



AIPULNION

A/0版 2019/11印

# AIPULNION

## 模块电源选型手册

AC-DC 电源系列

DC-DC 电源系列

隔离收发模块系列



官方网站

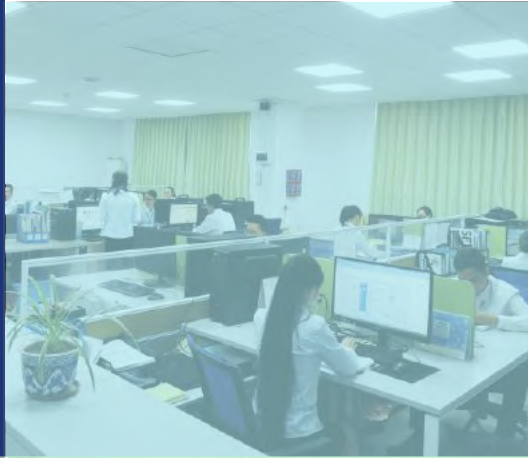


微信公众号

广州市爱浦电子科技有限公司  
Guangzhou Aipu Electron Technology Co., Ltd

# China

中国·模块电源制造商



## About 关于我们 US

广州市爱浦电子科技有限公司创立于2004年，专业从事模块电源研发、生产、销售和电源解决方案的国家高新技术企业。目前，公司已经通过ISO9001:2015质量管理体系。爱浦电子拥有专业的生产设备：贴片机、回流焊、波峰焊、电源自动化测试设备、EMI实验室等；作为十五年品牌企业，爱浦电子拥有丰富的产品设计经验，已经申请了多项关键技术国家专利；到目前为止，我司产品系列分为1-700W的DC-DC模块电源，2-200W的AC-DC模块电源，通讯隔离收发模块，20-40W的铃流发生器。

- 我们的电源产品广泛应用于军工、铁路、电力、船舶、医疗、通信、工控、智能家居、物联网、充电桩、安防等领域；
- 服务网点遍布全国30个城市，能够为客户提供个性化、全方位、最直接的服务；
- 未来，我们将不断努力，提供更优质、环保、高性价比的产品与服务。

Founded in 2004, Guangzhou Aipu Electron Technology Co.,Ltd specializes in R&D, manufacturing, marketing and power supply solutions. As the high-tech enterprise, Aipu has acquired ISO 9001:2015 approval. We have professional production equipment, such as SMT machine, re-flow soldering machine, wave soldering machine, automatic testing machine and EMI test lab, etc. As the 15-year experience brand enterprise, Aipu has applied many technological patents for inventions. From now on, our main products included: 1-700W DC/DC Converter, 2-200W AC/DC Converter, CAN/485/232 Transceiver Module and 20-40W Ringing Generator.

- Our products are widely applied to fields of military, railway, power industry, shipping, medical, communication, industrial control, smart home, internet of thing, charging pile, security etc.
- Our agents spread to 30 main cities of China, ensure to offer prompt service and support immediately and constantly to meet our clients' needs.
- In the future, we will continue to provide high quality, environmentally friendly, cost-effective products to customers from home and abroad.

# ▶ 资质证书 Certification



守合同重信用证书  
Contract-Credit Enterprise Certificate known to the public



高新技术企业证书  
The High and new technology enterprise certificate



AC/DC产品CE认证  
AC/DC Product CE Certification



DC/DC产品CE认证  
DC/DC Product CE Certification



AC/DC产品RoHs认证  
AC/DC Product RoHs Certification



DC/DC产品RoHs认证  
DC/DC Product RoHs Certification



质量管理体系认证  
ISO9001:2015  
Quality Management  
System Certification



专利证书(部分)  
The patent certificate



AC/DC产品SGS认证  
AC/DC Product SGS Certification



DC/DC产品SGS认证  
DC/DC Product SGS Certification

# DC - DC模块电源 POWER MODULE

# C 目录 ontents

## 隔离收发模块

P01	RS485-XXL/HSA	---波特率高达100/500Kbps High baud rate up to 100/500Kbps	P02	RSCAN-XXHSA	---波特率高达1Mbps High baud rate up to 1 Mbps
P01	RS485-XXL/HSAV	---波特率高达100/500Kbps High baud rate up to 100/500Kbps	P02	RSCAN-XXHSSV	---波特率高达1Mbps High baud rate up to 1 Mbps
P01	RS485-XXL/HSSV	---波特率高达100/500Kbps High baud rate up to 100/500Kbps			

## DC-DC (1-3W) 定电压输入隔离模块

P03	NN1-XXSXXANT	---定电压输入 隔离非稳压输出1W Fixed input voltage ,isolated&unregulated output 1W	P03	NN2-XXSXXANT	---定电压输入 隔离非稳压输出2W Fixed input voltage ,isolated&unregulated output 1W
P04	FN1-XXSXXAN	---定电压输入 隔离非稳压输出1W Fixed input voltage ,isolated&unregulated output 1W	P05	FN1-XXSXXBN	---定电压输入 隔离非稳压输出1W Fixed input voltage ,isolated&unregulated output 1W
P05	FN1-XXDXXBN	---定电压输入 隔离非稳压输出1W Fixed input voltage ,isolated&unregulated output 1W	P06	FN1-XXSXXB3N	---定电压输入 隔离非稳压输出1W Fixed input voltage ,isolated & unregulated output 2W
P06	FN1-XXDXXB3N	---定电压输入 隔离非稳压输出1W Fixed input voltage ,isolated & unregulated output 1W	P07	FN2-XXSXXCN	---定电压输入 隔离非稳压输出2W Fixed input voltage ,isolated & unregulated output 2W
P07	FN2-XXDXXCN	---定电压输入 隔离非稳压输出2W Fixed input voltage ,isolated & unregulated output 2W	P08	FN1-XXSXXC3N	---定电压输入 隔离非稳压输出1W Fixed input voltage ,isolated & unregulated output 1W
P08	FN2-XXDXXC3N	---定电压输入 隔离非稳压输出2W Fixed input voltage ,isolated & unregulated output 2W	P09	FN1-XXSXXH6	---定电压输入 隔离非稳压输出1W Fixed input voltage ,isolated & unregulated output 2W
P09	FN1-XXDXXH6	---定电压输入 隔离非稳压输出1W Fixed input voltage ,isolated & unregulated output 1W	P10	FN2-XXSXXH6	---定电压输入 隔离稳压输出2W Fixed input voltage ,isolated & regulated output 1W
P10	FN2-XXDXXH6	---定电压输入 隔离非稳压输出2W Fixed input voltage ,isolated & regulated output 2W	P12	FW2-XXSXXC/3	---定电压输入 隔离稳压输出2W Wide input voltage ,isolated & regulated output 2W
P11	FW1-XXSXXB/3	---定电压输入 隔离稳压输出1W Wide input voltage ,isolated & regulated output 2W	P13	FK1-XXSXXE/E3	---宽电压输入 隔离稳压输出1W Wide input voltage ,isolated & regulated output 1W
P13	FK1-XXDXXE/E3	---宽电压输入 隔离稳压输出1W Wide input voltage ,isolated & regulated output 1W	P14	FK3-XXSXXE/E3	---宽电压输入 隔离稳压输出3W Wide input voltage ,isolated & regulated output 3W
P14	FK3-XXDXXE/E3	---宽电压输入 隔离稳压输出3W Wide input voltage ,isolated & regulated output 3W			

## DC-DC 非隔离模块

P15	K78XX-500	---宽电压输入,非隔离单路输出 Wide input voltage range, non-isolated & regulated single output	P15	K78XX-1000	---宽电压输入,非隔离单路输出 Wide input voltage range, non-isolated & regulated single output
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## DC-DC (6-75W) 宽电压输入隔离稳压输出

P16	FD6-XXSXXA3(-T)(-TS)	---宽电压输入4:1,隔离稳压输出6W Wide input voltage range 4:1,isolated & regulated output 6W	P17	FD12-XXSXXA3(C)(-T)(-TS)	---宽电压输入4:1,隔离稳压输出12W Wide input voltage range 4:1,isolated & regulated output 6W
P17	FD12-XXDXXA3(C)(-T)(-TS)	---宽电压输入4:1,隔离稳压输出12W Wide input voltage range 4:1,isolated & regulated output 6W	P18	FD12-110SXXA3(C)(-T)(-TS)	---宽电压输入4:1,隔离稳压输出12W Wide input voltage range 4:1,isolated & regulated output 6W
P18	FD20-110SXXA3(C)(-T)(-TS)	---宽电压输入4:1,隔离稳压输出20W Wide input voltage range 4:1,isolated & regulated output 6W	P19	FD12-XXSXXB2C5	---宽电压输入4:1,隔离稳压输出12W Wide input voltage range 4:1,isolated & regulated output 6W
P20	FD15-XXSXXA3(C)(-T)(-TS)	---宽电压输入4:1,隔离稳压输出15W Wide input voltage range 4:1,isolated & regulated output 6W	P20	FD15-XXDXXA3(C)(-T)(-TS)	---宽电压输入4:1,隔离稳压输出15W Wide input voltage range 4:1,isolated & regulated output 6W
P21	FD20-XXSXXA3(C)(-T)(-TS)	---宽电压输入4:1,隔离稳压输出20W Wide input voltage range 4:1,isolated & regulated output 6W	P21	FD20-XXDXXA3(C)(-T)(-TS)	---宽电压输入4:1,隔离稳压输出20W Wide input voltage range 4:1,isolated & regulated output 6W
P22	FD30-XXSXXB3(C)(-T)(-TS)	---宽电压输入4:1,隔离稳压输出30W Wide input voltage range 4:1,isolated & regulated output 6W	P23	FD30-XXSXXA3(C)(-T)(-TS)	---宽电压输入2:1,隔离稳压输出30W Wide input voltage range 4:1,isolated & regulated output 6W
P23	FD50-XXSXXB3(C)(-T)(-TS)	---宽电压输入2:1,隔离稳压输出50W Wide input voltage range 4:1,isolated & regulated output 6W	P24	BKXX- XXXXXHX	---新能源, 超宽超高电压输出 New solar energy, ultra wide ultra high voltage output
P25	WD50-XXSXXK1	---宽电压输入2:1,隔离稳压输出50W Wide input voltage range 4:1,isolated & regulated output 6W	P26	WD75-XXSXXM1	---宽电压输入2:1,隔离稳压输出75W Wide input voltage range 4:1,isolated & regulated output 6W

## DC-DC (100-400W) 宽电压输入隔离稳压输出

P27	WD100-N1	---宽电压输入2:1,隔离稳压输出100W Wide input voltage range 2:1, isolated & regulated output 100W	P27	WD150-N1	---宽电压输入2:1,隔离稳压输出150W Wide input voltage range 2:1, isolated & regulated output 100W
P27	VD150-N1	---宽电压输入2:1,隔离稳压输出150W Wide input voltage range 2:1, isolated & regulated output 150W	P28	WD100-Q1	---宽电压输入2:1,隔离稳压输出100W Wide input voltage range 2:1, isolated & regulated output 150W
P28	WD150-Q1	---宽电压输入2:1,隔离稳压输出150W Wide input voltage range 2:1, isolated & regulated output 150W	P29	WD200-P1	---宽电压输入2:1,隔离稳压输出200W Wide input voltage range 2:1, isolated & regulated output 200W
P29	WD300-P1	---宽电压输入2:1,隔离稳压输出300W Wide input voltage range 2:1, isolated & regulated output 300W	P29	WD400-P1	---宽电压输入2:1,隔离稳压输出400W Wide input voltage range 2:1, isolated & regulated output 400W

## AC-DC (3-6W) 智能家居 物联网隔离模块

P30	FA3-B9D4	---宽电压输入隔离稳压输出3W Wide input voltage range isolated & regulated output 3W	P30	FA5-B9D4	---宽电压输入隔离稳压输出5W Wide input voltage range isolated & regulated output 3W
P31	FA3-A2A	---宽电压输入隔离稳压输出3W Wide input voltage range isolated & regulated output 5W	P32	FA5-C2	---宽电压输入隔离稳压输出5W Wide input voltage range isolated & regulated output 5W
P32	FA5-C2(A)	---宽电压输入隔离稳压输出5W Wide input voltage range isolated & regulated output 5W	P33	FA5-Y2D4	---宽电压输入隔离稳压输出5W Wide input voltage range isolated & regulated output 5W
P34	FA6-D2	---宽电压输入隔离稳压输出6W Wide input voltage range isolated & regulated output 6W	P35	CK6-E2	---宽电压输入隔离稳压输出6W Wide input voltage range isolated & regulated output 6W

## AC-DC (10-25W) 高性能标准隔离模块

P35	FA10-E2D4	---宽电压输入隔离稳压输出10W Wide input voltage range, isolated & regulated output 10W	P35	FA10-220E05XXE2	---宽电压输入隔离稳压输出10W Wide input voltage range, isolated & regulated output 10W
P36	UA10-P2D	---宽电压输入隔离稳压输出10W Wide input voltage range, isolated & regulated output 10W	P37	FA15-F2D4	---宽电压输入隔离稳压输出15W Wide input voltage range, isolated & regulated output 10W
P37	FA15-220E05XXF2	---宽电压输入隔离稳压输出15W Wide input voltage range, isolated & regulated output 15W	P37	UA15-220H05XXXXF2(A)	---宽电压输入隔离稳压输出15W Wide input voltage range, isolated & regulated output 15W
P37	FA20-F2D4	---宽电压输入隔离稳压输出20W Wide input voltage range, isolated & regulated output 15W	P38	FA20-220HXXXXXXH2	---宽电压输入隔离稳压输出20W Wide input voltage range, isolated & regulated output 20W
P38	FA25-H2D4	---宽电压输入隔离稳压输出25W Wide input voltage range, isolated & regulated output 20W	P38	UA25-220EXXXXH2	---宽电压输入隔离稳压输出25W Wide input voltage range, isolated & regulated output 25W

## AC-DC (30-75W) 隔离模块

P38	FA30-H2	---宽电压输入隔离稳压输出30W Wide input voltage range, isolated & regulated output 30W	P39	FA40-H3	---宽电压输入隔离稳压输出40W Wide input voltage range, isolated & regulated output 40W
P40	FA40-W2	---宽电压输入隔离稳压输出40W Wide input voltage range, isolated & regulated output 40W	P41	WA75-L1	---宽电压输入隔离稳压输出75W Wide input voltage range, isolated & regulated output 75W

## AC-DC (100-200W) 隔离模块

P41	WA100-L1	---宽电压输入隔离稳压输出100W Wide input voltage range, isolated & regulated output 100W	P41	NA150-L1	---宽电压输入隔离稳压输出150W Wide input voltage range, isolated & regulated output 150W
P42	NA200-M1	---宽电压输入隔离稳压输出200W Wide input voltage range, isolated & regulated output 200W			



## ◆ 产品特性/Product Features

- RS485-XXHSAV波特率高达 High baud rate up to : 500Kbps
- RS485-XXLSAV波特率高达 High baud rate up to : 100Kbps
- RSCAN-XXHSAV波特率高达 High baud rate up to : 1Mbps
- 内置隔离电源 Integrated isolated DC/DC converter
- RS485-XXHSA同一网络可支持连接256个节点 The bus is able to support 256 nodes at maximum
- RSCAN-XXHSA同一网络可支持连接110个节点 The bus is able to support 110 nodes at maximum
- RS485-XXHSA两端隔离 Two-port isolation : 3750VAC
- RSCAN-XXHSA隔离电压 Isolation voltage : 2500VDC
- 塑料外壳, 小型SMD封装和DIP封装自由选择, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 总线保护 Bus protection
- **应用领域:** 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- **测试条件:** 如无特殊指定, 所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C .

## ◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current		认证 Certificate
	范围值 Range (VDC)	静态电流 Static current (mA)	发送电流 Send current (mA)	
RS485-3V3HSA	3.17-3.45	50	100	符合RoHS
RS485-05HSA	4.75-5.25	40	80	
RS485-3V3LSA	3.17-3.45	50	100	
RS485-05LSA	4.75-5.25	40	80	
RS485-3V3HSAV	3.17-3.45	50	100	
RS485-05HSAV	4.75-5.25	40	80	
RS485-3V3LSAV	3.17-3.45	50	100	
RS485-05LSAV	4.75-5.25	40	80	
RS485-3V3HSSV	3.17-3.45	40	130	
RS485-05HSSV	4.75-5.25	50	130	
RS485-3V3LSSV	3.17-3.45	40	130	
RS485-05LSSV	4.75-5.25	50	130	
RSCAN-3V3HSA	3.15-3.45	40	100	
RSCAN-05HSA	4.75-5.25	30	80	
RSCAN-3V3HSSV	3.15-3.45	30	60	
RSCAN-05HSSV	4.75-5.25	40	70	

注1: 因篇幅有限以上只是部分产品列表, 若需列表以外产品, 请与本公司销售部联系。  
Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

## ◆ 产品实物图/Product Photo



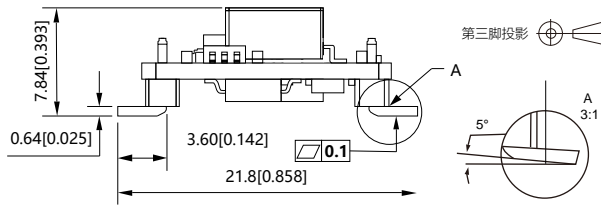
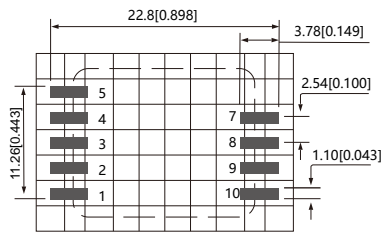
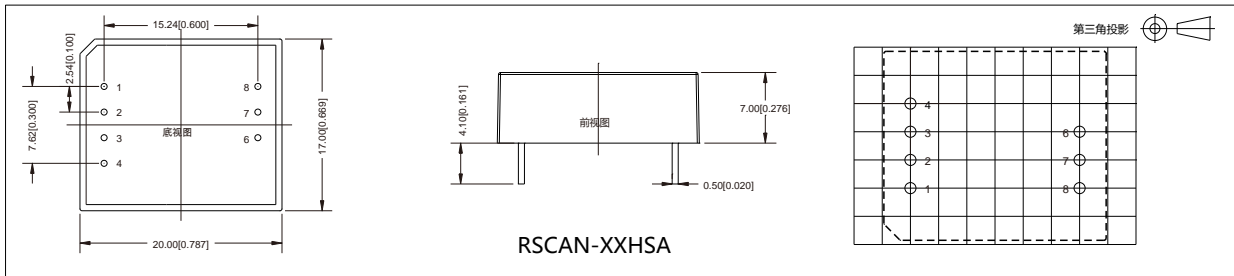
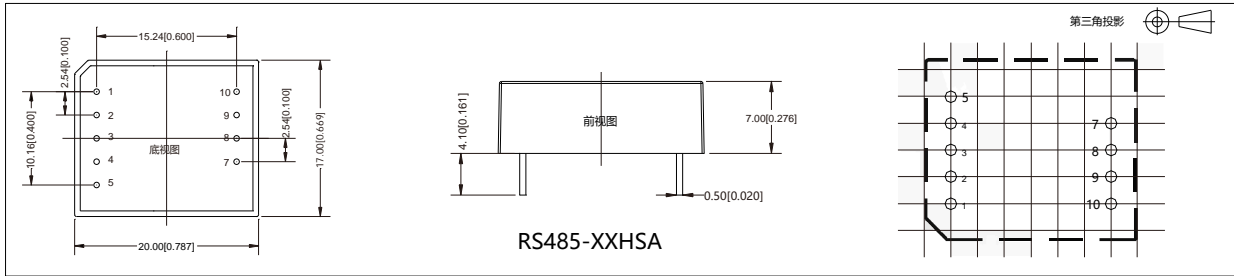
## ◆ 命名方式/Nomination Method

RS 485 - 5 H S A V  
① ② ③ ④ ⑤ ⑥ ⑦

- ①: 产品系列: RS为隔离收发模块系列。
- ②: 通信方式: 485表示通信方式是485通信, 232表示通信方式是232通信, CAN表示通信方式是CAN通信。
- ③: 输入电压: 5表示输入电压5V, 3V3表示输入电压3.3V。
- ④: 通信速率: H表示高速通信, 未标注为普通速率; L为低速。
- ⑤: 通道数量: S为单路, D为双路。
- ⑥: 插脚方式, A表示直插, S表示SMD。
- ⑦: 输出供电引脚 V表示输出带供电引脚, 无/N代表无供电引脚。

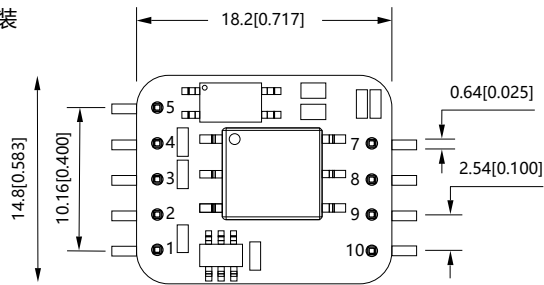
注意:电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。  
Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

封装尺寸/Packing Demension



SMD封装

单位 (Unit) :mm  
 印刷板俯视图 (Printed board vertical view)  
 栅格间距 (latic spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm  
 未注明引脚直径公差 (Pin section tolerances) : ±0.10mm



引脚定义		
引脚	标识	功能
1	VCC	输入电源正极
2	GND	输入电源负极
3	TXD	RSH485 发送引脚
4	RXD	RSH485 接收引脚
5	CON	发送、接收控制脚
7	V0	隔离电源输出端
8	B	RSH485 B引脚
9	A	RSH485 A引脚
10	RGND	隔离电源输出地
封装尺寸		21.80*14.80*7.80mm
封装尺寸		0.858*0.583*0.309mm
引脚型号		RS485-XXSXX

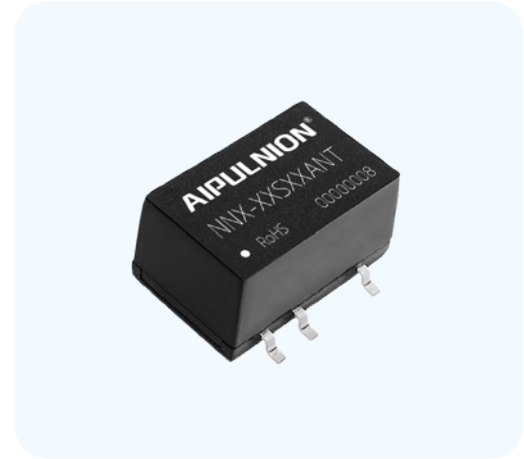
引脚定义		
引脚	标识	功能
1	VCC	输入电源正极
2	GND	输入电源负极
3	TXD	RSH485 发送引脚
4	RXD	RSH485 接收引脚
5	CON	发送、接收控制脚
8	B	RSH485 B引脚
9	A	RSH485 A引脚
10	RGND	隔离电源输出地
封装尺寸		20.00*17.00*7.00mm
封装尺寸		0.787*0.669*0.504mm
引脚型号		RS485-XXSXX

引脚定义		
引脚	标识	功能
1	VCC	输入电源正极
2	GND	输入电源接地
3	TXD	CAN发送引脚
4	RXD	CAN接收引脚
6	CANH	CAN H引脚
7	CANL	CAN L引脚
8	CGND	隔离电源输出地
封装尺寸		20.00*17.00*7.00mm
封装尺寸		0.787*0.669*0.504mm
引脚型号		RSCAN-XXHSA

引脚定义		
引脚	标识	功能
1	VCC	输入电源正极
2	GND	输入电源接地
3	TXD	CAN发送引脚
4	RXD	CAN接收引脚
5	V0	隔离电源输出正
6	CANH	CAN H引脚
7	CANL	CAN L引脚
8	CGND	隔离电源输出地
封装尺寸		21.80*14.80*7.80mm
封装尺寸		0.858*0.583*0.309mm
引脚型号		RSCAN-XXHSSV

◆ 产品特性/Product Features

- 定电压输入, 隔离非稳压输出 Fixed input volated&unregulated output
- 空载输入电流低至5mA No load input current as low as 5mA
- 效率高达86% Transfer efficiency up to 86%
- 隔离电压 (Isolation voltage) : 3000VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C~+105 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery
- **应用领域:** 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- **测试条件:** 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C .



◆ 产品列表/Product List

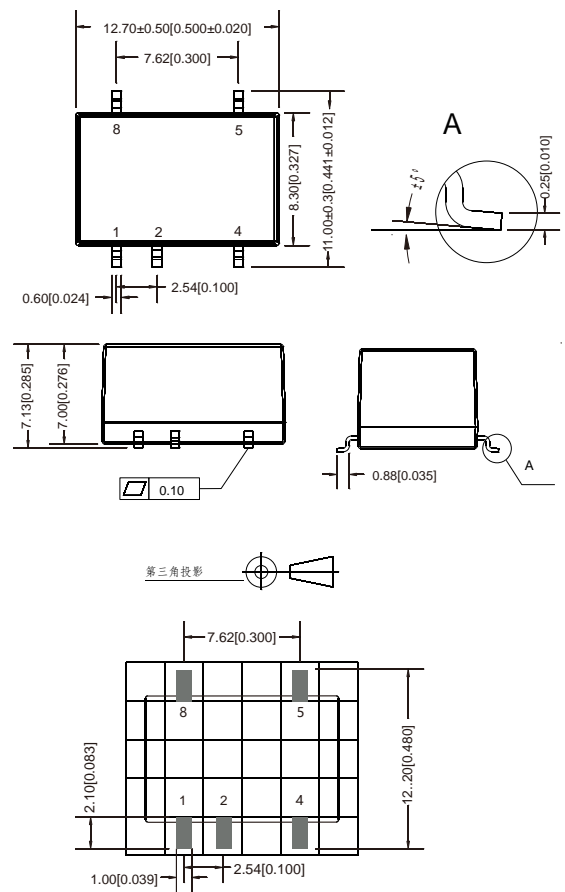
产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current			输出效率 Output efficiency (%TYP)
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	MIN	MAX	
NN1-3V3S3V3ANT	2.97-3.63	5	3.3	30	303	82
NN1-3V3S05ANT			5	20	200	82
NN1-3V3S09ANT			9	11	111	85
NN1-3V3S12ANT			12	8	83	87
NN1-3V3S15ANT			15	7	67	87
NN1-3V3S24ANT			24	4	42	85
NN1-05S3V3ANT	4.5-5.5	5	3.3	20	303	82
NN1-05S05ANT			5	20	200	86
NN1-05S09ANT			9	11	111	89
NN1-05S12ANT			12	8	83	89
NN1-05S15ANT			15	7	67	89
NN1-05S24ANT			24	4	42	88
NN2-05S3V3ANT	4.5-5.5	35	3.3	60	600	80
NN2-05S05ANT			5	40	400	84
NN2-05S09ANT			9	22	222	86
NN2-05S12ANT			12	17	167	88
NN2-05S15ANT			15	13	133	88
NN2-05S24ANT			24	8	83	88

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注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	4	5	8
单路 Single	-Vin	+Vin	GND	+Vo	NC
功能	输入负极	输入正极	输出地	输出正极	无功能
封装代号 Packing Code/ Dimension	L*W*H				
ANT	12.70*11.00*7.13mm				
	0.500*0.441*0.285inch				

NC:不能与任何外部电路连接

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

注意:电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。  
Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.





◆ 产品特性/Product Features

- 定电压输入, 隔离非稳压输出 Fixed input volated&unregulated output
- 空载输入电流低至8mA No load input current as low as 8mA
- 效率高达78% Transfer efficiency up to 78%
- 隔离电压 (Isolation voltage) : 1500VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery
- **应用领域:** 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- **测试条件:** 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C .



◆ 产品列表/Product List

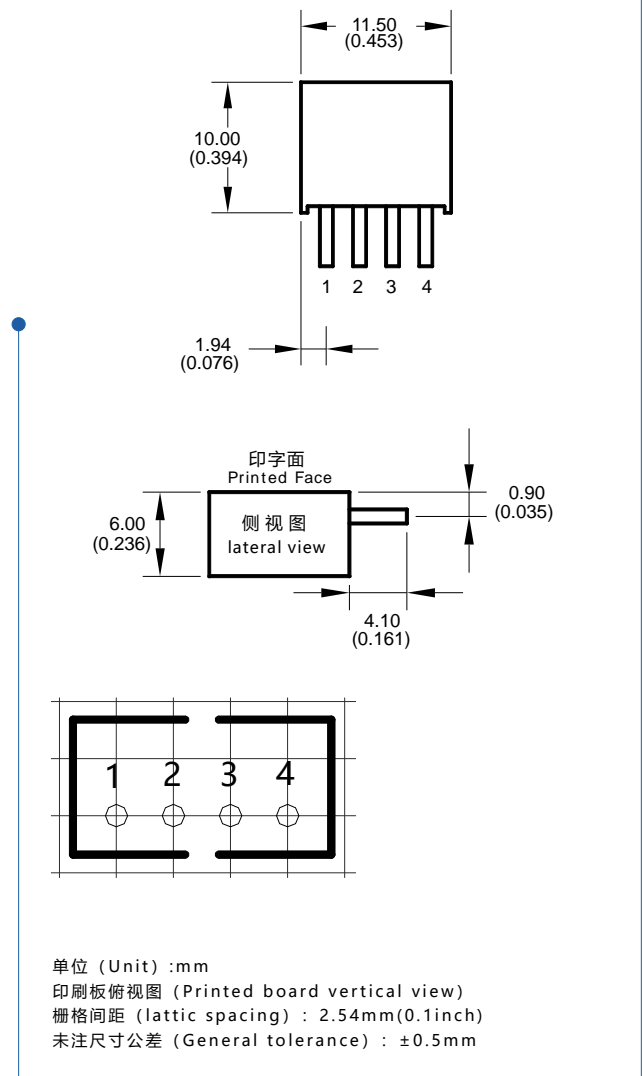
产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current			输出效率 Output efficiency (%TYP)
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 (mA) Current (mA) MIN MAX		
FN1-05S05AN	4.5-5.5	30	5	20	200	76
FN1-05S09AN			9	12	111	76
FN1-05S12AN			12	9	83	77
FN1-05S15AN			15	7	67	77
FN1-05S24AN			24	4	42	77
FN1-12S05AN	10.8-13.2	16	5	20	200	77
FN1-12S09AN			9	12	111	77
FN1-12S12AN			12	9	83	77
FN1-12S15AN			15	7	67	78
FN1-24S05AN	21.6-26.4	8	5	20	200	76
FN1-24S09AN			9	12	111	77
FN1-24S12AN			12	9	83	77
FN1-24S15AN			15	7	67	78

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注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4
单路 Single	-Vin	+Vin	-Vo	+Vo
功能	输入负极	输入正极	输出负极	输出正极
封装代号 Packing Code/ Dimension	L*W*H			
A	11.50*6.00*10.00mm			
	0.453*0.236*0.394inch			

封装尺寸/Packing Dimension



◆ 产品特性/Product Features

- 定电压输入, 隔离非稳压输出 Fixed input volated&unregulated output
- 空载输入电流低至8mA No load input current as low as 8mA
- 效率高达78% Transfer efficiency up to 78%
- 隔离电压 (Isolation voltage) : 1500VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery (仅双路输出) (Only dual output)
- 应用领域: 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- 测试条件: 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.

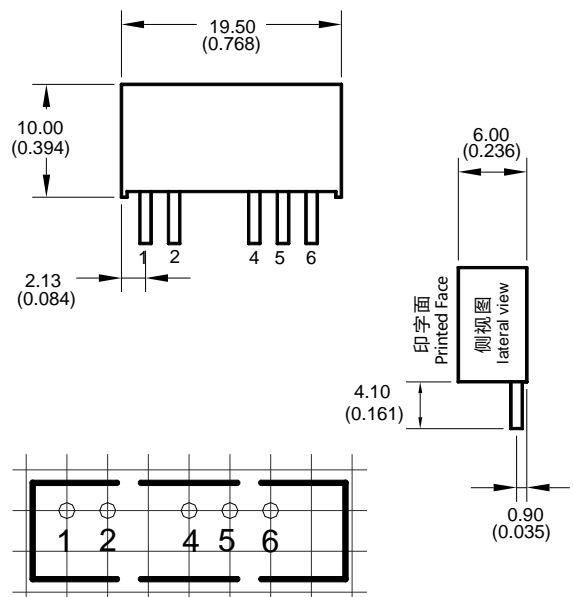


◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current			输出效率 Output efficiency (%TYP)
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 (mA) Current (mA) MIN MAX		
FN1-05S05BN	4.5-5.5	30	5	20	200	76
FN1-05S09BN			9	12	111	76
FN1-05S12BN			12	9	83	77
FN1-05S15BN			15	7	67	77
FN1-05S24BN			24	4	42	77
FN1-12S05BN	10.8-13.2	16	5	20	200	77
FN1-12S09BN			9	12	111	77
FN1-12S12BN			12	9	83	77
FN1-12S15BN			15	7	67	78
FN1-24S05BN	21.6-26.4	8	5	20	200	76
FN1-24S09BN			9	12	111	77
FN1-24S12BN			12	9	83	77
FN1-24S15BN			15	7	67	78
FN1-05D05BN	4.5-5.5	30	±5	±10	±100	76
FN1-05D09BN			±9	±6	±56	77
FN1-05D12BN			±12	±5	±42	77
FN1-05D15BN			±15	±4	±33	78
FN1-12D05BN	10.8-13.2	16	±5	±10	±100	77
FN1-12D09BN			±9	±6	±56	77
FN1-12D12BN			±12	±5	±42	77
FN1-12D15BN			±15	±4	±33	78
FN1-24D05BN	21.6-26.4	8	±5	±10	±100	76
FN1-24D09BN			±9	±6	±56	77
FN1-24D12BN			±12	±5	±42	77
FN1-24D15BN			±15	±4	±33	78

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 Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) :mm  
 印刷板俯视图 (Printed board vertical view)  
 栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm

管脚号码 Pin-out	1	2	4	5	6
单路 Single	+Vin	-Vin	-Vo	NP	+Vo
单路功能	输入正极	输入负极	输出负极	空脚	输出正极
双路 Dual	+Vin	-Vin	-Vo	COM	+Vo
双路功能	输入正极	输入负极	输出负极	公共端	输出正极
封装代号 Packing Code/ Dimension	L*W*H				
B	19.50*6.00*10.00mm				
	0.768*0.236*0.394inch				

注意: 电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。  
 Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

◆ 产品特性/Product Features

- 定电压输入, 隔离非稳压输出 Fixed input volated&unregulated output
- 空载输入电流低至8mA No load input current as low as 8mA
- 效率高达78% Transfer efficiency up to 78%
- 隔离电压 (Isolation voltage) : 3000VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery (仅双路输出) (Only dual output)
- 应用领域: 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- 测试条件: 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C .

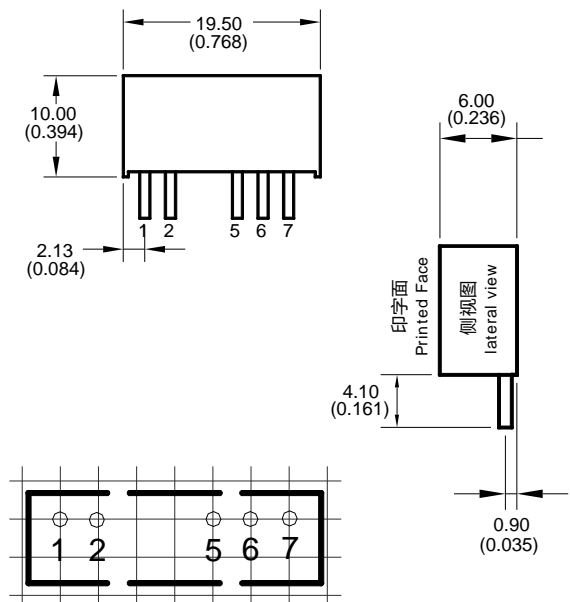


◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current			输出效率 Output efficiency (%TYP)
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 (mA) Current (mA) MIN MAX		
FN1-05S05B3N	4.5-5.5	30	5	20	200	76
FN1-05S09B3N			9	12	111	77
FN1-05S12B3N			12	9	83	77
FN1-05S15B3N			15	7	67	77
FN1-05S24B3N			24	4	42	77
FN1-12S05B3N	10.8-13.2	16	5	20	200	77
FN1-12S09B3N			9	12	111	77
FN1-12S12B3N			12	9	83	77
FN1-12S15B3N			15	7	67	78
FN1-24S05B3N	21.6-26.4	8	5	20	200	76
FN1-24S09B3N			9	12	111	77
FN1-24S12B3N			12	9	83	77
FN1-24S15B3N			15	7	67	78
FN1-05D05B3N	4.5-5.5	30	±5	±10	±100	76
FN1-05D09B3N			±9	±6	±56	77
FN1-05D12B3N			±12	±5	±42	77
FN1-05D15B3N			±15	±4	±33	78
FN1-12D05B3N			10.8-13.2	16	±5	±10
FN1-12D09B3N	±9	±6			±56	77
FN1-12D12B3N	±12	±5			±42	77
FN1-12D15B3N	±15	±4			±33	78
FN1-24D05B3N	21.6-26.4	8	±5	±10	±100	76
FN1-24D09B3N			±9	±6	±56	77
FN1-24D12B3N			±12	±5	±42	77
FN1-24D15B3N			±15	±4	±33	78

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 Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) :mm  
 印刷板俯视图 (Printed board vertical view)  
 栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm

管脚号码 Pin-out	1	2	5	6	7
单路 Single	+Vin	-Vin	-Vo	NP	+Vo
单路功能	输入正极	输入负极	输出负极	空脚	输出正极
双路 Dual	+Vin	-Vin	-Vo	COM	+Vo
双路功能	输入正极	输入负极	输出负极	公共端	输出正极
封装代号 Packing Code/ Dimension	L*W*H				
B	19.50*6.00*10.00mm				
	0.768*0.236*0.394inch				

◆ 产品特性/Product Features

- 定电压输入, 隔离非稳压输出 Fixed input volated&unregulated output
- 空载输入电流低至10mA No load input current as low as 10mA
- 效率高达79% Transfer efficiency up to 79%
- 隔离电压 (Isolation voltage): 1500VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery (仅双路输出) (Only dual output)
- 应用领域: 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- 测试条件: 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.

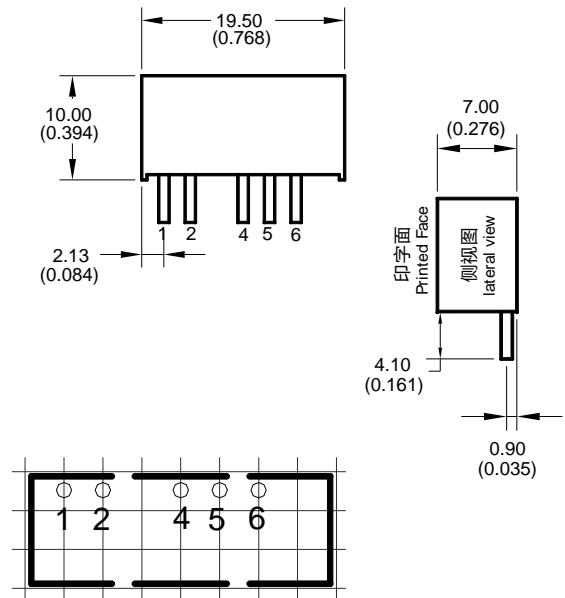


◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current			输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 (mA) Current (mA)		(%TYP)
FN2-05S05CN	4.5-5.5	50	5	40	400	76
FN2-05S09CN			9	22	220	76
FN2-05S12CN			12	17	167	77
FN2-05S15CN			15	13	133	77
FN2-05S24CN			24	8	83	77
FN2-12S05CN	10.8-13.2	18	5	40	400	77
FN2-12S09CN			9	22	220	77
FN2-12S12CN			12	17	167	77
FN2-12S15CN			15	13	133	78
FN2-24S05CN	21.6-26.4	10	5	40	400	76
FN2-24S09CN			9	22	220	77
FN2-24S12CN			12	17	167	77
FN2-24S15CN			15	13	133	78
FN2-05D05CN	4.5-5.5	50	±5	±20	±200	77
FN2-05D09CN			±9	±11	±110	78
FN2-05D12CN			±12	±8	±83	78
FN2-05D15CN			±15	±7	±67	79
FN2-12D05CN	10.8-13.2	18	±5	±20	±200	78
FN2-12D09CN			±9	±11	±110	79
FN2-12D12CN			±12	±8	±83	79
FN2-12D15CN			±15	±7	±67	77
FN2-24D05CN	21.6-26.4	10	±5	±20	±200	77
FN2-24D09CN			±9	±11	±110	78
FN2-24D12CN			±12	±8	±83	79
FN2-24D15CN			±15	±7	±67	79

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 Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) :mm  
 印刷板俯视图 (Printed board vertical view)  
 栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm

管脚号码 Pin-out	1	2	4	5	6
单路 Single	+Vin	-Vin	-Vo	NP	+Vo
单路功能	输入正极	输入负极	输出负极	空脚	输出正极
双路 Dual	+Vin	-Vin	-Vo	COM	+Vo
双路功能	输入正极	输入负极	输出负极	公共端	输出正极
封装代号 Packing Code/Dimension	L*W*H				
C	19.50*7.00*10.00mm				
	0.768*0.276*0.394inch				

注意:电源模块的各管脚定义如与选型手册不符,应以实物标签上的标注为准。  
 Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

◆ 产品特性/Product Features

- 定电压输入, 隔离非稳压输出 Fixed input volated&unregulated output
- 空载输入电流低至10mA No load input current as low as 10mA
- 效率高达79% Transfer efficiency up to 79%
- 隔离电压 (Isolation voltage): 3000VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery (仅双路输出) (Only dual output)
- 应用领域: 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- 测试条件: 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.

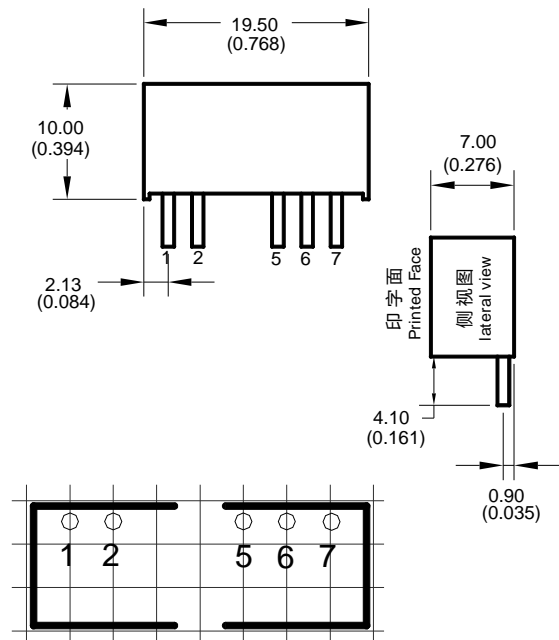


◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current			输出效率 Output efficiency (%TYP)
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 (mA) Current (mA) MIN MAX		
	FN2-05S05C3N	4.5-5.5	50	5	40	
FN2-05S09C3N	9			22	220	78
FN2-05S12C3N	12			17	167	78
FN2-05S15C3N	15			13	133	79
FN2-12S05C3N	10.8-13.2	18	5	40	400	78
FN2-12S09C3N			9	22	220	79
FN2-12S12C3N			12	9	167	79
FN2-12S15C3N			15	7	133	77
FN2-24S05C3N	21.6-26.4	10	5	40	400	77
FN2-24S09C3N			9	22	220	78
FN2-24S12C3N			12	17	167	79
FN2-24S15C3N			15	13	133	79
FN2-05D05C3N	4.5-5.5	50	±5	±20	±200	77
FN2-05D09C3N			±9	±11	±111	78
FN2-05D12C3N			±12	±8	±83	78
FN2-05D15C3N			±15	±7	±67	79
FN2-12D05C3N	10.8-13.2	18	±5	±20	±200	78
FN2-12D09C3N			±9	±11	±111	79
FN2-12D12C3N			±12	±8	±83	79
FN2-12D15C3N			±15	±7	±67	77
FN2-24D05C3N	21.6-26.4	10	±5	±20	±200	77
FN2-24D09C3N			±9	±11	±111	78
FN2-24D12C3N			±12	±8	±83	79
FN2-24D15C3N			±15	±7	±67	79

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 注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
 Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) :mm  
 印刷板俯视图 (Printed board vertical view)  
 栅格间距 (latic spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm

管脚号码 Pin-out	1	2	5	6	7
单路 Single	+Vin	-Vin	-Vo	NP	+Vo
单路功能	输入正极	输入负极	输出负极	空脚	输出正极
双路 Dual	+Vin	-Vin	-Vo	COM	+Vo
双路功能	输入正极	输入负极	输出负极	公共端	输出正极
封装代号 Packing Code/ Dimension	L*W*H				
C	19.50*7.00*10.00mm				
	0.768*0.276*0.394inch				

◆ 产品特性/Product Features

- 定电压输入, 隔离非稳压输出 Fixed input volated&unregulated output
- 空载输入电流低至10mA No load input current as low as 10mA
- 效率高达73% Transfer efficiency up to 73%
- 隔离电压 (Isolation voltage): 6000VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery
- **应用领域:** 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- **测试条件:** 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.

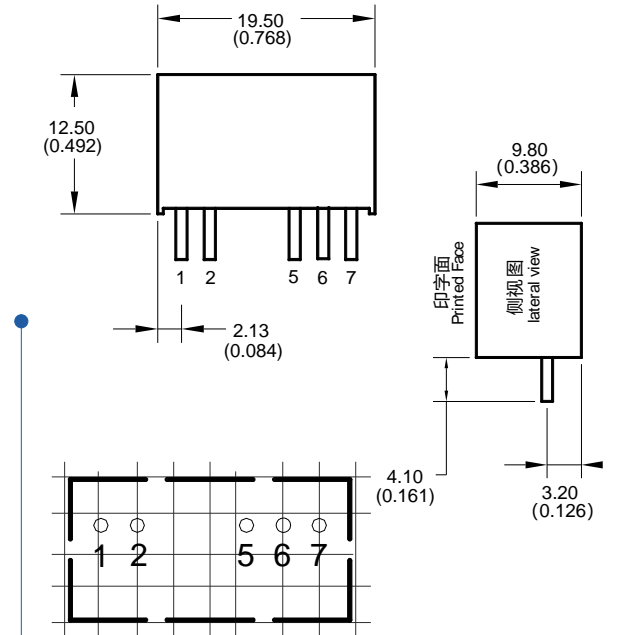


◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current			输出效率 Output efficiency (%TYP)
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	MIN	MAX	
FN1-05S05H6	4.5-5.5	40	5	20	200	70
FN1-05S09H6			9	12	111	71
FN1-05S12H6			12	9	83	72
FN1-05S15H6			15	7	67	73
FN1-12S05H6	10.8-13.2	20	5	20	200	71
FN1-12S09H6			9	12	111	70
FN1-12S12H6			12	9	83	71
FN1-12S15H6			15	7	67	72
FN1-24S05H6	21.6-26.4	10	5	20	200	71
FN1-24S09H6			9	12	111	71
FN1-24S12H6			12	9	83	72
FN1-24S15H6			15	7	67	73
FN1-05D05H6	4.5-5.5	40	±5	±10	±100	70
FN1-05D09H6			±9	±6	±56	71
FN1-05D12H6			±12	±5	±42	72
FN1-05D15H6			±15	±4	±33	73
FN1-12D05H6	10.8-13.2	20	±5	±10	±100	70
FN1-12D09H6			±9	±6	±56	71
FN1-12D12H6			±12	±5	±42	71
FN1-12D15H6			±15	±4	±33	73
FN1-24D05H6	21.6-26.4	10	±5	±10	±100	70
FN1-24D09H6			±9	±6	±56	71
FN1-24D12H6			±12	±5	±42	72
FN1-24D15H6			±15	±4	±33	72

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Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm

管脚号码 Pin-out	1	2	5	6	7
单路 Single	+Vin	-Vin	-Vo	NP	+Vo
单路功能	输入正极	输入负极	输出负极	空脚	输出正极
双路 Dual	+Vin	-Vin	-Vo	COM	+Vo
双路功能	输入正极	输入负极	输出负极	公共端	输出正极
封装代号 Packing Code/ Dimension	L*W*H				
H	19.50*9.80*12.50mm				
	0.768*0.386*0.492inch				

注意:电源模块的各管脚定义如与选型手册不符,应以实物标签上的标注为准。  
Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

◆ 产品特性/Product Features

- 定电压输入, 隔离非稳压输出 Fixed input volated&unregulated output
- 空载输入电流低至15mA No load input current as low as 15mA
- 效率高达80% Transfer efficiency up to 80%
- 隔离电压 (Isolation voltage) : 6000VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery
- **应用领域:** 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- **测试条件:** 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



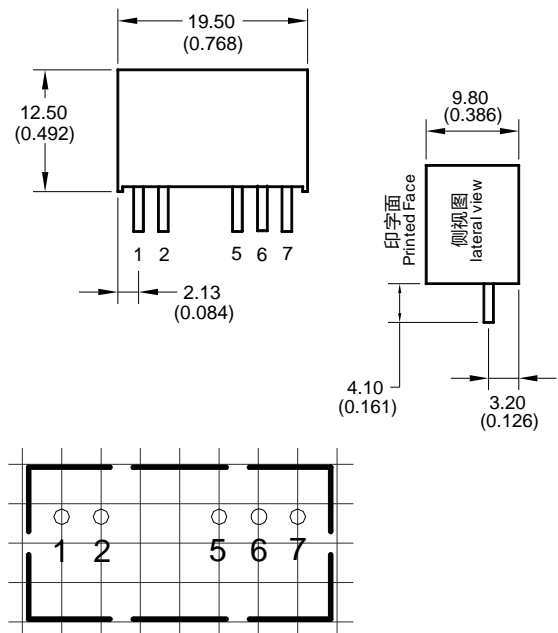
◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current			输出效率 Output efficiency
	范围值 Range	输出空载 Output no load	电压 Voltage	电流 (mA) Current (mA)		(%TYP)
	(VDC)	(mA)	(VDC)	MIN	MAX	
FN2-05S05H6	4.5-5.5	80	5	40	400	73
FN2-05S09H6			9	22	220	75
FN2-05S12H6			12	17	167	76
FN2-05S15H6			15	13	133	76
FN2-12S05H6	10.8-13.2	35	5	40	400	74
FN2-12S09H6			9	22	220	77
FN2-12S12H6			12	9	167	78
FN2-12S15H6			15	7	133	78
FN2-24S05H6	21.6-26.4	15	5	40	400	74
FN2-24S09H6			9	22	220	76
FN2-24S12H6			12	17	167	78
FN2-24S15H6			15	13	133	80
FN2-05D05H6	4.5-5.5	80	±5	±20	±200	73
FN2-05D09H6			±9	±12	±111	75
FN2-05D12H6			±12	±9	±83	76
FN2-05D15H6			±15	±7	±67	76
FN2-12D05H6	10.8-13.2	35	±5	±20	±200	74
FN2-12D09H6			±9	±12	±111	77
FN2-12D12H6			±12	±9	±83	78
FN2-12D15H6			±15	±7	±67	80
FN2-24D05H6	21.6-26.4	15	±5	±20	±200	74
FN2-24D09H6			±9	±12	±111	76
FN2-24D12H6			±12	±9	±83	80
FN2-24D15H6			±15	±7	±67	78

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Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (latic spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm

管脚号码 Pin-out	1	2	5	6	7
单路 Single	+Vin	-Vin	-Vo	NP	+Vo
单路功能	输入正极	输入负极	输出负极	空脚	输出正极
双路 Dual	+Vin	-Vin	-Vo	COM	+Vo
双路功能	输入正极	输入负极	输出负极	公共端	输出正极
封装代号 Packing Code/Dimension	L*W*H				
H	19.50*9.80*12.50mm				
	0.768*0.386*0.492inch				

◆ 产品特性/Product Features

- 定电压输入, 隔离稳压输出 Fixed input volated&unregulated output
- 空载输入电流低至11mA No load input current as low as 11mA
- 效率高达73% Transfer efficiency up to 73%
- 隔离电压 (Isolation voltage) : B: 1000VDC / B3: 3000VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40℃~+85℃
- **应用领域:** 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- **测试条件:** 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25℃室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25℃.



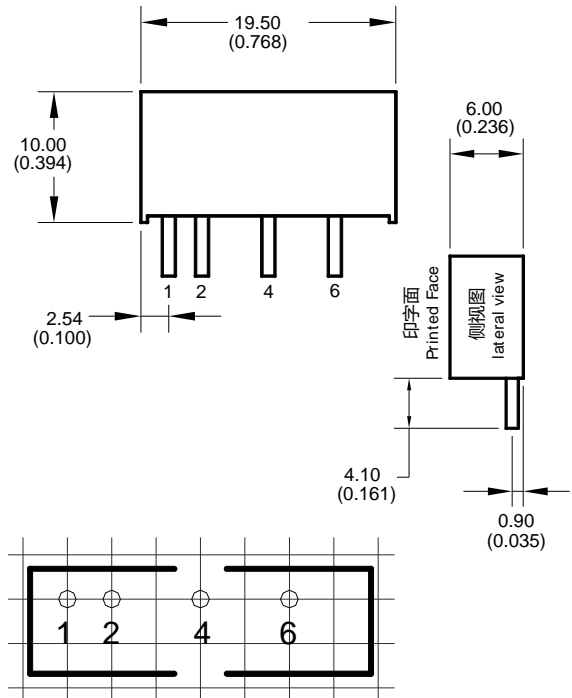
◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current			输出效率 Output efficiency (%TYP)
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	MIN	MAX	
FW1-05S05B	4.5-5.5	40	5	20	200	70
FW1-05S12B			12	8	83	70
FW1-05S15B			15	7	67	70
FW1-05S24B			24	4	42	70
FW1-12S05B	10.8-13.2	17	5	20	200	70
FW1-12S09B			9	12	83	70
FW1-12S12B			12	7	67	73
FW1-12S15B			15	4	42	67
FW1-24S05B	21.6-26.4	11	5	20	200	67
FW1-24S09B			9	8	83	69
FW1-24S12B			12	9	67	69
FW1-24S15B			15	7	42	67
FW1-05S05B3	4.5-5.5	40	5	20	200	70
FW1-05S12B3			12	8	83	70
FW1-05S15B3			15	7	67	70
FW1-05S24B3			24	4	42	70
FW1-12S05B3	10.8-13.2	17	5	20	200	70
FW1-12S09B3			9	12	83	70
FW1-12S12B3			12	7	67	73
FW1-12S15B3			15	4	42	67
FW1-24S05B3	21.6-26.4	11	5	20	200	67
FW1-24S09B3			9	8	83	69
FW1-24S12B3			12	9	67	69
FW1-24S15B3			15	7	42	67

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Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) : mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm

管脚号码 Pin-out	1	2	4	6
单路 Single	+Vin	-Vin	-Vo	+Vo
功能	输入正极	输入负极	输出负极	输出正极
封装代号 Packing Code/Dimension	L*W*H			
B	19.50*6.00*10.00mm			
	0.768*0.236*0.394inch			

注意: 电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。  
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

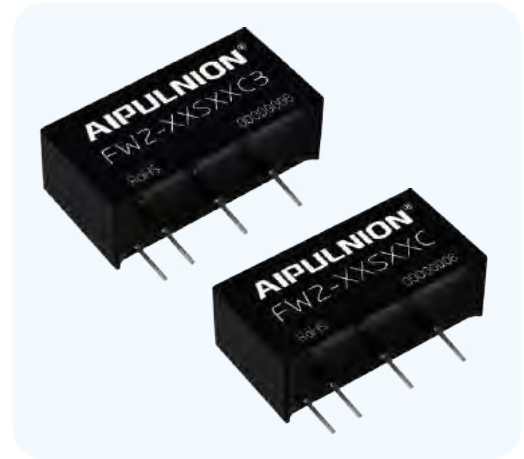




◆ 产品特性/Product Features

- 定电压输入, 隔离稳压输出 Fixed input volated&unregulated output
- 空载输入电流低至11mA No load input current as low as 11mA
- 效率高达70% Transfer efficiency up to 70%
- 隔离电压 (Isolation voltage) : C: 1000VDC / C3: 3000VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery

- 应用领域: 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- 测试条件: 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C .



◆ 产品列表/Product List

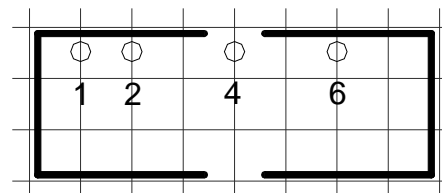
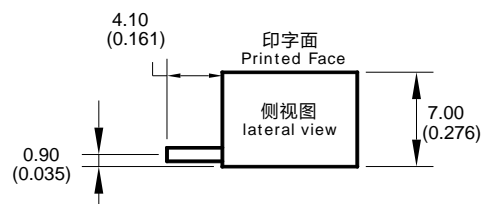
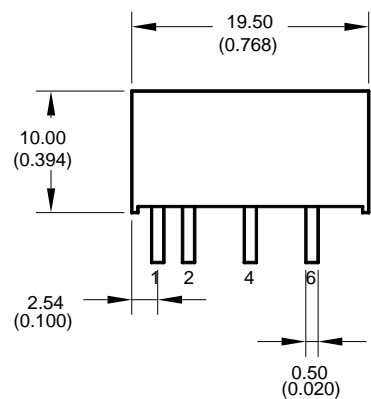
产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current			输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 (mA) Current (mA) MIN MAX		(%TYP)
FW2-05S05C	4.75-5.25	50	5	40	400	67
FW2-12S05C	11.4-12.6	21	5	40	400	70
FW2-15S05C	14.25-15.75	16	5	40	400	70
FW2-24S05C	22.8-25.2	11	5	40	400	68
FW2-05S05C3	4.75-5.25	50	5	40	400	67
FW2-12S05C3	11.4-12.6	21	5	40	400	70
FW2-15S05C3	14.25-15.75	16	5	40	400	70
FW2-24S05C3	22.8-25.2	11	5	40	400	68

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注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	4	6
单路 Single	+Vin	-Vin	-Vo	+Vo
功能	输入正极	输入负极	输出负极	输出正极
封装代号 Packing Code/ Dimension	L*W*H			
C	19.50*7.00*10.00mm			
	0.768*0.276*0.394inch			

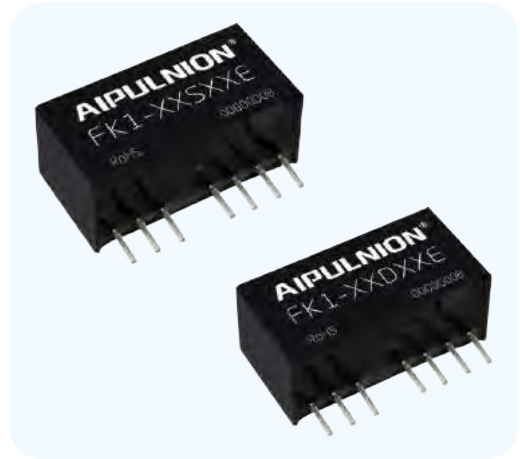
封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm

◆ 产品特性/Product Features

- 宽电压输入 (2:1) , 隔离稳压输出 Wide input voltage range (2:1),isolated&regulated output
- 空载输入电流低至5mA No load input current as low as 5mA
- 效率高达80% Transfer efficiency up to 80%
- 隔离电压 (Isolation voltage) : E: 1500VDC / E3: 3000VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery
- 应用领域: 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- 测试条件: 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.

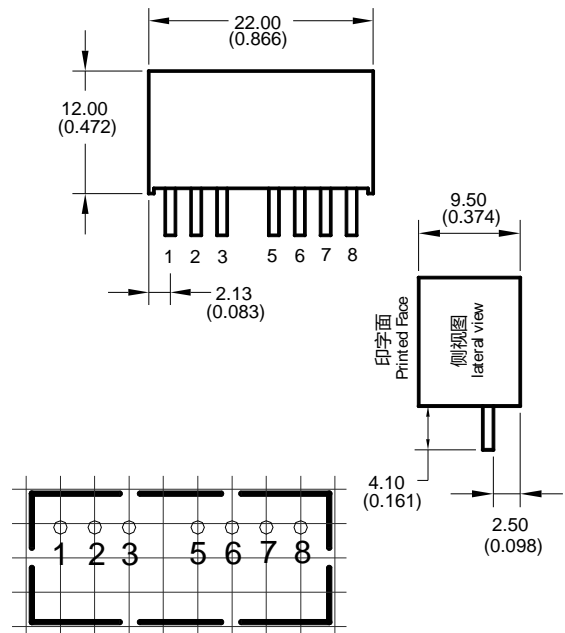


◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current			输出效率 Output efficiency
	范围值 Range	输出空载 Output no load	电压 Voltage	电流 (mA) Current (mA)		(%TYP)
	(VDC)	(mA)	(VDC)	MIN	MAX	
FK1-05S05E/E3	4.5-9	22	5	10	200	72
FK1-05S12E/E3		30	12	4	83	74
FK1-05S15E/E3		36	15	3	68	74
FK1-05S24E/E3		36	24	2	42	73
FK1-12S05E/E3	9-18	10	5	10	200	78
FK1-12S12E/E3		12	12	4	110	80
FK1-12S15E/E3		15	15	3	68	80
FK1-12S24E/E3		15	24	2	42	78
FK1-24S05E/E3	18-36	5	5	10	200	78
FK1-24S12E/E3		6	12	4	110	80
FK1-24S15E/E3		6	15	3	68	80
FK1-24S24E/E3		7	24	2	42	78
FK1-48S05E/E3	36-72	3	5	10	200	78
FK1-48S12E/E3		3	12	4	110	80
FK1-48S15E/E3		3	15	3	68	80
FK1-48S24E/E3		4	24	2	42	78
FK1-05D05E/E3	4.5-9	278	±5	±10	±100	72
FK1-05D12E/E3		270	±12	±4	±42	74
FK1-05D15E/E3		270	±15	±4	±34	74
FK1-05D24E/E3		270	±24	±2	±21	78
FK1-12D05E/E3	9-18	107	±5	±10	±100	80
FK1-12D12E/E3		107	±12	±4	±42	80
FK1-12D15E/E3		104	±15	±4	±34	78

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Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm

管脚号码 Pin-out	1	2	3	5	6	7	8
单路 Single	-Vin	+Vin	Ctrl	NC	+Vo	-Vo	CS
单路功能 Single function	输入负极	输入正极	控制脚	无功能	输出正极	输出负极	外接电容
双路 Dual	-Vin	+Vin	Ctrl	NC	+Vo	COM	-Vo
双路功能 Dual function	输入负极	输入正极	控制脚	无功能	输出正极	输出公共端	输出负极
封装代号 Packing Code Dimension	L*W*H						
E	22.00*9.50*12.00mm						
	0.866*0.374*0.472inch						

注意:电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。  
Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

◆ 产品特性/Product Features

- 宽电压输入, 隔离稳压输出 Wide input volated&unregulated output
- 空载输入电流低至4mA No load input current as low as 4mA
- 效率高达82% Transfer efficiency up to 82%
- 隔离电压 (Isolation voltage) : E: 1500VDC / E3: 3000VDC
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0,compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery
- 应用领域: 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- 测试条件: 如无特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C .

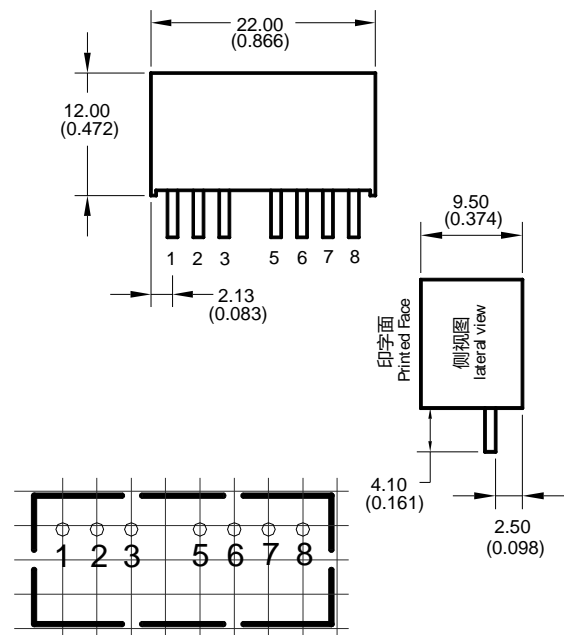


◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current			输出效率 Output efficiency (%TYP)
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 (mA) Current (mA) MIN MAX		
FK3-05S05E/E3	4.5-9	47	5	30	600	74
FK3-05S12E/E3		50	12	12.5	250	76
FK3-05S15E/E3		54	15	10	200	78
FK3-05S24E/E3		67	24	6	125	78
FK3-12S05E/E3	9-18	16	5	30	600	78
FK3-12S12E/E3		20	12	12.5	250	80
FK3-12S15E/E3		22	15	10	200	80
FK3-12S24E/E3		29	24	6	125	80
FK3-24S05E/E3	18-36	8	5	30	600	80
FK3-24S12E/E3		10	12	12.5	250	80
FK3-24S15E/E3		11	15	10	200	82
FK3-24S24E/E3		13	24	6	125	80
FK3-48S05E/E3	36-72	4.5	5	30	600	76
FK3-48S12E/E3		5	12	12.5	250	80
FK3-48S15E/E3		6	15	10	200	80
FK3-48S24E/E3		7	24	6	125	80
FK3-05D12E/E3	4.5-9	50	±12	±6	±125	76
FK3-05D15E/E3		54	±15	±5	±100	78
FK3-12D05E/E3	9-18	16	±5	±15	±300	78
FK3-12D12E/E3		20	±12	±6	±125	80
FK3-12D15E/E3		22	±15	±5	±100	80
FK3-24D05E/E3	18-36	8	±5	±5	±300	80
FK3-24D12E/E3		10	±12	±12	±125	80
FK3-24D15E/E3		11	±15	±15	±100	82

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Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm

管脚号码 Pin-out	1	2	3	5	6	7	8
单路 Single	-Vin	+Vin	Ctrl	NC	+Vo	-Vo	CS
单路功能	输入负极	输入正极	控制脚	无功能	输出正极	输出负极	外接电容
双路 Dual	-Vin	+Vin	Ctrl	NC	+Vo	COM	-Vo
双路功能	输入负极	输入正极	控制脚	无功能	输出正极	公共端	输出负极
封装代号 Packing Code/Dimension	L*W*H						
E	22.00*9.50*12.00mm						
	0.866*0.374*0.472inch						

### ◆ 产品特性/Product Features

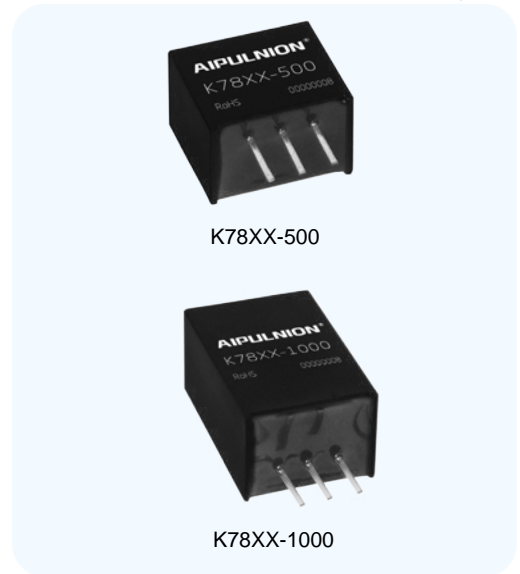
- 宽电压输入, 非隔离输出 Wide input volated&unregulated output
- 低纹波、噪声 Low ripple&noise
- 效率高达96% Transfer efficiency up to 96%
- 塑料外壳, 符合UL94V-0级 小型 SIP封装 Case:Plastic,meet UL94V-0, compact SIP packing
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 短路保护、过热保护 Protection:Short circuit,over temperature

- **应用领域:** 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域

Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.

- **测试条件:** 如无特殊指定, 所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得

Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



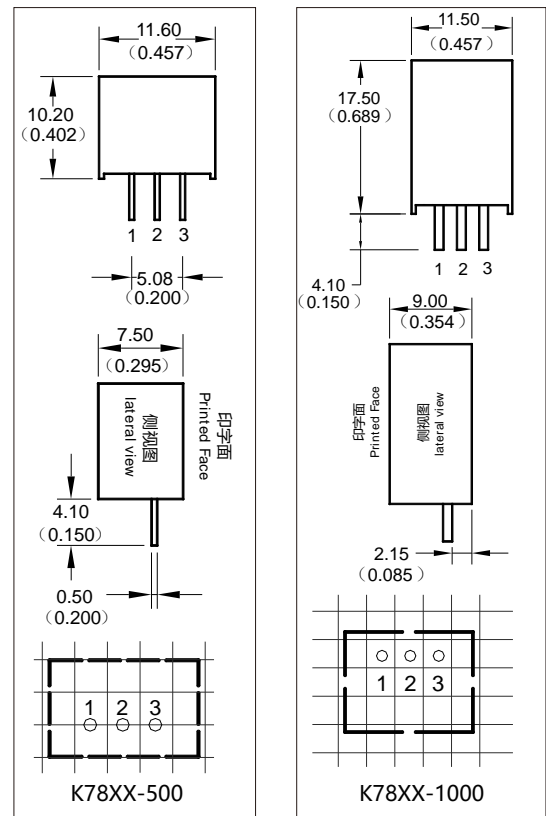
### ◆ 产品列表/Product List

产品型号 Part no.	静态电流 Static current (mA)	输入电压 Input voltage	输出电压/电流 Output voltage/current		输出效率 Output efficiency	
		范围值 Range (VDC)	电压 Voltage (VDC)	电流 Current (mA)	Vin(min)	Vin(max)
K783V3-500	5	4.74-28	3.3	500	90	80
K7805-500		6.5-32	5		93	84
K7812-500		15-32	12		95	92
K7815-500		18-32	15		96	93
K783V3-1000		4.75-28	3.3	1000	90	83
K7805-1000		6.5-32	5		93	84
K7812-1000		15-32	12		96	94
K7815-1000		18-32	15		97	94

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 Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3
单路 Single	+Vin	GND	+Vo
功能	输入正极	公共地	输出正极
封装代号 Packing Code/ Dimension	L*W*H		
K78XX-500	11.60*7.50*10.20mm		
	0.457*0.295*0.402inch		
K78XX-1000	11.50*9.00*17.50mm		
	0.453*0.354*0.689inch		

### 封装尺寸/Packing Demension



单位 (Unit) : mm

印刷版俯视图 (Printed board vertical view)

栅格间距 (Lattice spacing) : 2.54mm(0.1inch)

未标注尺寸公差 (General tolerance) : ±0.25mm

### ◆ 产品特性/Product Features

- 超宽电压输入 Ultra wide input voltage rang(4:1)
- 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS B
- 效率高达84% Transfer efficiency up to 84%
- 隔离电压 (Isolation voltage): 1500VDC
- 金属外壳、输出纹波低 Metal case,low output ripple
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能:输入欠压保护,输出过流、短路保护 Protection:Input under-voltage, output over-current,short-circuit
- 应用领域:仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- 测试条件:如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



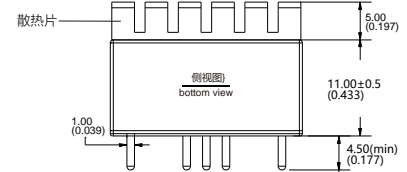
### ◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage		输入电流 Input current		输出电压电流 Output voltage/current		输出效率 Output efficiency (%TYP)
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)			
FD6-18S3V3A3	9-36	25	3.3	1200	76		
FD6-18S05A3			5	1200	76		
FD6-18S09A3			9	667	79		
FD6-18S12A3			12	500	80		
FD6-18S15A3			15	400	80		
FD6-18S24A3			24	250	82		
FD6-36S3V3A3	18-75	10	3.3	1200	78		
FD6-36S05A3			5	1200	82		
FD6-36S09A3			9	667	82		
FD6-36S12A3			12	500	84		
FD6-36S15A3			15	400	84		
FD6-36S24A3			24	250	84		
FD6-18D3V3A3	9-36	15	±3.3	600	78		
FD6-18D05A3			±5	600	84		
FD6-18D09A3			±9	333	86		
FD6-18D12A3			±12	250	86		
FD6-18D15A3			±15	200	86		
FD6-18D24A3			±24	125	86		
FD6-36D3V3A3	18-75	10	±3.3	600	78		
FD6-36D05A3			±5	600	84		
FD6-36D09A3			±9	333	86		
FD6-36D12A3			±12	250	86		
FD6-36D15A3			±15	200	86		
FD6-36D24A3			±24	125	86		

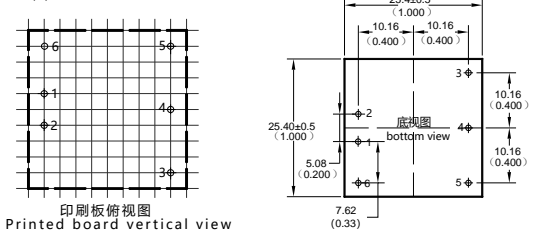
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 Note 2: The fluctuation range of full load efficiency(% TYP) is ±2%, full load output efficiency= total output power/module's input power.  
 注3: -H为带散热片, -T(H)为接线式(带散热片)封装, -TS(H)为导轨式(带散热片)封装, 导轨宽度35mm。  
 Note 3: Suffix with "-H" suffix is with heat sink, "-T(H)" suffix for chassis mounting(with heat sink),  
 "-TS(H)" suffix for DIN-Rail mounting(with heat sink), DIN-Rail width is: 35mm.

### 封装尺寸/Packing Dimension

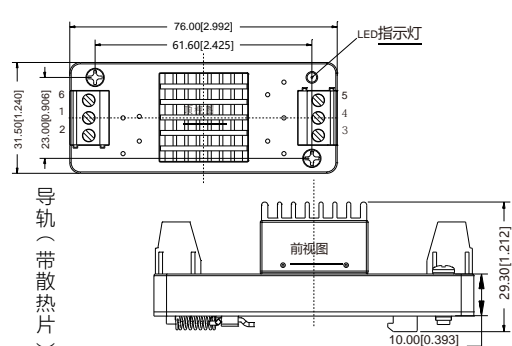
FD6-A3-H封装尺寸: 25.40\*25.40\*16.00mm



FD6-A3(C)封装尺寸: 25.40\*25.40\*11.00mm



FD6-A3-TS(H)封装尺寸: 76.00\*31.50\*30.80mm



单位 (Unit) :mm  
 栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm  
 未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

管脚号码 Pin-out	1	2	3	4	5	6
单路 Single	-Vin	+Vin	+Vo	NP	GND	CTRL
单路功能	输入负极	输入正极	输出正极	空脚	输出地	远程控制脚
双路 Dual	-Vin	+Vin	+Vo	COM	-Vo	CTRL
双路功能	输入负极	输入正极	输出正极	公共端	输出负极	远程控制脚

## ◆ 产品特性/Product Features

- 超宽电压输入(4:1) Ultra wide input voltage rang(4:1)
- 低待机功耗低至0.02W Low standby power consumption to 0.02W
- 效率高达88% Transfer efficiency up to 88%
- 隔离电压 (Isolation voltage): 1500VDC
- 金属外壳、输出纹波低 Metal case, low output ripple
- 工作环境温度 Operating Temp: -40 C ~ +85 C
- 保护功能: 有短路保护, 可自恢复 Protection: Short circuit, self-recovery
- **应用领域:** 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field: Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- **测试条件:** 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



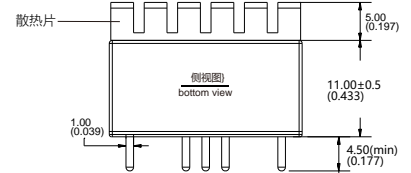
## ◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current		输出效率 Output efficiency (%TYP)		
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)			
FD12-18S3V3A3(C)	9-36	1	3.3	2400	78		
FD12-18S05A3(C)			5	2000	81		
FD12-18S09A3(C)			9	1333	84		
FD12-18S12A3(C)			12	1000	86		
FD12-18S15A3(C)			15	800	85		
FD12-18S24A3(C)			24	500	87		
FD12-36S3V3A3(C)			18-75	1	3.3	2400	78
FD12-36S05A3(C)					5	2000	81
FD12-36S09A3(C)					9	1333	84
FD12-36S12A3(C)					12	1000	86
FD12-36S15A3(C)	15	800			86		
FD12-36S24A3(C)	24	500			87		
FD12-18D3V3A3(C)	9-36	1			±3.3	±1200	80
FD12-18D05A3(C)					±5	±1200	83
FD12-18D09A3(C)					±9	±667	85
FD12-18D12A3(C)					±12	±500	88
FD12-18D15A3(C)			±15	±400	86		
FD12-18D24A3(C)			±24	±250	88		
FD12-36D3V3A3(C)			18-75	1	±3.3	±1200	80
FD12-36D05A3(C)					±5	±1200	83
FD12-36D09A3(C)					±9	±667	85
FD12-36D12A3(C)					±12	±500	87
FD12-36D15A3(C)	±15	±400			87		
FD12-36D24A3(C)	±24	±250			88		

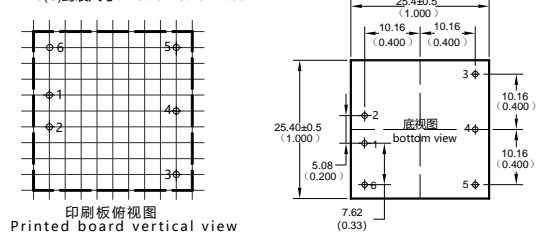
注1: 因篇幅有限以上只是部分产品列表, 若需列表以外产品, 请与本公司销售部联系。  
 Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.  
 注2: 表格中为满载效率 (% TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
 Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.  
 注3: 后缀带 "C" 为产品带Ctrl控制功能;-H为带散热片, -T(H)为接线式(带散热片)封装, -TS(H)为导轨式(带散热片)封装, 导轨宽度35mm。  
 Note 3: Suffix with "C" means it with CTRL control function; "-H" suffix is with heat sink, "-T(H)" suffix for chassis mounting(with heat sink), "-TS(H)" suffix for DIN-Rail mounting(with heat sink), DIN-Rail width is: 35mm.

## 封装尺寸/Packing Dimension

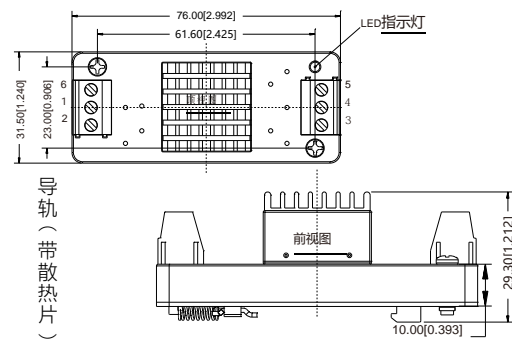
FD12-A3-H封装尺寸: 25.40\*25.40\*16.00mm



FD12-A3(C)封装尺寸: 25.40\*25.40\*11.00mm



FD12-A3-TS(H)封装尺寸: 76.00\*31.50\*30.80mm



单位 (Unit) :mm

栅格间距 (lattice spacing) : 2.54mm(0.1inch)

未注尺寸公差 (General tolerance) : ±0.5mm

未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

管脚号码 Pin-out	1	2	3	4	5	6
单路 Single	-Vin	+Vin	+Vo	NP	GND	CTRL
单路功能	输入负极	输入正极	输出正极	空脚	输出地	远程控制脚
双路 Dual	-Vin	+Vin	+Vo	COM	-Vo	CTRL
双路功能	输入负极	输入正极	输出正极	公共端	输出负极	远程控制脚

注意: 电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。  
 Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

### ◆ 产品特性/Product Features

- 超宽电压输入(4:1) Ultra wide input voltage rang(4:1)
- 低待机功耗低至0.01W Low standby power consumption to 0.01W
- 效率高达85% Transfer efficiency up to 85%
- 隔离电压 (Isolation voltage) : 1500VAC
- 金属外壳、输出纹波低 Metal case,low output ripple
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery
- 应用领域: 铁路、工业控制、仪器仪表、通信、电力、物联网等领域  
Application Field:Railway Industry Industrial control, instrumentation, communication, electric power, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



### ◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current		输出效率 Output efficiency	
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	(%TYP)	
FD12-110S3V3A3(C)3	40-160	1	3.3	2400	78	
FD12-110S05A3(C)3			5	2400	80	
FD12-110S12A3(C)3			12	1000	84	
FD12-110S15A3(C)3			15	800	84	
FD12-110S24A3(C)3			24	500	85	
FD20-110S3V3A3(C)3			5	3.3	5000	85
FD20-110S05A3(C)3			20	5	4000	88
FD20-110S12A3(C)3			20	12	1667	89
FD20-110S15A3(C)3			5	15	1333	89
FD20-110S24A3(C)3			5	24	833	89

注1: 因篇幅有限,以上只是部分产品列表,若需列表以外产品,请与本公司销售部联系。  
Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

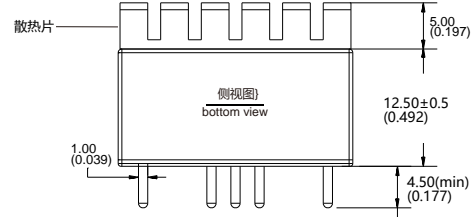
注2: 表格中为满载效率(%TYP),波动幅度为±2%,满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

注3: 后缀带“C”为产品带Ctrl控制功能,-H为带散热片,-T(H)为接线式(带散热片)封装,-TS(H)为导轨式(带散热片)封装,导轨宽度35mm。  
Note 3: Suffix with “C” means it with CTRL control function;“-H” suffix is with heat sink,“-T(H)” suffix for chassis mounting(with heat sink),“-TS(H)” suffix for DIN-Rail mounting(with heat sink), DIN-Rail width is: 35mm.

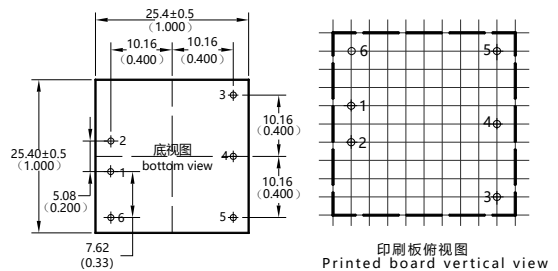
管脚号码 Pin-out	1	2	3	4	5	6
单路 Single	-Vin	+Vin	+Vo	NP	GND	CTRL
功能	输入负极	输入正极	输出正极	空脚	输出地	远程控制脚

### 封装尺寸/Packing Dimension

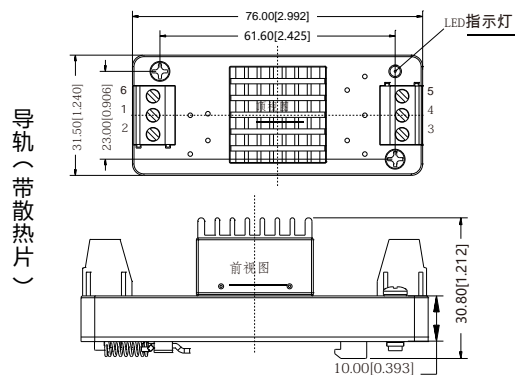
FDXX-110SXXA3-H封装尺寸: 25.40\*25.40\*18.00mm



FDXX-110SXXA3(C)封装尺寸: 25.40\*25.40\*12.50mm



FDXX-110SXXA3-TS(H)封装尺寸: 76.00\*31.50\*30.80mm



单位 (Unit) :mm  
 栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm  
 未注明针脚直径公差 (Pin section tolerances) : ±0.10mm

◆ 产品特性/Product Features

- 超宽电压输入(4:1) Urtual wide input voltage rang(4:1)
- 低待机功耗低至0.05W Low standby power consumption to 0.05W
- 效率高达90% Transfer efficiency up to 90%
- 隔离电压 (Isolation voltage) : 5000VDC
- 金属外壳、输出纹波低 Metal case,low output ripple
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 输入欠压保护, 输出过流、短路保护 Protection:Input under-voltage, output over-current,short-circuit
- 电磁兼容EMC: 裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

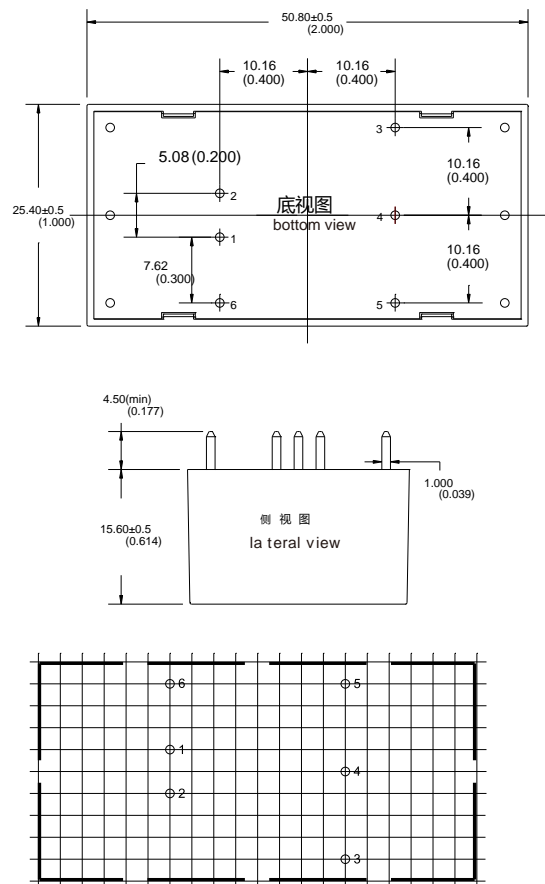
产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	(%TYP)
FD12-18S3V3B2C5	9-36	1	3.3	2400	87
FD12-18S05B2C5			5	2400	89
FD12-18S09B2C5			9	1333	90
FD12-18S12B2C5			12	1000	90
FD12-18S15B2C5			15	800	90
FD12-18S24B2C5			24	500	90
FD12-36S3V3B2C5	18-75	1	3.3	2400	86
FD12-36S05B2C5			5	2400	88
FD12-36S09B2C5			9	1333	90
FD12-36S12B2C5			12	1000	90
FD12-36S15B2C5			15	800	90
FD12-36S24B2C5			24	500	90

注1: 因篇幅有限,以上只是部分产品列表,若需列表以外产品,请与本公司销售部联系。  
Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4	5	6
单路 Single	-Vin	+Vin	+Vo	NP	GND	CTRL
功能	输入负极	输入正极	输出正极	空脚	输出地	远程控制脚
封装代号 Packing Code/Dimension	L*W*H					
A	50.80*25.40*15.60mm					
	2.000*1.000*0.614inch					

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (latic spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明引脚直径公差 (Pin section tolerances) : ±0.10mm



◆ 产品特性/Product Features

- 超宽电压输入(4:1) Ultra wide input voltage rang(4:1)
- 低待机功耗低至0.02W Low standby power consumption to 0.02W
- 效率高达90% Transfer efficiency up to 90%
- 隔离电压 (Isolation voltage) : 1500VDC
- 金属外壳、输出纹波低 Metal case,low output ripple
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery
- 应用领域: 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	(%TYP)
FD15-18S3V3A3(C)	9-36	30	3.3	4000	88
FD15-18S05A3(C)			5	3000	90
FD15-18S09A3(C)			9	1667	90
FD15-18S12A3(C)		5	12	1250	90
FD15-18S15A3(C)			15	1000	90
FD15-18S24A3(C)			24	625	90
FD15-36S3V3A3(C)	18-75	30	3.3	4000	88
FD15-36S05A3(C)			5	3000	90
FD15-36S09A3(C)			9	1667	90
FD15-36S12A3(C)		5	12	1250	90
FD15-36S15A3(C)			15	1000	90
FD15-36S24A3(C)			24	625	88
FD15-18D3V3A3(C)	9-36	30	±3.3	±2000	85
FD15-18D05A3(C)			±5	±1500	86
FD15-18D09A3(C)			±9	±833	87
FD15-18D12A3(C)		3	±12	±625	90
FD15-18D15A3(C)			±15	±500	90
FD15-18D24A3(C)			±24	±313	90
FD15-36D3V3A3(C)	18-75	30	±3.3	±2000	84
FD15-36D05A3(C)			±5	±1500	86
FD15-36D09A3(C)			±9	±833	87
FD15-36D12A3(C)		3	±12	±625	90
FD15-36D15A3(C)			±15	±500	90
FD15-36D24A3(C)			±24	±313	90

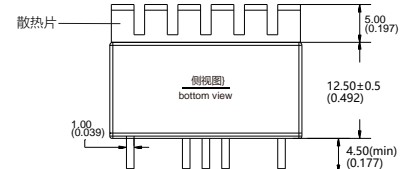
注1: 因篇幅有限,以上只是部分产品列表,若需列表以外产品,请与本公司销售部联系。  
Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率(%TYP),波动幅度为±2%,满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

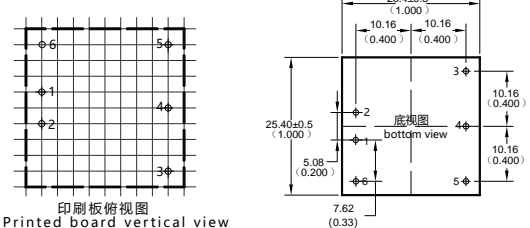
注3: 后缀带“C”为产品带Ctrl控制功能;R为带控制脚和调节脚,-H为带散热片,-T(H)为接线式(带散热片)封装,-TS(H)为导轨式(带散热)封装,导轨宽度35mm。  
Note 3: Suffix with "C" means it with CTRL control function; Suffix "R" is with Ctrl and Trim function "H" suffix is with heat sink, "-T(H)" suffix for chassis mounting(with heat sink), "-TS(H)" suffix for DIN-Rail mounting(with heat sink), DIN-Rail width is: 35mm.

封装尺寸/Packing Dimension

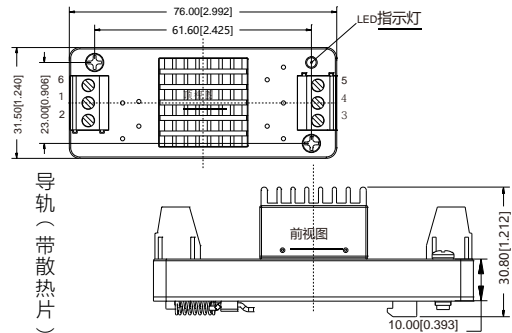
FD15-A3-H封装尺寸: 25.40\*25.40\*18.00mm



FD15-A3(C)封装尺寸: 25.40\*25.40\*12.50mm



FD15-A3-TS(H)封装尺寸: 76.00\*31.50\*30.80mm



单位 (Unit) :mm

栅格间距 (lattice spacing) : 2.54mm(0.1inch)

未注尺寸公差 (General tolerance) : ±0.5mm

未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

管脚号码 Pin-out	1	2	3	4	5	6
单路(A3C) Single	-Vin	+Vin	+Vo	NP	GND	CTRL
单路功能	输入负极	输入正极	输出正极	空脚	输出地	远程控制脚
单路(A3R) Single	-Vin	+Vin	+Vo	Trim	GND	CTRL
单路功能	输入负极	输入正极	输出正极	电压调节端	输出地	远程控制脚
双路 Dual	-Vin	+Vin	+Vo	COM	-Vo	CTRL
双路功能	输入负极	输入正极	输出正极	公共端	输出负极	远程控制脚

◆ 产品特性/Product Features

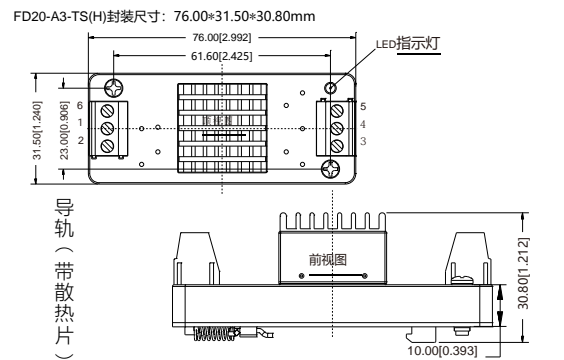
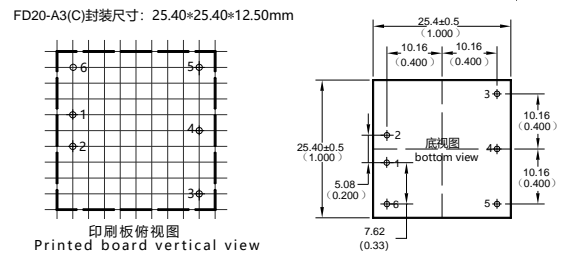
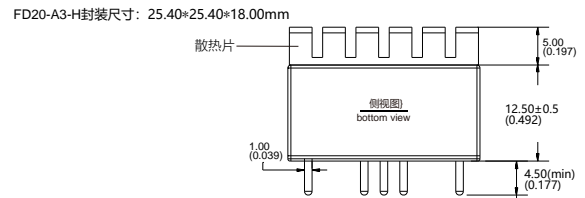
- 超宽电压输入(4:1) Ultra wide input voltage rang(4:1)
- 低待机功耗低至0.020W Low standby power consumption to 0.020W
- 效率高达90% Transfer efficiency up to 90%
- 隔离电压 (Isolation voltage) : 1500VDC
- 金属外壳、输出纹波低 Metal case,low output ripple
- 工作环境温度 Operating Temp:-40℃~+85℃
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery
- 应用领域: 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field:Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25℃室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25℃.



封装尺寸/Packing Dimension

◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	(%TYP)
FD20-18S3V3A3(C)	9-36	30	3.3	4000	88
FD20-18S05A3(C)			5	4000	90
FD20-18S09A3(C)			9	2222	90
FD20-18S12A3(C)		5	12	1667	90
FD20-18S15A3(C)			15	1333	90
FD20-18S24A3(C)			24	833	90
FD20-36S3V3A3(C)	18-75	30	3.3	4000	88
FD20-36S05A3(C)			5	4000	90
FD20-36S09A3(C)			9	2222	90
FD20-36S12A3(C)		5	12	1667	90
FD20-36S15A3(C)			15	1333	90
FD20-36S24A3(C)			24	833	90
FD20-18D3V3A3(C)	9-36	3	±3.3	±2000	85
FD20-18D05A3(C)			±5	±2000	86
FD20-18D09A3(C)			±9	±1111	87
FD20-18D12A3(C)			±12	±833	90
FD20-18D15A3(C)			±15	±667	90
FD20-18D24A3(C)			±24	±417	89
FD20-36D3V3A3(C)	18-75	3	±3.3	±2000	85
FD20-36D05A3(C)			±5	±2000	86
FD20-36D09A3(C)			±9	±1111	87
FD20-36D12A3(C)			±12	±833	90
FD20-36D15A3(C)			±15	±667	90
FD20-36D24A3(C)			±24	±417	89



单位 (Unit) :mm  
 栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm  
 未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

管脚号码 Pin-out	1	2	3	4	5	6
单路(A3C) Single	-Vin	+Vin	+Vo	NP	GND	CTRL
单路功能	输入负极	输入正极	输出正极	空脚	输出地	远程控制脚
单路(A3R) Single	-Vin	+Vin	+Vo	Trim	GND	CTRL
单路功能	输入负极	输入正极	输出正极	电压调节端	输出地	远程控制脚
双路 Dual	-Vin	+Vin	+Vo	COM	-Vo	CTRL
双路功能	输入负极	输入正极	输出正极	公共端	输出负极	远程控制脚

注1: 因篇幅有限,以上只是部分产品列表,若需列表以外产品,请与本公司销售部联系。  
 Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.  
 注2: 表格中为满载效率(%TYP),波动幅度为±2%,满载输出效率等于输出的总功率除以电源模块的输入功率。  
 Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.  
 注3: 后缀带“C”为产品带Ctrl控制功能;R为带控制脚和调节脚,-H为带散热片,-T(H)为接线式(带散热片)封装,-TS(H)为导轨式(带散热)封装,导轨宽度35mm。  
 Note 3: Suffix with “C” means it with CTRL control function; Suffix “R” is with Ctrl and Trim function “-H” suffix is with heat sink,“-T(H)” suffix for chassis mounting(with heat sink),“-TS(H)” suffix for DIN-Rail mounting(with heat sink), DIN-Rail width is: 35mm.

注意:电源模块的各管脚定义如与选型手册不符,应以实物标签上的标注为准。  
 Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.



### ◆ 产品特性/Product Features

- 宽电压输入(2:1) Wide input voltage rang(2:1)
- 低待机功耗低至0.06W Low standby power consumption to 0.06W
- 效率高达90% Transfer efficiency up to 90%
- 隔离电压 (Isolation voltage) : 1500VDC
- 金属外壳、输出纹波低 Metal case, low output ripple
- 工作环境温度 Operating Temp: -40 C ~ +85 C
- 保护功能: 有短路保护, 可自恢复 Protection: Short circuit, self-recovery
- **应用领域:** 仪器仪表、通信、纯数字电路、一般低频模拟电路、继电器驱动电路、数据交换电路等领域  
Application Field: Instrumentation, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.
- **测试条件:** 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



### ◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	(%TYP)
FD30-24S3V3A3(C)	18-36	40	3.3	6000	86
FD30-24S05A3(C)		40	5	6000	88
FD30-24S09A3(C)		30	9	3333	90
FD30-24S12A3(C)		3	12	2500	90
FD30-24S15A3(C)		3	15	2000	90
FD30-24S24A3(C)		3	24	1250	90
FD30-48S3V3A3(C)	36-75	40	3.3	6000	86
FD30-48S05A3(C)		40	5	6000	88
FD30-48S09A3(C)		30	9	3333	90
FD30-48S12A3(C)		3	12	2500	90
FD30-48S15A3(C)		3	15	2000	90
FD30-48S24A3(C)		3	24	1250	90

注1: 因篇幅有限, 以上只是部分产品列表, 若需列表以外产品, 请与本公司销售部联系。

Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率 (% TYP), 波动幅度为 ±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。

Note 2: The fluctuation range of full load efficiency (% TYP) is ±2%, full load output efficiency = total output power/module's input power.

注3: 后缀带 "C" 为产品带 Ctrl 控制功能; R 为带控制脚和调节脚, -H 为带散热片, -T(H) 为接线式(带散热片)封装, -TS(H) 为导轨式(带散热片)封装, 导轨宽度 35mm。

Note 3: Suffix with "C" means it with CTRL control function; Suffix "R" is with Ctrl and Trim function

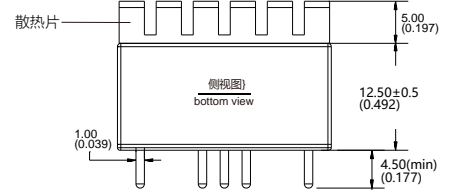
"-H" suffix is with heat sink, "-T(H)" suffix for chassis mounting(with heat sink).

"-TS(H)" suffix for DIN-Rail mounting(with heat sink), DIN-Rail width is: 35mm.

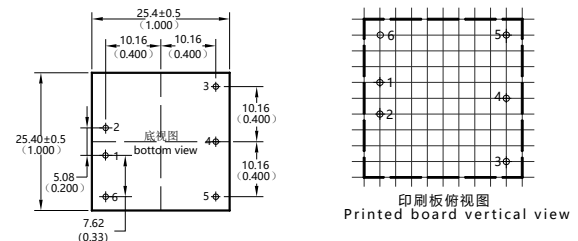
管脚号码 Pin-out	1	2	3	4	5	6
单路 Single	-Vin	+Vin	+Vo	Trim	GND	CTRL
功能	输入负极	输入正极	输出正极	电压调节端	输出地	远程控制脚

### 封装尺寸/Packing Dimension

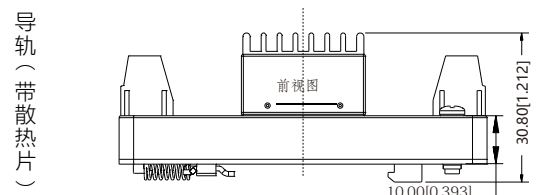
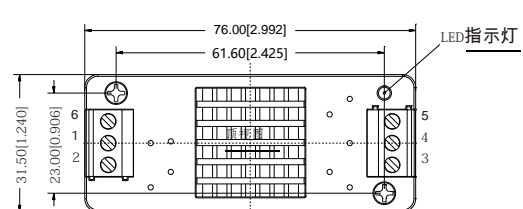
FD30-XXSXXA3-H封装尺寸: 25.40\*25.40\*18.00mm



FD30-XXSXXA3(C)封装尺寸: 25.40\*25.40\*12.50mm



FD30-XXSXXA3-TS(H)封装尺寸: 76.00\*31.50\*30.80mm



单位 (Unit) : mm

栅格间距 (lattice spacing) : 2.54mm(0.1inch)

未注尺寸公差 (General tolerance) : ±0.5mm

未注明引脚直径公差 (Pin section tolerances) : ±0.10mm



### ◆ 产品特性/Product Features

- 超宽电压输入 Urtual wide input voltage rang30W:(4:1) 50W:(2:1)
- 低待机功耗低至0.20W Low standby power consumption to 0.20W
- 效率高达90% Transfer efficiency up to 90%
- 隔离电压 (Isolation voltage) : 1500VDC
- 金属外壳、输出纹波低 Metal case,low output ripple
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 输入欠压保护, 输出过流、短路保护 Protection:Input under-voltage,output over-current,short-circuit
- 电磁兼容EMC: 裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



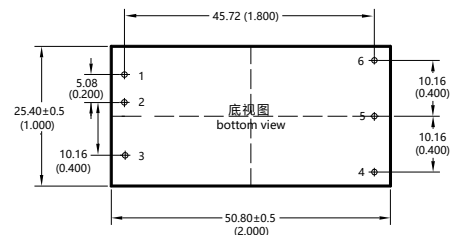
### ◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	(%TYP)
FD30-18S3V3B3(C)	9-36	30	3.3	6000	87
FD30-18S05B3(C)			5	6000	90
FD30-18S09B3(C)			9	3333	89
FD30-18S12B3(C)			12	2500	90
FD30-18S15B3(C)			15	2000	90
FD30-18S24B3(C)			24	1250	90
FD30-36S3V3B3(C)	18-75	30	3.3	6000	87
FD30-36S05B3(C)			5	6000	90
FD30-36S09B3(C)			9	3333	89
FD30-36S12B3(C)			12	2500	90
FD30-36S15B3(C)			15	2000	90
FD30-36S24B3(C)			24	1250	90
FD50-24S3V3B3(C)	18-36	50	3.3	10000	87
FD50-24S05B3(C)			5	10000	90
FD50-24S12B3(C)			12	4160	90
FD50-24S15B3(C)			15	3330	90
FD50-24S24B3(C)			24	2080	90
FD50-48S3V3B3(C)			36-75	50	3.3
FD50-48S05B3(C)	5	10000			90
FD50-48S12B3(C)	12	4160			90
FD50-48S15B3(C)	15	3330			90
FD50-48S24B3(C)	24	2080			90

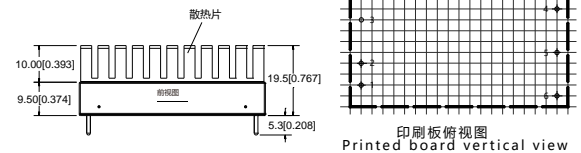
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 Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.  
 注2: 表格中为满载效率 (% TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
 Note 2: The fluctuation range of full load efficiency(% TYP) is ±2%, full load output efficiency= total output power/module's input power.  
 注3: 后缀带 "C" 为产品带Ctrl控制功能;-H为带散热片, -T(H)为接线式(带散热片)封装, -TS(H)为导轨式(带散热片)封装, 导轨宽度35mm。  
 Note 3: Suffix with "C" means it with CTRL control function; "-H" suffix is with heat sink, "-T(H)" suffix for chassis mounting(with heat sink), "-TS(H)" suffix for DIN-Rail mounting(with heat sink), DIN-Rail width is: 35mm.

### 封装尺寸/Packing Dimension

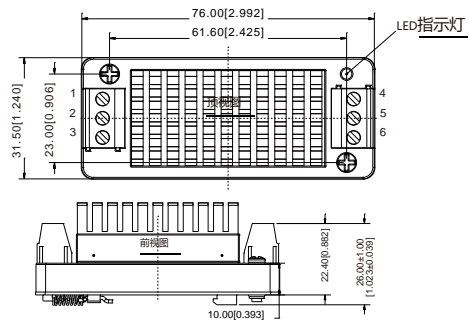
FDXX-XXSXXB3(C)封装尺寸: 50.80\*25.40\*9.50mm



FDXX-XXSXXB3-H封装尺寸: 50.80\*25.40\*19.50mm



FDXX-XXSXXB3-TS(H)封装尺寸: 76.00\*31.50\*33.20mm



导轨(带散热片)

单位 (Unit) :mm

栅格间距 (lattice spacing) : 2.54mm(0.1inch)

未注尺寸公差 (General tolerance) : ±0.5mm

未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

管脚号码 Pin-out	1	2	3	4	5	6
单路 Single	+Vin	-Vin	CTRL	Trim	-Vo	+Vo
功能	输入正极	输入负极	远程控制脚	电压调节端	输出负极	输出正极

注意: 电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。

Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

◆ 产品特性/Product Features

- 超宽电压输入(6:1) Ultra wide input voltage rang(6:1)
- 低待机功耗低至0.60W Low standby power consumption to 0.60W
- 效率高达85% Transfer efficiency up to 85%
- 隔离电压 (Isolation voltage) : 4000VDC
- 金属外壳、输出纹波低 Metal case, low output ripple
- 符合UL94V-0级 6-side shielding plastic, UL94V-0 class
- 工作环境温度 Operating Temp: -30 C ~ +70 C
- 保护功能: 有短路保护, 可自恢复 Protection: Short circuit, self-recovery
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field: Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	(%TYP)
BK15-600S05H1N4	200-1200	0.47	5	3000	75
BK15-600S12H1N4		0.50	12	1250	77
BK15-600S15H1N4		0.53	15	1000	78
BK15-600S24H1N4		0.56	24	625	80
BK20-600D05H1N4		1.0	±5	±2000	79
BK20-600D12H1N4		1.5	±12	±833	82
BK20-600D15H1N4		2.5	±15	±667	83
BK20-600D24H1N4		2.5	±24	±417	84
BK20-600S05H1N4		0.47	5	4000	80
BK20-600S12H1N4		0.50	12	1667	82
BK20-600S15H1N4		0.53	15	1334	84
BK20-600S24H1N4		0.56	24	834	85
BK25-600D05H1N4		1.0	±5	±2500	80
BK25-600D12H1N4		1.5	±12	±1042	83
BK25-600D15H1N4		2.5	±15	±833	84
BK25-600D24H1N4		2.5	±24	±521	85
BK25-600S05H1N4		0.47	5	5000	80
BK25-600S12H1N4		0.50	12	2084	82
BK25-600S15H1N4		0.53	15	1667	83
BK25-600S24H1N4		0.56	24	1042	84

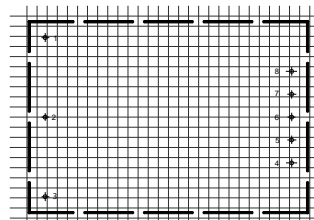
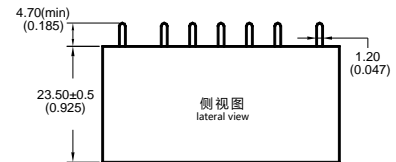
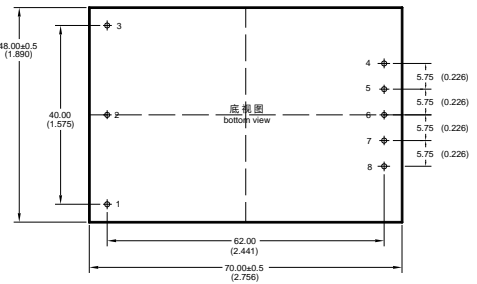
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Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。

Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) : mm

印刷板俯视图 (Printed board vertical view)

栅格间距 (lattice spacing) : 2.54mm(0.1inch)

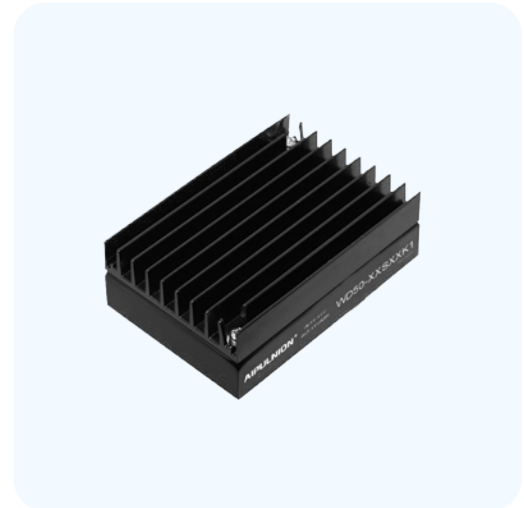
未注尺寸公差 (General tolerance) : ±0.5mm

未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

管脚号码 Pin-out 单路 Single	1	2	3	4	5	6	7	8
单路功能	无此脚	输入负极	输入正极	输出正极	无此脚	无此脚	无此脚	输出负极
双路功能	NP	-Vin	+Vin	+Vo	NP	COM	NP	-Vo
双路功能	无此脚	输入负极	输入正极	输出正极	无此脚	公共端	无此脚	输出负极
封装代号 Packing Code Dimension	L*W*H							
H	70.00*48.00*23.50mm							
	2.756*1.890*0.925inch							

◆ 产品特性/Product Features

- 宽电压输入(2:1) Wide input voltage rang(2:1)
- 低待机功耗低至0.60W Low standby power consumption to 0.60W
- 效率高达87% Transfer efficiency up to 87%
- 隔离电压 (Isolation voltage) : 1500VDC
- 金属外壳、输出纹波低 Metal case,low output ripple
- 工作环境温度 Operating Temp:-25 C ~+85 C
- 保护功能: 输入欠压保护, 输出过流、短路保护 Protection:Input under-voltage, output over-current,short-circuit
- 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	(%TYP)
WD50-12S05K1	9-18	50	5	10000	80
WD50-12S12K1		70	12	4166	85
WD50-12S24K1		75	24	2083	85
WD50-24S05K1	18-36	39	5	10000	82
WD50-24S12K1		40	12	4166	85
WD50-24S24K1		42	24	2083	86
WD50-48S05K1	36-72	18	5	10000	84
WD50-48S12K1		20	12	4166	85
WD50-48S24K1		21	24	2083	87
WD50-110S05K1	72-144	9	5	10000	84
WD50-110S12K1		10	12	4166	85
WD50-110S24K1		11	24	2083	87

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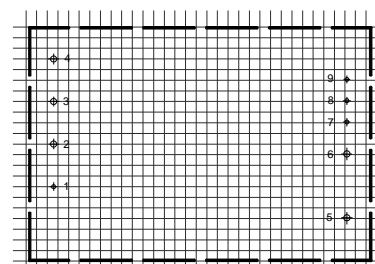
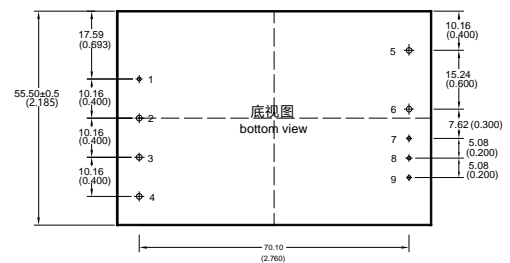
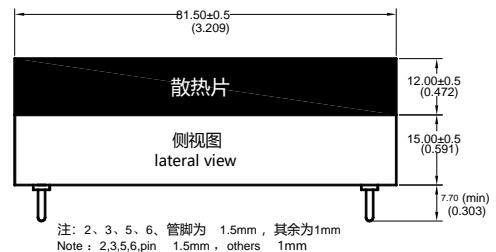
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注2: 表格中为满载效率 (% TYP), 波动幅度为 ±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。

Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4	5	6
单路 Single	CASE	+Vin	-Vin	REM	+Vo	-Vo
功能	电源外壳	输入正极	输入负极	控制脚	输出正极	输出负极
管脚号码 Pin-out	7	8	9	封装代号 Packing Code/Dimension		L*W*H
单路 Single	+S	TRIM	-S	K		81.50*55.50*15.00mm
功能	正反馈端	电压调节脚	负反馈端			3.209*2.185*0.591inch

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (latic spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

注意:电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。

Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

◆ 产品特性/Product Features

- 宽电压输入(2:1) Wide input voltage rang(2:1)
- 低待机功耗低至2.00W Low standby power consumption to 2.00W
- 效率高达88% Transfer efficiency up to 88%
- 隔离电压 (Isolation voltage) : 1500VDC
- 金属外壳、输出纹波低 Metal case,low output ripple
- 工作环境温度 Operating Temp:-25 C ~+55 C
- 保护功能: 输入欠压保护, 输出过流、短路保护 Protection:Input under-voltage, output over-current,short-circuit
- 电磁兼容EMC: 裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压/电流 Output voltage/current		输出效率 Output efficiency (%TYP)
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	
WD75-12S05M1	9-18	106	5	15000	79
WD75-12S12M1		100	12	6250	86
WD75-12S24M1		90	24	3125	86
WD75-24S05M1	18-36	82	5	15000	83
WD75-24S12M1		80	12	6250	86
WD75-24S24M1		80	24	3125	87
WD75-48S05M1	36-72	75	5	15000	83
WD75-48S12M1		75	12	6250	85
WD75-48S24M1		70	24	3125	87
WD75-110S05M1	72-144	80	5	15000	87
WD75-110S12M1		79	12	6250	88
WD75-110S24M1		80	24	3125	88

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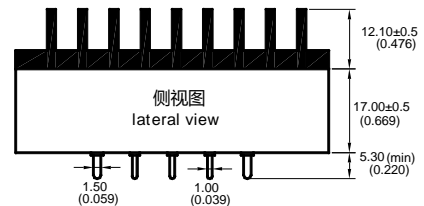
Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率 (% TYP), 波动幅度为 ±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。

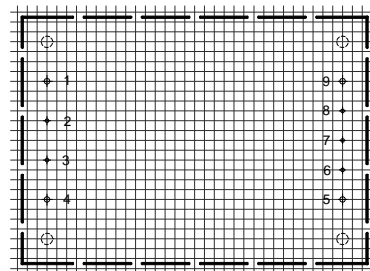
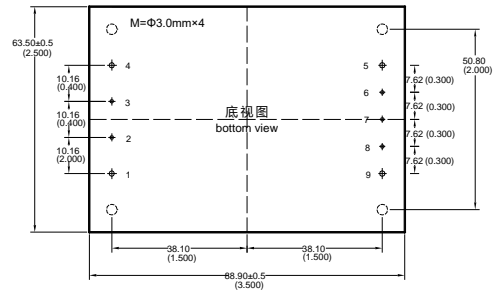
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4	5	6
单路 Single	-Vin	REM	CASE	+Vin	+Vo	+S
功能	输入负极	控制脚	电源外壳	输入正极	输出正极	正反反馈端
管脚号码 Pin-out	7	8	9	封装代号 Packing Code/Dimension	L*W*H	
单路 Single	TRIM	-S	-Vin	M	88.90*63.50*17.00mm	
功能	电压调节端	负反馈端	输出负极		3.500*2.500*0.669inch	

封装尺寸/Packing Dimension



注: 1、4、5、9、管脚为1.5mm, 其余为1mm  
Note: 1,4,5,9,pin Φ1.5mm, others Φ1mm



单位 (Unit) :mm

印刷板俯视图 (Printed board vertical view)

栅格间距 (lattice spacing) : 2.54mm(0.1inch)

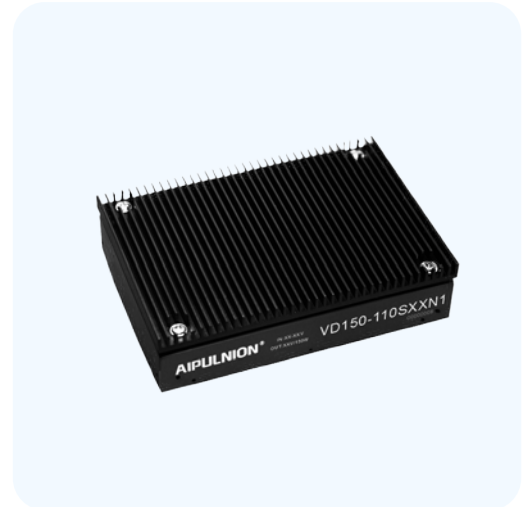
未注尺寸公差 (General tolerance) : ±0.5mm

未注明引脚直径公差 (Pin section tolerances) : ±0.10mm



### ◆ 产品特性/Product Features

- 宽电压输入(2:1) Wide input voltage rang(2:1)
- 低待机功耗低至0.80W Low standby power consumption to 0.80W
- 效率高达90% Transfer efficiency up to 90%
- 隔离电压 (Isolation voltage) : 1500VDC
- 金属外壳、输出纹波低 Metal case,low output ripple
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 输入欠压保护, 输出过流、短路保护 Protection:Input under-voltage, output over-current,short-circuit
- 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
- **应用领域:** 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- **测试条件:** 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.

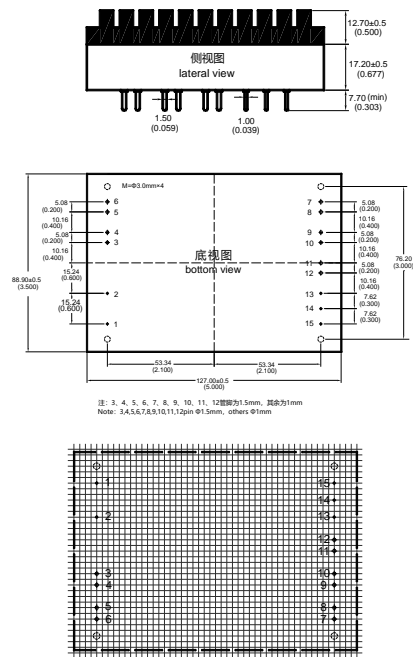


### ◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	(%TYP)
WD100-12S05N1	9-18	30	5	20000	82
WD100-12S12N1		35	12	8333	87
WD100-12S24N1		39	24	4166	88
WD100-24S05N1	18-36	39	5	20000	85
WD100-24S12N1		40	12	8333	88
WD100-24S24N1		44	24	4166	88
WD100-48S05N1	36-72	40	5	20000	82
WD100-48S12N1		45	12	8333	87
WD100-48S24N1		50	24	4166	88
WD100-110S05N1	72-144	45	5	20000	85
WD100-110S12N1		46	12	8333	88
WD100-110S24N1		50	24	4166	88
WD150-12S12N1	9-18	14368	21	12500	87
WD150-12S24N1		14205	24	6250	88
WD150-24S12N1	18-36	7102	12	12500	88
WD150-24S24N1		7102	24	6250	88
WD150-48S12N1	36-72	3592	12	12500	87
WD150-48S24N1		3551	24	6250	88
WD150-110S12N1	72-144	1550	12	12500	88
WD150-110S24N1		1550	24	6250	88
VD150-48S24N1	33.6-75	50	24	6250	87
VD150-110S05N1	72-144	50	5	30000	86
VD150-110S12N1		50	12	12500	88
VD150-110S24N1		45	24	6250	90

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Note 2: The fluctuation range of full load efficiency(% TYP) is ±2%, full load output efficiency= total output power/module's input power.

### 封装尺寸/Packing Dimension



单位 (Unit) : mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (latic spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

管脚号码 Pin-out	1	2	3:4	5:6	7:8	9:10
单路 Single	REM	CASE	-Vin	+Vin	+Vo	-Vo
功能	控制脚	电源外壳	输入负极	输入正极	输出正极	输出负极
管脚号码 Pin-out	11:12	13	14	15	L*W*H	
单路 Single	NP	+S	TRIM	-S		
功能	空脚	正反馈端	电压调节端	负反馈端	127.00*88.90*17.20mm	
封装代号 Packing Code/Dimension	N				5.000*3.500*0.667inch	

注意:电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。  
Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.





◆ 产品特性/Product Features

- 宽电压输入(2:1) Wide input voltage rang(2:1)
- 高功率密度 High power density
- 低待机功耗低至0.80W Low standby power consumption to 0.80W
- 效率高达88% Transfer efficiency up to 88%
- 隔离电压 (Isolation voltage) : 1500VDC
- 铝基板、输出纹波低 Aluminum baseplate, low output ripple
- 工作环境温度 Operating Temp:-40 C ~+85 C
- 保护功能: 输入欠压保护, 输出过流、短路保护 Protection: Input under-voltage, output over-current, short-circuit
- 电磁兼容EMC: 裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field: Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定, 所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

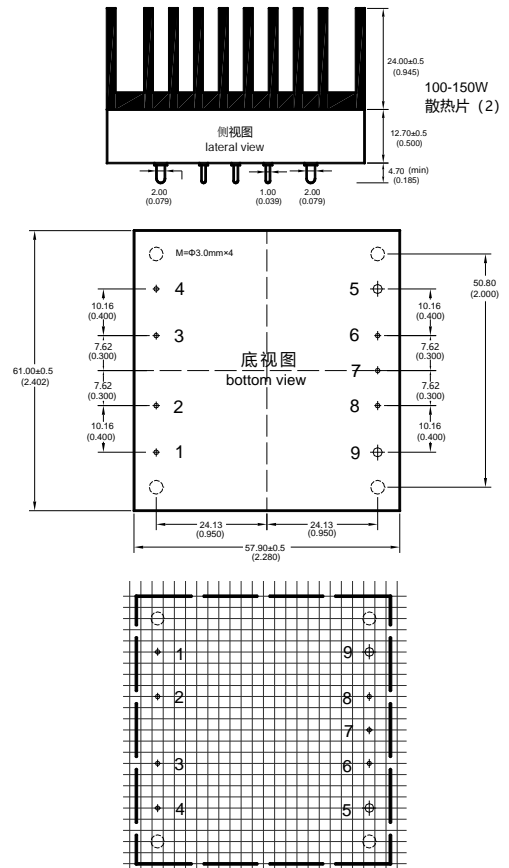
产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 Voltage (VDC)	电流 Current (mA)	(%TYP)
WD100-24S12Q1	18-36	4735	12	8333	88
WD100-24S24Q1		4735	24	4166	88
WD100-48S12Q1	36-72	2367	12	8333	88
WD100-48S24Q1		2367	24	4166	88
WD100-110S12Q1	74-144	1033	12	8333	88
WD100-110S24Q1		1033	24	4166	88
WD150-24S12Q1	18-36	7102	12	12500	88
WD150-24S24Q1		7102	24	6250	88
WD150-48S12Q1	36-72	12500	12	12500	88
WD150-48S24Q1		6250	24	6250	88
WD150-110S12Q1	74-144	12500	12	12500	88
WD150-110S24Q1		6250	24	6250	88

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Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4	5	6
单路 Single	+Vin	REM	CASE	-Vin	-Vo	-S
功能	输入正极	控制脚	电源外壳	输入负极	输出负极	负反馈端
管脚号码 Pin-out	7	8	9	封装代号 Packing Code/ Dimension		L*W*H
单路 Single	TRIM	+S	+Vo	Q	61.00*57.90*12.70mm	
功能	电压调节端	正反馈端	输出正极		2.402*2.280*0.500inch	

封装尺寸/Packing Dimension



◆ 产品特性/Product Features

- 超宽电压输入(2:1) Ultra wide input voltage rang(2:1)
- 低待机功耗低至0.80W Low standby power consumption to 0.80W
- 效率高达89% Transfer efficiency up to 89%
- 隔离电压 (Isolation voltage) : 1500VDC
- 金属外壳、输出纹波低 Metal case,low output ripple
- 工作环境温度 Operating Temp:-25 C~+85 C
- 保护功能: 有短路保护,可自恢复 Protection:Short circuit,self-recovery
- 电磁兼容EMC: 裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输入电流 Input current	输出电压电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VDC)	输出空载 Output no load (mA)	电压 (VDC)	电流 (mA)	(%TYP)
WD200-12S12P1	9-18	88	12	16666	88
WD200-24S12P1	18-36	88	12	16666	88
WD200-24S24P1		88	24	8333	88
WD200-48S12P1	36-72	87	12	16666	87
WD200-48S24P1		88	24	8333	88
WD200-110S12P1	72-144	90	12	16666	88
WD200-110S24P1		89	24	8333	88
WD300-24S12P1	18-36	87	12	25000	88
WD300-24S24P1		89	24	12500	89
WD300-48S12P1	36-72	88	12	25000	88
WD300-48S24P1		90	24	12500	89
WD300-110S12P1	72-144	90	12	25000	88
WD300-110S24P1		88	24	12500	89
WD400-24S12P1	18-36	88	12	33333	88
WD400-24S24P1		89	24	16666	89
WD400-48S12P1	36-72	91	12	33333	88
WD400-48S24P1		90	24	16666	89
WD400-110S12P1	72-144	89	12	33333	88
WD400-110S24P1		89	24	16666	89

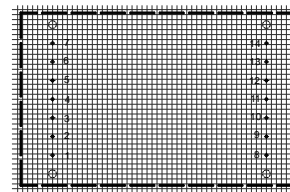
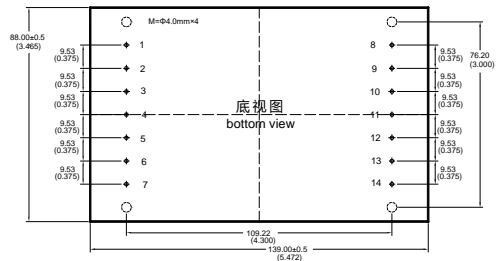
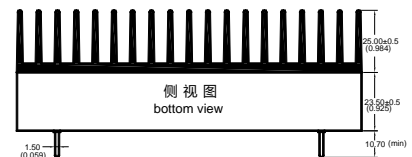
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注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。

Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

封装尺寸/Packing Dimension



单位 (Unit) :mm

印刷板俯视图 (Printed board vertical view)

栅格间距 (latic spacing) : 2.54mm(0.1inch)

未注尺寸公差 (General tolerance) : ±0.5mm

未注明针脚直径公差 (Pin section tolerances) : ±0.10mm

管脚号码 Pin-out	1	2:3	4:5	6	7	8:9
单路 Single	NP	-Vin	+Vin	REM	CASE	-Vo
功能	空脚	输入负极	输入正极	控制脚	电源外壳	输出负极
管脚号码 Pin-out	10:11	12	13	14	L*W*H	
单路 Single	+Vo	-S	TRIM	+S	139.00*88.00*23.50mm	
功能	输出正极	负反馈端	电压调节端	正反馈端	139.00*88.00*23.50mm	
封装代号 Packing Code Dimension	P				5.472*3.465*0.925inch	

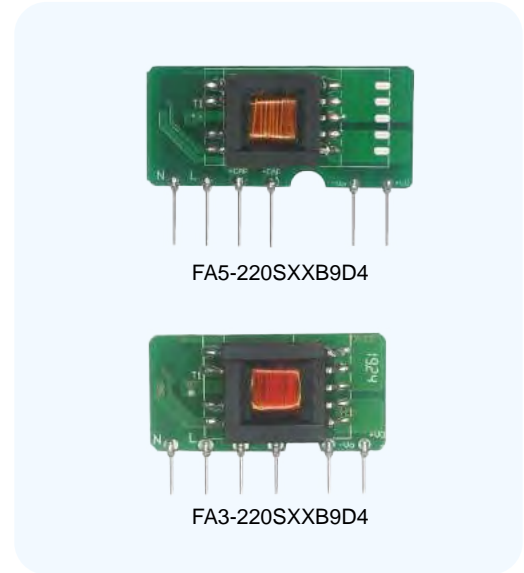
注意:电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。

Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.



◆ 产品特性/Product Features

- 国际通用全电压范围输入 Universal wide input voltage range:85-265VAC/90-380VDC
- 超低待机功耗≤0.10W Ultra low stand-by power consumption ≤ 0.10W
- 效率高达82% Transfer efficiency up to 82%
- 隔离电压 (Isolation voltage) : 4000VAC
- 超小体积裸板、高功率密度、工业级设计 Ultra small size bare board,high power density, industrial class design
- 工作环境温度 Operating Temp:-40 C ~+75 C
- 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
- 电磁兼容EMC: 裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
- 交直流两用 AC-DC dual use
- 通过LPS (限功率电源) 测试 Pass LPS test
- PCB板上直插式安装 PCB Mounting
- 符合CE认证标准 Meet CE standard
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home,internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

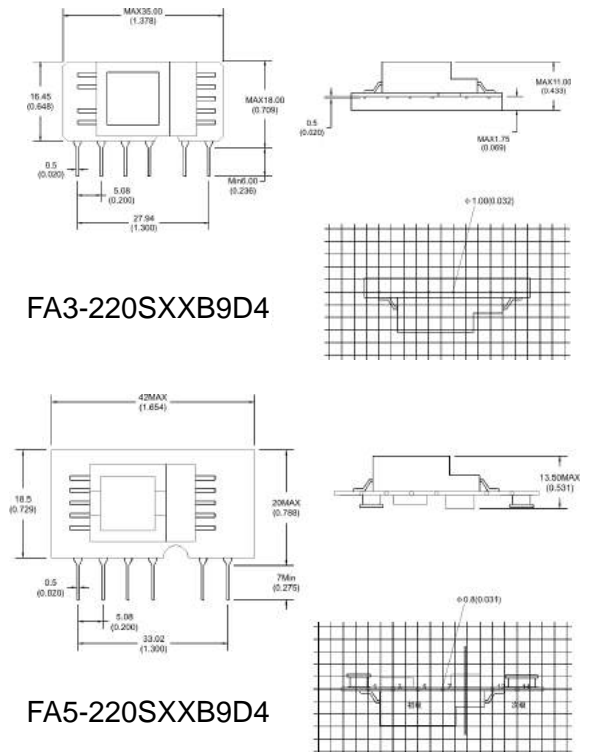
产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	(%TYP)
FA3-220S3V3B9D4	85-265	3.3	600	69
FA3-220S05B9D4		5	600	72
FA3-220S12B9D4		12	250	73
FA3-220S24B9D4		24	125	76
FA5-220S05B9D4		5	1000	73
FA5-220S09B9D4		9	556	75
FA5-220S12B9D4		12	416	79
FA5-220S24B9D4		24	208	82

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Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码(3W) Pin-out	1	3	5	7	10	12
单路 Single	AC(L)	AC(N)	+V(cap)	-V(cap)	-Vo	+Vo
功能	输入火线	输入零线	输出电容正极	输出电容负极	输出负极	输出正极
管脚号码(5W) Pin-out	1	3	5	7	12	14
单路 Single	AC(L)	AC(N)	+V(cap)	-V(cap)	-Vo	+Vo
功能	输入火线	输入零线	输出电容正极	输出电容负极	输出负极	输出正极
封装代号 Packing Code/ Dimension	L*W*H					
FA3-B9D4	35.00*18.00*11.00mm 1.378*0.709*0.433inch					
FA5-B9D4	42.00*20.00*13.00mm 1.654*0.788*0.531inch					

- 1.5/7脚间必须外接电容C1
- 2.输出必须外接P1型滤波电路,如产品规格书典型应用图1;
- 3.初级与次级的外围元器件要保持大于或等于6.4mm的安全距离

封装尺寸/Packing Dimension



FA3-220SXXB9D4

FA5-220SXXB9D4

单位 (Unit) :mm  
印刷板俯视图(Printed board vertical view)  
栅格间距(latic spacing):2.54mm(0.1inch)  
未注尺寸公差±0.5mm  
未注明引脚直径公差±0.10mm

◆ 产品特性/Product Features

- 国际通用全电压范围输入 Universal wide input voltage range:85-265VAC/120-380VDC
- 超低待机功耗≤0.30W Ultra low stand-by power consumption ≤ 0.30W
- 效率高达75% Transfer efficiency up to 75%
- 隔离电压 (Isolation voltage) : 3000VAC
- 外壳: 全封闭塑料外壳, 符合UL94V-0级 Case:6-side shielding plastic,UL94V-0 class
- 工作环境温度 Operating Temp:-40 C ~+75 C
- 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
- 电磁兼容EMC: 裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS B
- 交直流两用 AC-DC dual use
- CLASS II电源并通过LPS (限功率电源) 测试 CLASS II and pass LPS test
- PCB板上直插式安装 PCB Mounting
- **应用领域:** 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- **测试条件:** 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current		输出效率 Output efficiency (%TYP)
	范围值 Range (VAC)	电压 Voltage (VDC)	电流 Current (mA)	
FA3-220S3V3A2A	85-265	3.3	600	66
FA3-220S05A2A		5	600	72
FA3-220S09A2A		9	333	75
FA3-220S12A2A		12	250	73
FA3-220S15A2A		15	200	74
FA3-220S24A2A		24	125	70

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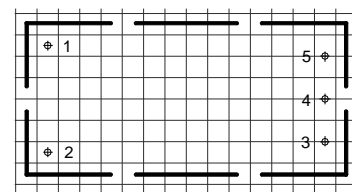
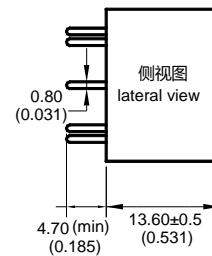
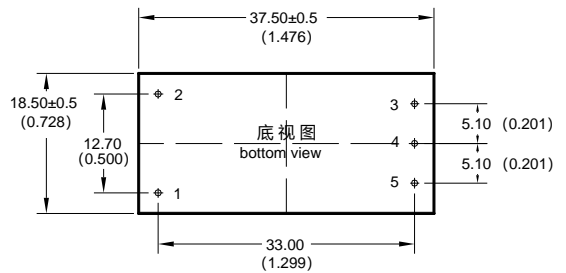
Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率 (% TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。

Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4	5
单路 Single	AC(N)	AC(L)	+Vo	NP	-Vo
功能	输入零线	输入火线	输出正极	空脚	输出负极
封装代号 Packing Code/Dimension	L*W*H				
A	37.50*18.50*13.60mm				
	1.457*0.709*0.535inch				

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

◆ 产品特性/Product Features

- 国际通用全电压范围输入 Universal wide input voltage range:85-265VAC/120-380VDC
- 超低待机功耗≤0.10W Ultra low stand-by power consumption ≤ 0.10W
- 效率高达82% Transfer efficiency up to 82%
- 隔离电压 (Isolation voltage) : 4000VAC
- 外壳: 全封闭塑料外壳, 符合UL94V-0级 Case:6-side shielding plastic,UL94V-0 class
- 工作环境温度 Operating Temp:-40 C~+75 C
- 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
- 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS B
- 交直流两用 AC-DC dual use
- CLASS II电源并通过LPS (限功率电源) 测试 CLASS II and pass LPS test
- PCB板上直插式安装 PCB Mounting
- 符合CE认证标准 Meet CE standard
- **应用领域:** 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- **测试条件:** 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C .



◆ 产品列表/Product List

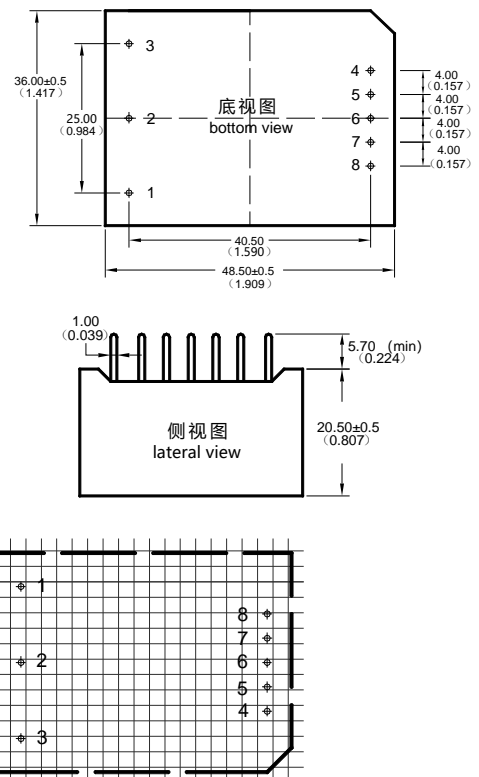
产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current				输出效率 Output efficiency (%TYP)
	范围值 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	电压 2 Voltage (VDC)	电流 2 Current (mA)	
FA5-220S05C2	85-265	5	1000	/	/	75
FA5-220S5V1C2		5.1	1000	/	/	75
FA5-220S12C2		12	416	/	/	80
FA5-220S24C2		24	208	/	/	82
FA5-220E0505C2		5	500	5	500	73
FA5-220E0512C2		5	500	12	208	75
FA5-220E0524C2		5	500	24	104	78
FA5-220E0515C2A		5	700	15	100	75

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注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4	5	6	7	8
单路 Single	FG	AC(N)	AC(L)	+Vo	NP	NP	NP	-Vo
单路功能	接地	输入零线	输入火线	输出正极	空脚	空脚	空脚	输出负极
双路 Dual	FG	AC(N)	AC(L)	+Vo2	-Vo2	NP	+Vo1	-Vo1
双路功能	接地	输入零线	输入火线	输出正极2	输出负极2	空脚	输出正极1	输出负极1
封装代号 Packing Code/ Dimension	L*W*H							
C	48.50*36.00*20.50mm							
	1.909*1.417*0.807inch							

封装尺寸/Packing Dimension



单位 (Unit) :mm  
 印刷板俯视图 (Printed board vertical view)  
 栅格间距 (latic spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm  
 未注明针脚直径公差 (Pin section tolerances) : ±0.10mm

◆ 产品特性/Product Features

- 国际通用全电压范围输入 Universal wide input voltage range:90-265VAC/127-375VDC
- 超低待机功耗≤0.10W Ultra low stand-by power consumption ≤ 0.10W
- 效率高达83% Transfer efficiency up to 83%
- 隔离电压 (Isolation voltage) : 4000VAC
- 外壳: 全封闭塑料外壳, 符合UL94V-0级 Case:6-side shielding plastic,UL94V-0 class
- 工作环境温度 Operating Temp:-40 C ~+75 C
- 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
- 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS B
- 交直流两用 AC-DC dual use
- CLASS II电源并通过LPS (限功率电源) 测试 CLASS II and pass LPS test
- PCB板上直插式安装 PCB Mounting
- 符合CE认证标准 Meet CE standard
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current		输出效率 Output efficiency (%TYP)
	范围值 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	
FA5-220S3V3Y2D4	90-265	3.3	1250	69
FA5-220S05Y2D4		5	1000	71
FA5-220S09Y2D4		9	556	76
FA5-220S12Y2D4		12	416	78
FA5-220S24Y2D4		24	208	82
FA5-220S48Y2D4		48	104	83

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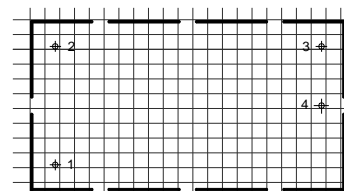
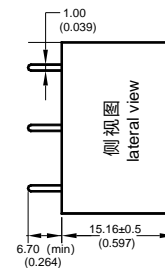
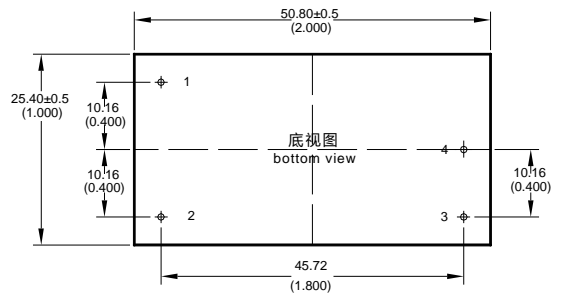
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注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。

Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4
单路 Single	AC(L)	AC(N)	+Vo	-Vo
功能	输入火线	输入零线	输出正极	输出负极
封装代号 Packing Code/ Dimension	L*W*H			
Y	50.80*25.40*15.16mm			
	2.000*1.000*0.597inch			

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (latic spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明针脚直径公差 (Pin section tolerances) : ±0.10mm



◆ 产品特性/Product Features

- 国际通用全电压范围输入 Universal wide input voltage range:85-265VAC/120-380VDC
- 超低待机功耗≤0.20W Ultra low stand-by power consumption ≤ 0.20W
- 效率高达84% Transfer efficiency up to 84%
- 隔离电压 (Isolation voltage) : 3750VAC
- 外壳: 全封闭塑料外壳, 符合UL94V-0级 Case:6-side shielding plastic,UL94V-0 class
- 工作环境温度 Operating Temp:-40 C ~+75 C
- 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
- 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS B
- 交直流两用 AC-DC dual use
- CLASS II电源并通过LPS (限功率电源) 测试 CLASS II and pass LPS test
- PCB板上直插式安装 PCB Mounting
- 符合CE认证标准 Meet CE standard
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25℃室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	(%TYP)
FA6-220S3V3D2	85-265	3.3	1818	71
FA6-220S05D2		5	1200	75
FA6-220S09D2		9	667	78
FA6-220S12D2		12	500	80
FA6-220S15D2		15	400	82
FA6-220S24D2		24	250	84

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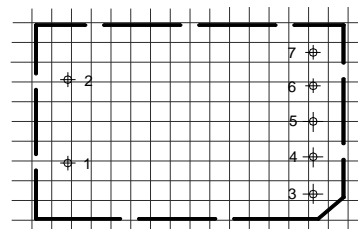
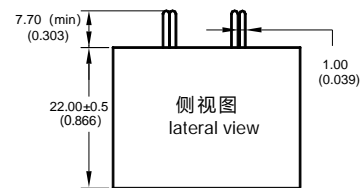
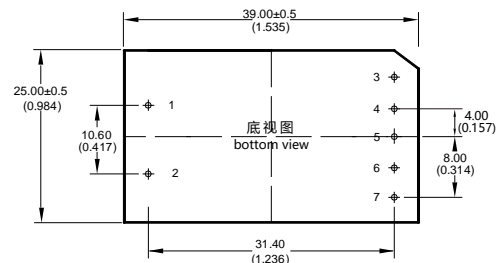
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注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。

Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	4	6
单路 Single	AC(L)	AC(N)	+Vo	-Vo
功能	输入火线	输入零线	输出正极	输出负极
封装代号 Packing Code/ Dimension	L*W*H			
D	39.00*25.00*22.00mm			
	1.535*0.984*0.866inch			

封装尺寸/Packing Demension



单位 (Unit) :mm  
 印刷板俯视图 (Printed board vertical view)  
 栅格间距 (latic spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm  
 未注明针脚直径公差 (Pin section tolerances) : ±0.10mm



◆ 产品特性/Product Features

- 国际通用全电压范围输入 Universal wide input voltage range:85-265VAC/120-380VDC
- 超低待机功耗≤0.20W Ultra low stand-by power consumption ≤ 0.20W
- 效率高达83% Transfer efficiency up to 83%
- 隔离电压 (Isolation voltage) : 4000VAC
- 外壳: 全封闭塑料外壳, 符合UL94V-0级 Case:6-side shielding plastic,UL94V-0 class
- 工作环境温度 Operating Temp:-40 C ~+75 C
- 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
- 电磁兼容EMC: 裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS B
- 交直流两用 AC-DC dual use
- CLASS II电源并通过LPS (限功率电源) 测试 CLASS II and pass LPS test
- PCB板上直插式安装 PCB Mounting

● 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.

● 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C 室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current				输出效率 Output efficiency	
	范围值 Range	电压 1 Voltage 1	电流 1 Current 1	电压 2 Voltage 2	电流 2 Current 2	(%TYP)	
	(VAC)	(VDC)	(mA)	(VDC)	(mA)		
FA10-220S05E2D4	85-265	5	2000	/	/	76	
FA10-220S12E2D4		12	833	/	/	80	
FA10-220S15E2D4		15	667	/	/	82	
FA10-220S24E2D4		24	417	/	/	83	
FA10-220E0505E2		5	1800	5	200	75	
FA10-220E0512E2		5	1500	12	200	78	
FA10-220E0515E2		5	1400	15	200	78	
FA10-220E0524E2		5	1000	24	200	81	
CK6-380S05E2		165-520	5	1200	/	/	65
CK6-380S12E2			12	500	/	/	70
CK6-380S24E2	24		250	/	/	73	

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Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

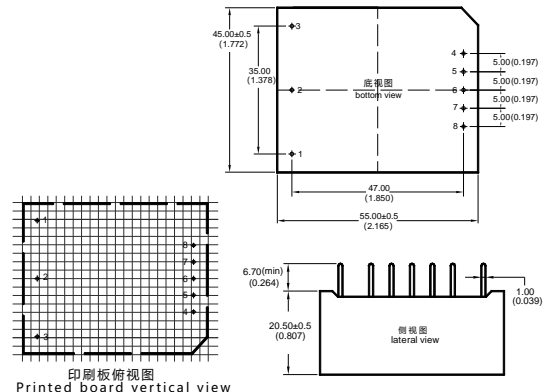
注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

注3: 后缀带“C”为产品带Ctrl控制功能;-T为接线式片封装, -TS为导轨式封装, 导轨宽度35mm。  
Note 3: Suffix with "C" means it with CTRL control function; "-T" suffix for chassis mounting, "-TS" suffix for DIN-Rail mounting, DIN-Rail width is: 35mm.

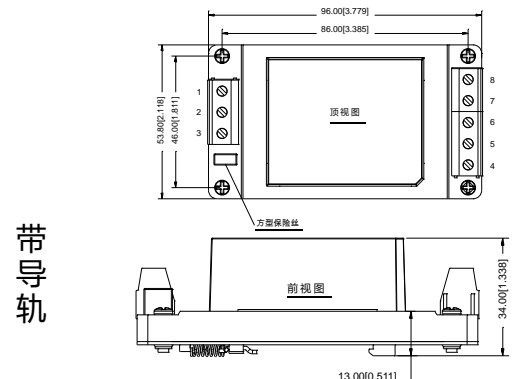
管脚号码 Pin-out	1	2	3	4	5	6	7	8
单路 Single	FG	AC(N)	AC(L)	+Vo	NP	NP	NP	-Vo
单路功能	接地	输入零线	输入火线	输出正极	空脚	空脚	空脚	输出负极
双路 Dual	FG	AC(N)	AC(L)	+Vo2	-Vo2	NP	+Vo1	-Vo1
双路功能	接地	输入零线	输入火线	输出正极2	输出负极2	空脚	输出正极1	输出负极1

封装尺寸/Packing Dimension

FA10/CK6-E2/E2D4封装尺寸: 55.00\*45.00\*20.50mm



FA10-E2-TS封装尺寸: 96.00\*53.80\*34.00mm



单位 (Unit) :mm  
栅格间距 (latic spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

注意:电源模块的各管脚定义如与选型手册不符,应以实物标签上的标注为准。  
Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.





◆ 产品特性/Product Features

- 国际通用全电压范围输入 Universal wide input voltage range:90-265VAC/127-380VDC
- 超低待机功耗≤0.20W Ultra low stand-by power consumption ≤ 0.20W
- 效率高达83% Transfer efficiency up to 83%
- 隔离电压 (Isolation voltage) : 3000VAC
- 外壳: 全封闭塑料外壳, 符合UL94V-0级 Case:6-side shielding plastic,UL94V-0 class
- 工作环境温度 Operating Temp:-40 C ~+75 C
- 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
- 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
- 交直流两用 AC-DC dual use
- CLASS II电源并通过LPS (限功率电源) 测试 CLASS II and pass LPS test
- PCB板上直插式安装 PCB Mounting

- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C .



◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current		输出效率 Output efficiency (%TYP)
	范围值 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	
UA10-220S3V3P2D	90-265	5	1500	74
UA10-220S05P2D		6	1667	75
UA10-220S09P2D		9	1111	81
UA10-220S12P2D		12	833	82
UA10-220S15P2D		15	667	82
UA10-220S24P2D		24	417	83

注1: 因篇幅有限,以上只是部分产品列表, 若需列表以外产品, 请与本公司销售部联系。

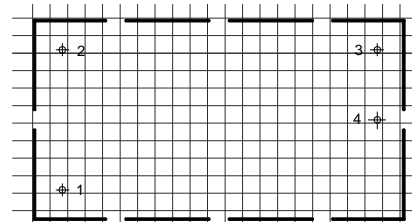
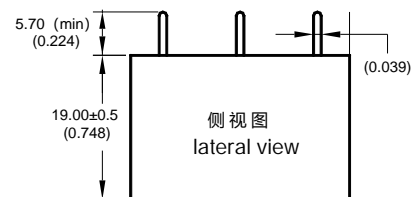
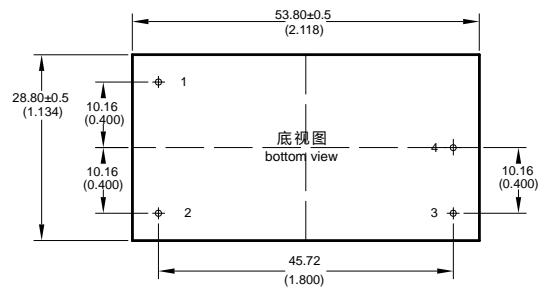
Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。

Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4
单路 Single	AC(N)	AC(L)	+Vo	-Vo
功能	输入零线	输入火线	输出正极	输出负极
封装代号 Packing Code/ Dimension	L*W*H			
P	53.80*28.80*19.00mm			
	2.118*1.134*0.748inch			

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明针脚直径公差 (Pin section tolerances) : ±0.10mm



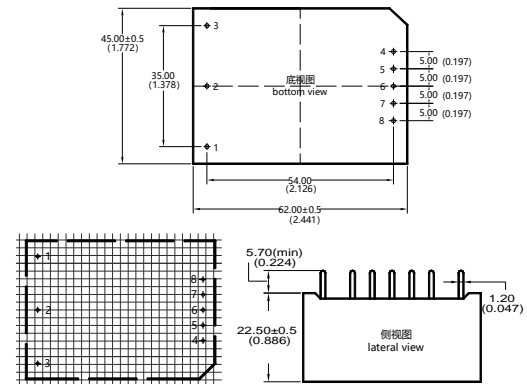
◆ 产品特性/Product Features

- 国际通用全电压范围输入 Universal wide input voltage range:85-265VAC/120-380VDC
- 超低待机功耗≤0.20W Ultra low stand-by power consumption ≤ 0.20W
- 效率高达87% Transfer efficiency up to 87%
- 隔离电压 (Isolation voltage) : FA15/20-220SXXF2D4: 4000VAC
- 隔离电压 (Isolation voltage) : FA15-220E05XXF2、UA15-220H05XXXF2(A): 3000VAC
- 外壳: 全封闭塑料外壳, 符合UL94V-0级 Case:6-side shielding plastic,UL94V-0 class
- 工作环境温度 Operating Temp:-40 C~+75 C
- 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
- 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS B
- 交直流两用 AC-DC dual use
- CLASS II电源并通过LPS (限功率电源) 测试 CLASS II and pass LPS test
- PCB板上直插式安装 PCB Mounting
- 符合CE认证标准 Meet CE standard
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、充电桩、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, charging pile, internet of things, etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



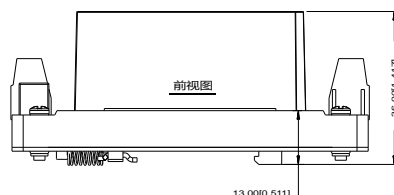
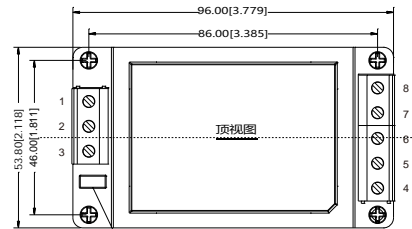
封装尺寸/Packing Dimension

FA15/20/UA15-F2D4/F2/F2A封装尺寸: 62.00\*45.00\*22.5mm



印刷板俯视图  
Printed board vertical view

FA15-220SXXF2D4-TS封装尺寸: 96.00\*53.80\*36.00mm



单位 (Unit) :mm  
 栅格间距 (latic spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm  
 未注明针脚直径公差 (Pin section tolerances) : ±0.10mm

带导轨

◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage		输出电压电流 Output voltage/current				输出效率 Output efficiency (%TYP)
	范围值 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	电压 2 Voltage (VDC)	电流 2 Current (mA)		
FA15-220S05F2D4	85-265	5	3000	/	/	78	
FA15-220S12F2D4		12	1250	/	/	83	
FA15-220S15F2D4		15	1000	/	/	84	
FA15-220S24F2D4		24	625	/	/	86	
FA15-220S55F2D4		55	272	/	/	87	
FA20-220S05F2D4		5	3500	/	/	78	
FA20-220S12F2D4		12	1666	/	/	83	
FA20-220S15F2D4		15	1333	/	/	84	
FA20-220S24F2D4		24	833	/	/	86	
FA15-220E0505F2		5	2200	5	800	78	
FA15-220E0512F2		5	2000	12	400	79	
FA15-220E0515F2		5	2000	15	300	80	
FA15-220E0524F2		5	2000	24	200	82	
UA15-220H051212F2A		5	2000	±12	200	78	
UA15-220H051515F2	5	1800	±15	200	80		
UA15-220H052424F2	5	2000	±24	100	82		

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 注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。  
 Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.  
 注3: 后缀带“C”为产品带Ctrl控制功能;-T为接线式封装,-TS为导轨式封装, 导轨宽度35mm。  
 Note 3: Suffix with "C" means it with CTRL control function;"-T" suffix for chassis mounting, "-TS" suffix for DIN-Rail mounting, DIN-Rail width is: 35mm.

管脚号码 Pin-out	1	2	3	4	5	6	7	8
单路 Single	FG	AC(N)	AC(L)	+Vo	NP	NP	NP	-Vo
单路功能	接地	输入零线	输入火线	输出正极	空脚	空脚	空脚	输出负极
双路 Dual	FG	AC(N)	AC(L)	+Vo2	-Vo2	NP	+Vo1	-Vo1
双路功能	接地	输入零线	输入火线	输出正极2	输出负极2	空脚	输出正极1	输出负极1
三路 Triple	FG	AC(N)	AC(L)	+Vo2	COM	-Vo2	+Vo1	-Vo1
三路功能	接地	输入零线	输入火线	输出正极2	公共地	输出负极2	输出正极1	输出负极1

注意:电源模块的各管脚定义如与选型手册不符, 应以实物标签上的标注为准。  
 Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.



◆ 产品特性/Product Features

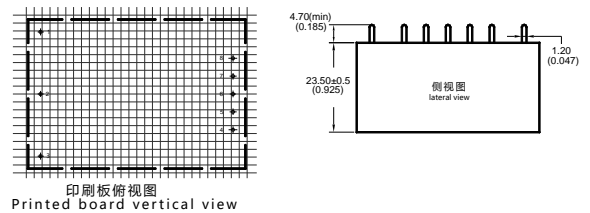
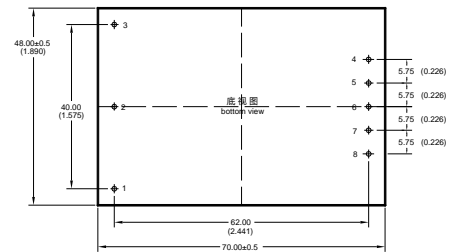
- 国际通用全电压范围输入 Universal wide input voltage range:85-265VAC/120-380VDC
- 超低待机功耗≤0.20W Ultra low stand-by power consumption ≤ 0.20W
- 效率高达88% Transfer efficiency up to 88%
- 隔离电压 (Isolation voltage) : FA20-220HXXXXXXH2,UA25-220EXXXH2 : 3750VAC
- 隔离电压 (Isolation voltage) : HA25-220SXXH2,FA30-220SXXH2 : 4000VAC
- 外壳: 全封闭塑料外壳,符合UL94V-0级 Case:6-side shielding plastic,UL94V-0 class
- 工作环境温度 Operating Temp:-40 C~+75 C
- 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
- 电磁兼容EMC: 裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS B
- 交直流两用 AC-DC dual use
- 符合CE认证标准 Meet CE standard

- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home,internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.

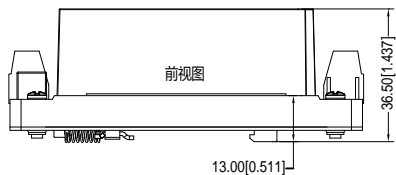
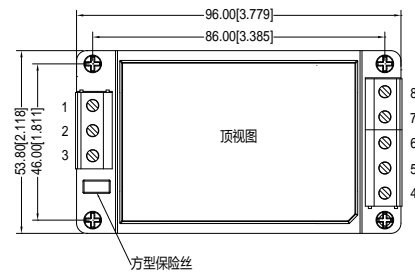


封装尺寸/Packing Demension

FA20/25/30/UA25-H2/H2D4封装尺寸: 70.00\*48.00\*23.50mm



FA30-220SXXH2-TS封装尺寸: 96.00\*53.80\*36.5mm



带导轨

单位 (Unit) :mm  
 栅格间距 (latic spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm  
 未注明引脚直径公差 (Pin section tolerances) : ±0.10mm

◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current				输出效率 Output efficiency
	范围 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	电压 2 Voltage (VDC)	电流 2 Current (mA)	(%TYP)
FA20-220H051212H2	85-305	5	2000	±12	400/400	82
FA30-220S05H2	85-265	5	5000	/	/	78
FA30-220S12H2		12	2500	/	/	83
FA30-220S24H2		24	1250	/	/	85
FA30-220S30H2		30	1000	/	/	86
FA25-220S05H2D4	85-305	5	4200	/	/	78
FA25-220S12H2D4		12	2083	/	/	86
FA25-220S15H2D4		15	1667	/	/	87
FA25-220S24H2D4		24	1042	/	/	88
UA25-220E0512H2	85-265	5	2500	12	833	85
UA25-220E0515H2		5	2000	15	1000	85

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 Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.  
 注3: 后缀带“C”为产品带Ctrl控制功能;-T为接线式封装,-TS为导轨式封装,导轨宽度35mm。  
 Note 3: Suffix with "C" means it with CTRL control function; "-T" suffix for chassis mounting, "-TS" suffix for DIN-Rail mounting, DIN-Rail width is: 35mm.

管脚号码 Pin-out	1	2	3	4	5	6	7	8
单路 Single	FG	AC(N)	AC(L)	+Vo	NP	NP	NP	-Vo
单路功能	接地	输入零线	输入火线	输出正极	空脚	空脚	空脚	输出负极
双路 Dual	FG	AC(N)	AC(L)	+Vo2	-Vo2	NP	+Vo1	-Vo1
双路功能	接地	输入零线	输入火线	输出正极2	输出负极2	空脚	输出正极1	输出负极1
三路 Triple	FG	AC(N)	AC(L)	+Vo3	COM	-Vo2	+Vo1	-Vo1
三路功能	接地	输入零线	输入火线	输出正极3	公共地	输出负极2	输出正极1	输出负极1

注意:电源模块的各管脚定义如与选型手册不符,应以实物标签上的标注为准。  
 Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

◆ 产品特性/Product Features

- 超宽输入电压范围 Universal wide input voltage range:85-265VAC/120-380VDC
  - 超低待机功耗≤0.30W Ultra low stand-by power consumption ≤ 0.30W
  - 效率高达88% Transfer efficiency up to 88%
  - 隔离电压 (Isolation voltage) : 3750VAC
  - 外壳: 全封闭金属外壳 Case : 6-side shielding metal
  - 工作环境温度 Operating Temp:-40 C~+75 C
  - 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
  - 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
  - 交直流两用 AC-DC dual use
  - 通过LPS (限功率电源) 测试 Pass LPS test
  - PCB板上直插式安装 PCB Mounting
  - 符合CE认证标准 Meet CE standard
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

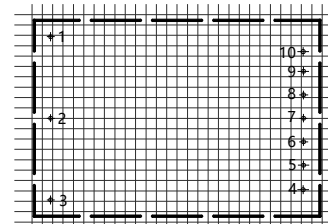
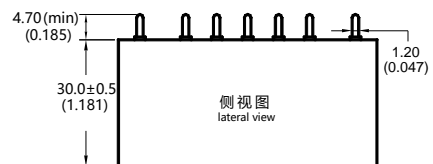
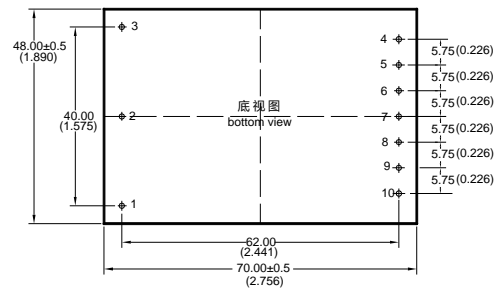
产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	(%TYP)
FA40-220S05H3	85-265	5	8000	82
FA40-220S09H3		9	4444	84
FA40-220S12H3		12	3333	86
FA40-220S12V8H3		12.8	3125	86
FA40-220S24H3		24	1666	88

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Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4	5
单路 Single	FG	AC(N)	AC(L)	NP	+Vo
功能	接地	输入零线	输入火线	空脚	输出正极
管脚号码 Pin-out	6	7	8	9	10
单路 Single	NP	NP	NP	-Vo	Trim
功能	空脚	空脚	空脚	输出负极	电压调节端
封装代号 Packing Code/ Dimension	L*W*H				
H	70.00*48.00*30.00mm				
	2.756*1.890*1.181inch				

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (latic spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明针脚直径公差 (Pin section tolerances) : ±0.10mm

◆ 产品特性/Product Features

- 超宽输入电压范围 Universal wide input voltage range:85-265VAC/120-380VDC
  - 超低待机功耗≤0.20W Ultra low stand-by power consumption ≤ 0.20W
  - 效率高达87% Transfer efficiency up to 87%
  - 隔离电压 (Isolation voltage) : 4000VAC
  - 外壳: 全封闭金属外壳 Case : 6-side shielding metal
  - 工作环境温度 Operating Temp:-40 C~+75 C
  - 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
  - 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS B
  - 交直流两用 AC-DC dual use
  - 通过LPS (限功率电源) 测试 Pass LPS test
  - PCB板上直插式安装 PCB Mounting
  - 符合CE认证标准 Meet CE standard
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
- 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

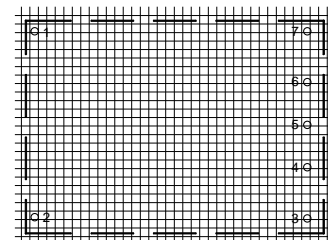
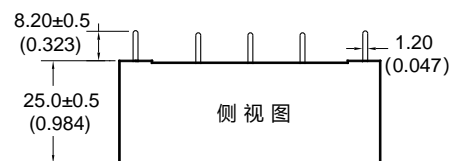
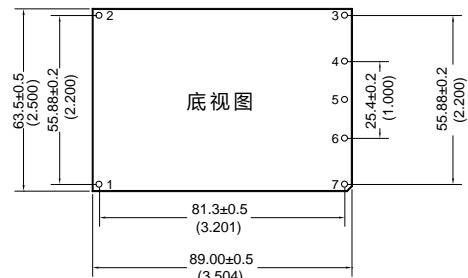
产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	(%TYP)
FA40-220S05W2	85-265	5	8000	82
FA40-220S09W2		9	4444	84
FA40-220S12W2		12	3333	85
FA40-220S15W2		15	2666	86
FA40-220S24W2		24	1667	87

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Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率(%TYP),波动幅度为±2%,满载输出效率等于输出的总功率除以电源模块的输入功率。  
Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4	5	6	7
单路 Single	AC(L)	AC(N)	Trim	NC	-Vo	NC	+Vo
功能	输入零线	输入火线	调压脚	无	输出负极	无	输出正极
封装代号 Packing Code/ Dimension	L*W*H						
W	89.00*63.50*25.00mm						
	3.504*2.500*0.984inch						

封装尺寸/Packing Demension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (latic spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明针脚直径公差 (Pin section tolerances) : ±0.10mm



### ◆ 产品特性/Product Features

- 超宽输入电压范围 Universal wide input voltage range:100-265VAC/140-370VDC
  - 超低待机功耗≤0.20W Ultra low stand-by power consumption ≤ 0.20W
  - 效率高达86% Transfer efficiency up to 86%
  - 隔离电压 (Isolation voltage) : 2500VAC
  - 外壳: 金属外壳屏蔽 Case : Metal case shielded
  - 工作环境温度 Operating Temp:-25 C ~+65 C
  - 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
  - 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
  - 交直流两用 AC-DC dual use
  - PCB板上直插式安装 PCB Mounting
- **应用领域:** 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home,internet of things etc.
  - **测试条件:** 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25℃室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



### ◆ 产品列表/Product List

产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current		输出效率 Output efficiency (%TYP)
	范围值 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	
WA75-220S05L1	100-265Vac	5	15000	82
WA75-220S12L1		12	6250	85
WA75-220S24L1		24	3125	86
WA100-220S12L1		12	8333	85
WA100-220S24L1		24	4166	86
NA150-220S12L1	165-265Vac	12	12500	84
WA100-220S24L1		24	6250	85
NA150-220S28L1		28	5357	86
NA150-220S36L1		36	4166	85

注1: 因篇幅有限,以上只是部分产品列表,若需列表以外产品,请与本公司销售部联系。

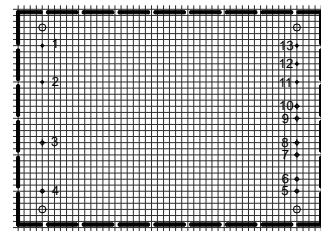
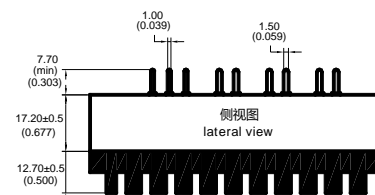
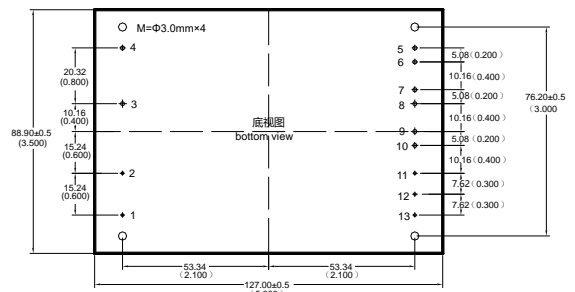
Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

注2: 表格中为满载效率 (%TYP), 波动幅度为±2%, 满载输出效率等于输出的总功率除以电源模块的输入功率。

Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4	5:6	7:8
单路 Single	NC	FG	AC(N)	AC(L)	+Vo	NP
功能	无电气连接	接地	输入零线	输入火线	输出正极	空脚
管脚号码 Pin-out	9:10	11	12	13	L*W*H	
单路 Single	-Vo	+S	TRIM	-S		
功能	输出负极	正反反馈端	电压调节端	负反馈端	127.00*88.90*17.20mm	
封装代号 Packing Code Dimension	L				5.000*3.500*0.667inch	

### 封装尺寸/Packing Dimension



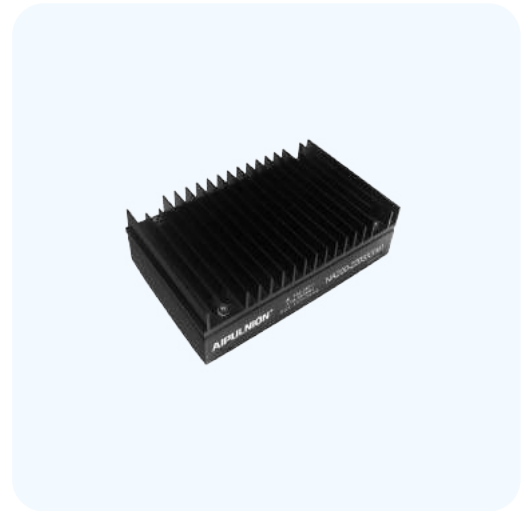
单位 (Unit) :mm  
 印刷板俯视图 (Printed board vertical view)  
 栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
 未注尺寸公差 (General tolerance) : ±0.5mm  
 未注明针脚直径公差 (Pin section tolerances) : ±0.10mm

注意:电源模块的各管脚定义如与选型手册不符,应以实物标签上的标注为准。

Note:If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

◆ 产品特性/Product Features

- 超宽输入电压范围 Universal wide input voltage range:165-265VAC/230-370VDC
  - 超低待机功耗≤0.20W Ultra low stand-by power consumption ≤ 0.20W
  - 效率高达88% Transfer efficiency up to 88%
  - 隔离电压 (Isolation voltage) : 2500VAC
  - 外壳: 金属外壳屏蔽 Case : Metal case shielded
  - 工作环境温度 Operating Temp:-25 C ~+65 C
  - 保护功能: 输出过流、短路保护 Protection:Output over-current,short-circuit
  - 电磁兼容EMC:裸机满足(bare board) CISPR22/EN55032/GB9254 CLASS A
  - 交直流两用 AC-DC dual use
  - PCB板上直插式安装 PCB Mounting
  - CLASS II电源并通过LPS (限功率电源) 测试 CLASS II and pass LPS test
  - 符合CE认证标准 Meet CE standard
- 应用领域: 工业控制、仪器仪表、通信、电力、智能家居、物联网等领域  
Application Field:Industrial control, instrumentation, communication, electric power, smart home, internet of things etc.
  - 测试条件: 如特殊指定、所有参数测试均在标称输入电压、纯电阻额定负载及25°C室温环境下测得  
Test condition: Unless otherwise specified, data in the datasheet is tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25 C.



◆ 产品列表/Product List

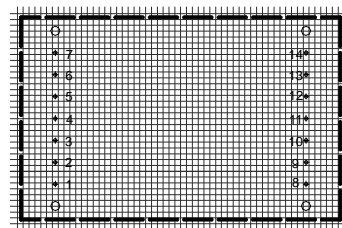
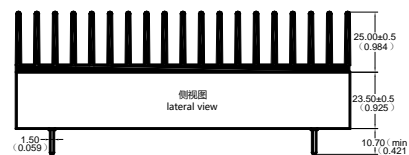
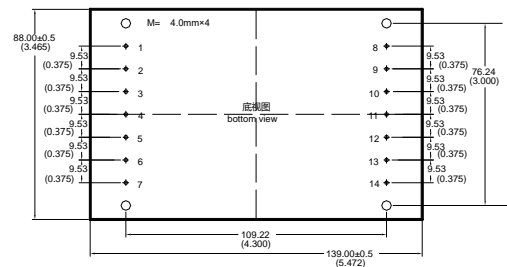
产品型号 Part no.	输入电压 Input voltage	输出电压电流 Output voltage/current		输出效率 Output efficiency
	范围值 Range (VAC)	电压 1 Voltage (VDC)	电流 1 Current (mA)	(%TYP)
NA200-220S12M1	165-265	12	16600	88
NA200-220S15M1		15	13300	88
NA200-220S24M1		24	8333	87

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Note 2: The fluctuation range of full load efficiency(%TYP) is ±2%, full load output efficiency= total output power/module's input power.

管脚号码 Pin-out	1	2	3	4:5:6	7	8:9
单路 Single	AC(N)	NP	AC(L)	NP	FG	+Vo
功能	输入零线	空脚	输入火线	空脚	接地	输出正极
管脚号码 Pin-out	10:11	12	13	14	L*W*H	
单路 Single	-Vo	+S	TRIM	-S		
功能	输出负极	正反馈端	电压调节端	负反馈端	139.00*88.00*23.50mm	
封装代号 Packing Code/Dimension	M				5.472*3.465*0.925inch	

封装尺寸/Packing Dimension



单位 (Unit) :mm  
印刷板俯视图 (Printed board vertical view)  
栅格间距 (lattice spacing) : 2.54mm(0.1inch)  
未注尺寸公差 (General tolerance) : ±0.5mm  
未注明针脚直径公差 (Pin section tolerances) : ±0.10mm



## 目的

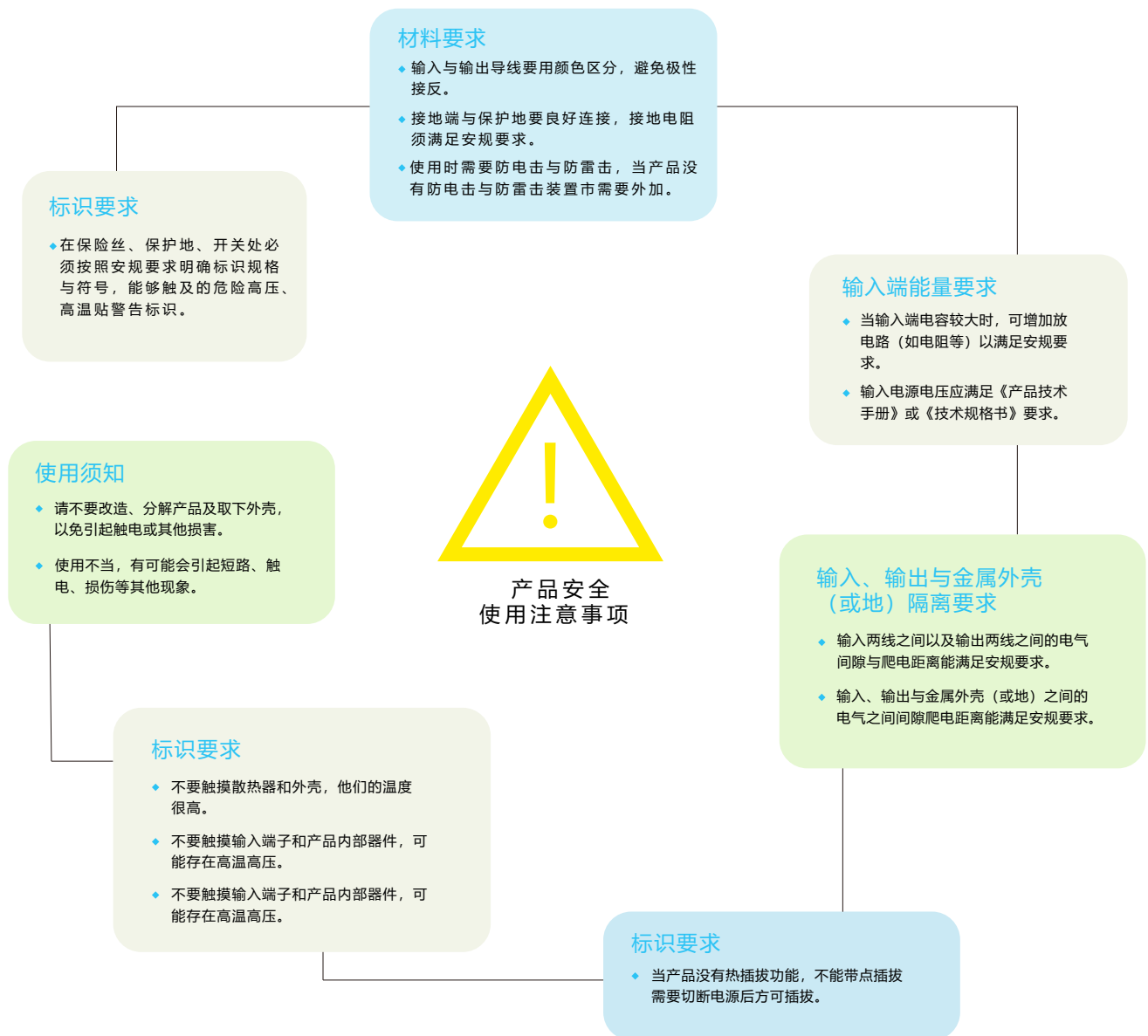
预防客户在使用产品过程中可能出现的安全问题。

## 适用范围

广州市爱浦电子科技有限公司生产的AC/DC&DC/DC&铃流系列模块电源

## 内容

客户在设计选型/批量投产之前，应确保仔细阅读《产品技术手册》中相关型号的所有内容，并按《产品技术手册》中的要求进行产品设计和使用的。



客户在使用过程中遇到问题时，请与我们联系。

电话：020-84206763 E-mail:sale@aipu-elec.com



# 电源测试

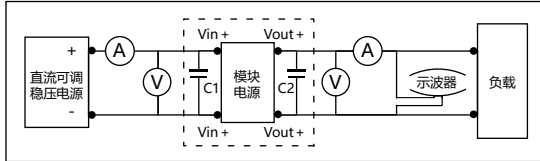
## 电源模块的测试

合适的电源选定后，仍然非常重要。是应用于实际单元电路中的电气性能，使用前产品要经过严格测试合格才能使用，下面以DC-DC为例介绍模块电源的一般测试方法，AC-DC模块的测试在原理上完全一样，在此不重复描述。

### 1. 测试采用标准的开尔文四端测试法

如图：

测试条件：温室TA=25°C 湿度<75%.标称输入和额定负载。



模型的组成：

- a.直流可调稳压电源：输入电压范围足够大
- b.电流表A：精度在0.001A
- c.电压表V：精度在0.001V
- d.负载电阻：额定负载：U<sup>2</sup>/P  
轻载：10%\*(U<sup>2</sup>/P)
- e.连线：线损越小越好，以1mm多股铜线最佳，以免造成过大压降。

测试：

A：连线

保证较高的测量精度就要减小连接导线引起的误差，过长过细的连接线及不良的接触会引起较大的回路压降，并大大降低电源模块负载调节率，尤其在负载电流较大时应尽量缩短输出引脚与各负载间的距离，并增加连接导线截面积来减小阻抗产生的压降。一般DC-DC模块的输入不能反接，输入输出电压表连接模块引脚，并选择满足功率大小的负载，将输入电压和负载调节到标称值，便可以测量。

B：接地

不恰当的接地会引入附加的噪声，对于测量纹波和噪声，避免其他电器通过电源线串入模块，在测量时建议采用单通道探头直接测量法测量输出，避免输入输出共地和外界干扰产生的测量误差。（参见图“纹波和噪声”）

C：负载

为了安全测量取得有效的测试数据，对于定电压产品必须保证在10-100%之间负载，容性负载不能大于技术资料规定值，才能保证较为准确的电压和纹波输出；对于宽压产品可先10%的负载测试确定好坏，再进行额定负载的准确性测试。具体外接图示参考产品技术资料。

### 2. 电源模块的性能

连接好电源模块就可以进行性能的测试和判定，确认性能参数是否达标。

1) 输出电压精度：

设置输入电压为标称值，输出为额定负载，测得输出电压记为V<sub>OUT</sub>，输出标称值记为V<sub>NOM</sub>。

计算公式：

$$\frac{V_{OUT}-V_{NOM}}{V_{NOM}} \times 100\%$$

如：稳压产品FW1-12S12B标称12V输出，额定负载为144Ohm.测得实际输出电压12.039V。

则有：

$$\frac{12.039VDC-12000VDC}{12.000VDC} \times 100\%=0.3255\%$$

2) 线性电压调节率：

负载为满载时在允许变化范围内调节输入电压，测量输出电压的最大值和最小值之差值比例。

$$\text{线性调节率} = \frac{V_{OUTN}-V_{MDEV}}{V_{OUTN}} \times 100\%$$

在标称电压输入，额定负载下，测得输出电压记为V<sub>OUTN</sub>；在输入电压上限，额定负载下，测得输出电压记为V<sub>OUTH</sub>；在输入电压下限，额定负载下，测得输出电压记为V<sub>OUTL</sub>；V<sub>MDEV</sub>取V<sub>OUTH</sub>,V<sub>OUTL</sub>中偏离V<sub>OUTN</sub>最大值。

定电压输入隔离非稳压输出系列：

$$\text{线性调节率} = \left| \frac{\Delta V_{OUT}}{\Delta V_{IN}} \right|$$

$$\Delta V_{OUT} = \frac{V_{OUT}(1+10\%)-V_{OUT}(1-10\%)}{V_{OUTNOM}} \times 100\%$$

$$\Delta V_{IN} = \frac{V_{IN}(1+10\%)-V_{IN}(1-10\%)}{V_{INNOM}} \times 100\%$$

式中：

V <sub>in</sub> (1+10%)	将输入电压标称值+10%作为其输入电压上限；
V <sub>in</sub> (1-10%)	将输入电压标称值-10%作为其输入电压为下限；
V <sub>out</sub> (1+10%)	满载条件下，输入电压为上限时所测得的输出电压值；
V <sub>out</sub> (1-10%)	满载条件下，输入电压为下限时所测得的输出电压值；
V <sub>innom</sub>	指输入电压的额定值；
V <sub>outnom</sub>	满载条件下，输入电压为额定值时测得的输出电压值。

如：以定电压系列NN1-05S05AN为例，输出接25欧姆恒阻性负载，输入范围：±10%（即4.5V~5.5V）V<sub>in</sub>(1+10%)=5.5V  
V<sub>in</sub>(1-10%)=4.5V；V<sub>innom</sub>=5V；  
V<sub>out</sub>(1+10%)测得为：5.32V；V<sub>out</sub>(1-10%)测得为：4.2V；  
V<sub>outnom</sub>测得为：4.77V；

$$\Delta V_{OUT} = \frac{5.32V-4.2V}{4.77V} \times 100\%=23.5\%$$

$$\Delta V_{IN} = \frac{5.5V-4.5V}{5V} \times 100\%=20\%$$

$$\text{故线性电压调节率} = \left| \frac{\Delta V_{OUT}}{\Delta V_{IN}} \right| = 1.174$$

3) 负载调节率：

输入电压为额定值时，分别接10%和100%的恒阻性负载，分别测出输出电压为10%负载及100%负载与额定值之差的程度，并取与额定值之差最大值计算。

$$\text{负载调整率} = \frac{V_{b1}(V_{b2})-V_{b0}}{V_{b0}} \times 100\%$$

式中：

- V<sub>b0</sub>——输出电压整定值；
- V<sub>b1</sub>——输出电流最小值得输出电压；
- V<sub>b2</sub>——输出电流额定值时的输出电压。

定电压输入非稳压输出系列：

$$\text{计算公式：} \frac{V_{OUTNL}-V_{OUTFL}}{V_{OUTFL}} \times 100\%$$

VoutNL负载为10%所测输出电压值；  
VoutFL负载为100%时所测输出电压值 如：以定电压产品B0505XD-1W为例，额定负载为：U<sup>2</sup>/P=25欧姆，负载范围为：10~100%，测得：VoutNL=5.29V,VoutFL=4.77V

$$\text{负载调节率} = \frac{5.29V-4.77V}{4.77V} \times 100\% = 10.9\%$$

4) 效率：  
标称输入和额定负载下输出功率与输入功率的比值。

$$\text{计算公式：} \frac{L_{OUT} \times V_{OUT}}{L_{IN} \times V_{IN}} \times 100\%$$

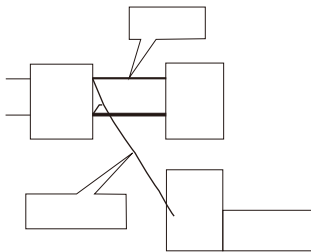
如：稳压产品IB1212LS-1W 额定12V输入，满载下测得输出电压为12.039V；电流为83.3mA时；输入电流为115.0mA。

则有：

$$\frac{0.0833A \times 12.039V}{0.1150A \times 12.00V} \times 100\% = 73\%$$

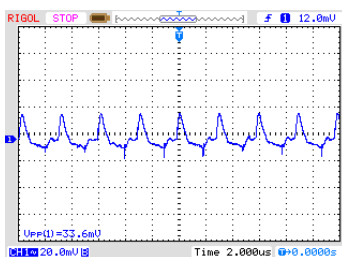
5) 纹波与噪声：

1、纹波噪声是利用12#双绞线连接，示波器带宽设置为20MHz,100M带宽探头，且在探头端上并联0.1uF聚丙烯电容和47uF高频低阻电解电容，示波器采样使用Sample取样模式。如下图所示：



注：把电源输入端连接到输入电源，电源输出通过治具板连接到电子负载，测试单独用30cm±2cm取样线直接从电源输出口取样。功率线根据输出电流的大小选取相应线径的带绝缘皮的导线。

由于电源输出端含有大量高频谐波，为了测量准确，将示波器的地线夹去掉，因为它会像天线一样吸收各种高频噪音、干扰测量结果。



波形中清晰明亮的部分为纹波，垂直而不太清晰的部分为噪声：实际上的噪声和纹波会因电路和外接的元件的不同而有所差异。由于噪声的频率极高，大部分输出电路都不会受到噪声的影响。

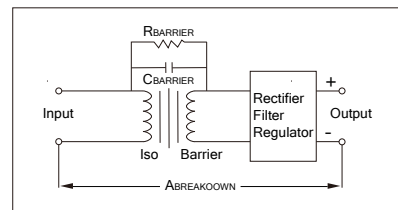
6) 启动时间：

由于一些特殊场合要求非常高的启动时间（例：配电控制系统），所以一般模块内部不放置电感。启动时间为输入开启后输出相对于输入达到目标电压值时响应延迟的时间。一般在额定满载下测得，外接滤波器（包括输入输出电容）均会大大延迟启动的时间，实际设计要与噪声要求权衡考虑。定压产品采用开环设计，启动较为缓慢。具体的产品及应用疑问请申请技术支持服务。

7) 隔离及绝缘特性：

隔离能力是电源模块一个非常重要的特性，输入/出的隔离可以提供独立，不同极性的电源给负载，常常用于仪器仪表、数据处理和噪声敏感电路中负载与电源及系统的相互隔离，防止共模干扰，也用于工业、电力、医疗系统人身安全隔离和矿井中的防爆等。

如图：



$$I_{LEAKAGE} = \frac{V_{BREAKDOWN}}{R_{BARRIER}} = 2\pi (60\text{Hz})(C_{BARRIER})(240V)$$

CBARRIER：隔离电容；输入初级线圈同输出次级线圈的耦合电容；  
RBARRIER：隔离电阻；输入/出间的阻性，一般在加500VDC测试；  
ILEAKAGE：漏电流；由于隔离电容的存在，在输入/出间引起的电流；  
VBREAKDOWN：测试电压；这里为240VAC/60HZ；也可以是其他值或噪声电压；

当为其他值时：

$$Z_f = \frac{1}{j2\pi f C_{IS}} \quad I_L = \frac{V_{test}}{Z_f}$$

CIS：隔离电容f:给定值（测试信号）Vtest:测试信号电压；

由上可见，一个低漏电、高噪声抗扰性、高隔离的电源模块一定需要很低耦合电容的隔离材料；实际的绝缘测试需要按照相应规定和专门的仪器，相关的隔离测试参数有：绝缘强度：在输入输出间加隔离电压（直流或交流的峰值）测试1分钟。绝缘电阻：在输入输出间加500VDC，测的输入输出间绝缘电阻大于1GOhm。

8) 遥控特性（仅限于有遥控端子的型号）：

- 1.测试目的：测试模块提供的遥控端子来控制模块开关机的性能，应能正常实现遥控开关机。
- 2.线路图：按图1接线



图一

- 注：1) 若输出有Sense端，则将Sense+(S+)与Vout+短接，Sense-(S-)与Vout-短接。
- 2) 部分模块在输入端设置有使能端（即REM端），分为高电平和低电平使能两种情况，如要使用，请按产品要求接入电平。
- 3) 部分模块需要在输入、输出端接上电容等外围器件，该器件的取值请参见产品的企业标准或使用说明书。
- 4) 对于非隔离的模块，要将所有的地统一共地。



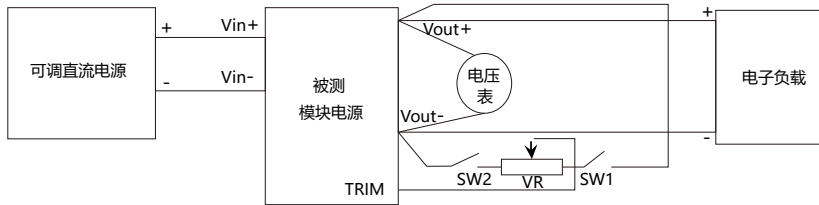
### 3. 测试方法:

在额定输入电压, 额定负载条件下, 如果模块是正逻辑, 则使能端REM接高电平或悬空时模块正常输出, 反之, REM接低电平模块无输出; 如果模块是负逻辑时, 则使能端REM接低电平时, 模块应正常输出, 反之, REM接高电平或悬空时模块无输出。(其中的参考电平见产品资料说明)

注: 测试时应单独对REM悬空的逻辑特性进行测试并记录

### 9) 输出电压微调性能 (仅限于有输出可调功能者)

1. 测试说明: 测试通过模块给定的微调端子调节输出电压的能力。
2. 线路图: 按图2接线



图二

注: 电位器VR的取值, 不同的型号依据使用说明有不同的取值其余的外部接线见图一中注释

### 3. 测试方法:

- (1) 额定输入电压, 额定负载条件下, 起机。
- (2) 闭合SW2, 调VR, 直到电压表读数能大于规定的输出可调节范围上限。
- (3) 闭合SW1, 调VR, 直到电压表读数能小于规定的输出可调节范围下限。

### 10) 温度系数

1. 测试目的: 测试环境温度变化时输出电压的变化相对于整定值和温度的百分比。
2. 线路图: 接线图如图1, 并且将被测电源模块放到高低温箱中。

### 3. 测试方法:

- (1) 额定输入电压, 额定负载, 环境温度为常温 T0(25°C)条件下, 测试输出电压V0;
- (2) 将电源的工作温度调节到上限值T1, 稳定工作后 (一般半小时), 测试在此条件下的输出电压V1;
- (3) 将电源的工作温度降低到下限值T2, 稳定工作后 (一般半小时), 测试在此条件下的输出电压V2;
- (4) 根据下式计算温度系数:

$$\text{温度系数} = \frac{|V1 - V2|}{V0} \div \Delta T \times 100\%$$

式中:  $\Delta T$ —温差 (即T1-T2)

### 11) 动态负载特性

1. 测试目的: 测试输出负载变化情况下, 模块输出电压稳定在整定值的能力, 过冲幅度和恢复时间应满足要求。
2. 线路图: 按图1接线, 并在输出管脚处接数字示波器。

### 3. 测试方法:

- (1) 输入电压为额定值, 使输出负载在额定值的25%-50%-25%和50%-75%-50%周期性变化, 其电流变化速度见厂家给定资料, 如厂家没有给出, 则按照周期1mS, 变化速率1A/US设定。
- (2) 用示波器测量输出电压的过冲幅度及恢复时间, 恢复时间以负载调整率规定电压为比较电平 (或者参照厂家资料), 注意此时器件不能出现啸叫。

### 12) 输入反射电流

1. 测试目的: 为衡量模块对同一电源供电的其他设备的影响, 测试模块输入电流上叠加的交流电流值。
2. 线路图: 按图3接线

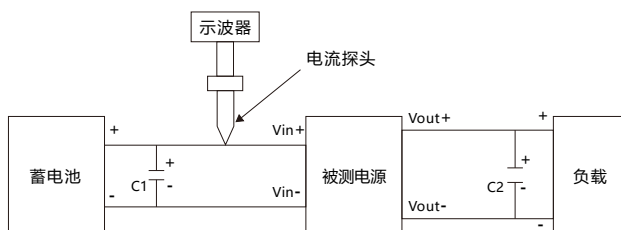


图3

注: C1, C2以及其他必要的外围器件的取值参照产品技术资料提供的资料

### 3. 测试方法:

在额定输入电压, 额定负载条件下起机, 观察示波器上的波形, 读出反射电流值。



## 13) 高温贮存试验

1. 测试目的：检查模块电源在高温环境存储之后有无损坏。
2. 所用仪器：高温箱
3. 线路图：无
4. 测试步骤：
  - (1) 初始检测：在正常条件下，对样品进行外观检查和各项指标测试。
  - (2) 试验：把不包装，不通电的样品放入高温箱内，将温箱调至模块电源存储温度的最高值，试验时间从温箱达到规定值时算起。
  - (3) 最后检测：经2小时试验后，将样品取出，在正常条件下，恢复2h后，对样品进行外观检查和输出电压，纹波测试。

## 14) 低温贮存试验

1. 测试目的：检查模块电源在高温环境存储之后有无损坏。
2. 所用仪器：高温箱
3. 线路图：无
4. 测试步骤：
  - (1) 初始检测：在正常条件下，对样品进行外观检查和各项指标测试。
  - (2) 试验：把不包装，不通电的样品放入高温箱内，将温箱调至模块电源存储温度的最高值，试验时间从温箱达到规定值时算起。
  - (3) 最后检测：经2小时试验后，将样品取出，在正常条件下，恢复2h后，对样品进行外观检查和输出电压，纹波测试。

## 15) 高温带电老化实验

1. 测试目的：测试模块电源在高温条件下正常工作的能力。
2. 接线图：按图一接线，并将被测模块放入高温箱内。
3. 测试方法：
  - (1) 初始检测：在正常大气条件下，对样品进行外观检查和输出电压测试。
  - (2) 试验：将样品按输入，输出接好线，放置实验箱内，温度达到要求值时，接通电源。
  - (3) 在额定负载条件下，输入电压分别为标称值，最大值，最小值，各进行2小时试验，实验过程中反复开关机，模块起机应正常。
  - (4) 在最小负载条件下，标称输入电压，进行2小时试验，实验过程中，反复开关机，模块起机应正常。每次实验条件改变之前，对输出电压和纹波进行测试。
  - (5) 最后检测：将样品取出，在正常条件下，恢复2h后，对样品进行外观检查和输出电压和纹波测试。

## 16) 低温带电老化实验

1. 测试目的：测试模块电源在低温条件下正常工作的能力。
2. 接线图：按图一接线，并将被测模块放入低温箱内。
3. 测试方法：
  - (1) 初始检测：在正常大气条件下，对样品进行外观检查和输出电压测试。
  - (2) 试验：将样品按输入，输出接好线，放置实验箱内，温度达到要求值时，接通电源。
  - (3) 在额定负载条件下，输入电压分别为标称值，最大值，最小值，各进行2小时试验，实验过程中反复开关机，模块起机应正常。
  - (4) 在最小负载条件下，标称输入电压，进行2小时试验，实验过程中，反复开关机，模块起机应正常。每次实验条件改变之前，对输出电压和纹波进行测试。
  - (5) 最后检测：将样品取出，在正常条件下，恢复2h后，对样品进行外观检查和输出电压和纹波测试。

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