结构

导体		绝缘		外被	
导体标称截面积（AWG/MM²）	导体结购（根数/MM）	绝缘标称厚度（MM）	标称直径（MM）	绝缘标称厚度（MM）	标称直径（MM）
0.75	30/0.18	0.54	2.35±0.05	0.9	4.3±0.1x6.6±0.15

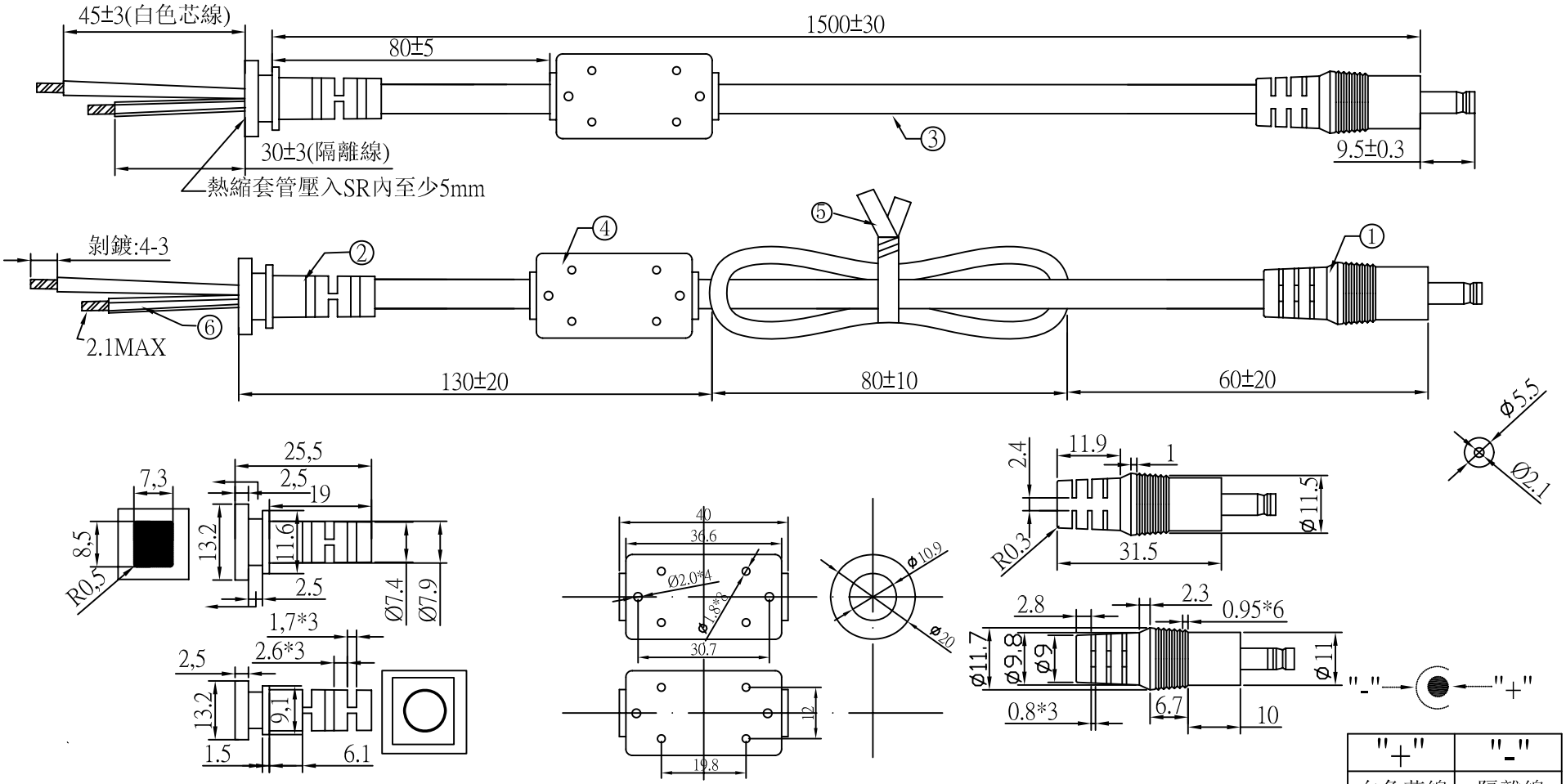
装箱要求：

1. 10PCS 每把.
2. 每箱装 150 pcs

FAX0755-28015039
TeD755-28026115

标题	日本两插连八字尾	公差	版本	A/0
客户名		x.xx ±0.3 x.x ±0.5 x ±1	页码	1 /1
客户产品代码	R426AF18312			
通源代码	T0259-J201C701N	角度 ±1°	Third Angle	

单位	MM	制作	彭力	检查		核准	
比例	/	日期	2013/09/27	日期		日期	



"+"	"-"
白色芯線	隔離線

注意:此圖面所需材料符合"ROHS"標準

① 5.5*2.1*23内缩車溝黑色半邊,外模P-184號模(二次成型),用料外PVC60P黑色(YY-PV-00009)
② SR-348(C)號模,用料PVC75P黑色(YY-PV-00031),吊重:1米/20磅/60秒
③ UL 1185 16AWG(0.254*26)單芯隔離線加粗(0.16*65) BK亮 OD:4.3 裁線長度:1560+10/-0
④ 鐵芯規格:14.2*28.5*6.35(YY-CR-00009),外模SR-118號模用料PVC60P黑色(YY-PV-00009)
⑤ PE有鐵芯紮帶10CM黑色(YY-ES-00001)
⑥ 熱縮套管:Ø2*36(YY-ES-00008)
⑦ 絕緣阻抗:20Ω,導通阻抗:1.5Ωmax
⑧ 單位:MM

料號	R44N111501L		
客戶		制圖	吴远松
版次	01	初審	
		審核	
頁數	01	批準	
圖號	ADT-2041	日期	2011/06/14