典型性能 Features

- 50-800 瓦功率输出（50-800Watts of Output Power）
- 超宽电压输入（4:1Wide Range Input）
- 长期短路保护，自恢复（Short Circuit Protection ,Automatic Recovery）
- 小型化封装（Small Package）

电气特性 Electrical Specifications

输 入 特 性 Input	Min	Type	Max	Notes
输入电压范围 Input Voltage Range	9V	12V	18V	
	18V	24V	36V	9-36Vdc输入范围尾缀加W
	36V	48V	72V	18-72Vdc输入范围尾缀加W
	66V	110V	160V	43-160Vdc输入范围尾缀加W
	200V	280V	400V	
	380V	540V	700V	
控制功能 ON/OFF Control	正逻辑	ON		CNT 悬空或接TTL高电平 CNT pin left open or CNT pin connected to TTL logic high
		OFF		CNT 与-Vin 相连 CNT pin is at a logic low
	负逻辑 尾缀 P	ON		CNT 与-Vin 相连 CNT pin is at a logic low
		OFF		悬空或接TTL高电平 CNT pin left open or CNT pin connected to TTL logic high
ON/OFF 逻辑低 Logic Low			1.2V	
输入欠压保护 Input. Under-voltage Lockout	6V		9V	12V 输入
	13V		18V	24V 输入
	30V		36V	48V 输入
	55V		66V	110V 输入
	180V		200V	280V 输入
	320V		370V	540V 输入
启动延时时间 Start-up Delay Time		10mS		
输 出 特 性 Output	**Min**	**Type**	**Max**	**Notes**
输出电压精度 Set point Accuracy		±1%		
负载效应 Load Regulation		±0.5%		
源效应 Line Regulation		±0.2%		
输出电压调节 TRIM Range			±10%	
动态响应 Dynamic Response			4%Vo Pk deviation 100μS settling time	50~75% load 50~25% load
温度系数 Temperature Regulation		±0.02%/℃		

输出过流保护 Current Limit Threshold	110%		160%	
输出过压保护 Over-voltage Protection	110%		140%	

过温保护 Over temperature Protection	100℃	115℃	125℃	工业、AG
	105℃	115℃	125℃	AH\AHII
短路保护 Short-Circuit Protection	长期短路自恢复 Continuous, Automatic Recovery			

综合特性 General		Min	Type	Max	Notes
隔离电压 Isolation Voltage	低压输入	1500Vdc			输入与输出 Input-Output
		1500Vdc			输入与壳 Input-Case
		500Vdc			输出与壳 Output-Case
	高压输入	4250Vdc			输入与输出 Input-Output
		2250Vdc			输入与壳 Input-Case
		750Vdc			输出与壳 Output-Case
绝缘电阻 Isolation Resistor（500VDC）		20MΩ			Input to Output
开关频率 Switching Frequency			300KHz		
平均故障间隔时间 MTBF			2×10^6Hrs		Mil HDBK 217F Tc=25℃
工作壳温 Case Temperature	工业级	-40℃		+100℃	
	军用 AG	-40℃		+105℃	
	军用 AHII	-55℃		+105℃	
储存温度 Storage Temperature		-55℃		+125℃	
		-65℃		+125℃	军用AHII级别
相对湿度 Relative Humidity		10%		90%	
管脚焊接温度 Pin Solder Temperature				250℃	Wave Solder <10S
手工焊接时间 Hand Soldering Time				5S	Iron Temperature 425 ℃
传导 Conducted Emission	GB9254/CISPR22/EN55022 Class B（推荐电路见图）				
静电放电 Electrostatic Discharge	GB17626/EN61000-4-2 Contact ±4KV				
浪涌抗扰度 Surge Immunity	GB17626/EN61000-4-5 ±2KV（推荐电路见图） perf. Criteria B				
脉冲群抗扰度 Electrical Fast Transient	GB17626/EN61000-4-5 ±2KV（推荐电路见图） perf. Criteria B				
海拔 Altitude	≤5000m				
振动 Vibration	正弦，10Hz-55Hz，振幅为 0.35mm，X、Y、Z 三个方向各 30min				
冲击 Shock	半正弦，峰值加速度为 300m/s²，标准脉冲持续时间为 6ms，X、Y、Z 三个方向各连续冲击 6 次；				

型号列表

型号 Models	输入电压范围 Input Voltage Range	输出电压（Vdc） Output Voltage	输出电流 (A) Output current	纹波噪声(mv) Ripple and noise	典型效率 Efficiency	容性负载（μF） Max.Capacitor Load
WDH50-24S3V3	18-36V	3.3	10	100	90%	10000
WDH50-24S5	18-36V	5.05	10	100	90%	10000
WDH50-24S9	18-36V	9.0	5.55	150	88%	2200
WDH50-24S12	18-36V	12	4.17	150	90%	2200
WDH50-24S13V8	18-36V	13.8	3.62	150	90%	2200
WDH50-24S15	18-36V	15	3.33	150	90%	2200
WDH50-24S24	18-36V	24	2.08	150	88%	1000
WDH50-24S28	18-36V	28	1.79	150	88%	1000
WDH50-24S48	18-36V	48	1.04	400	88%	470
WDH50-48S3V3	36-72V	3.3	10	100	90%	10000
WDH50-48S5	36-72V	5.05	10	100	90%	10000
WDH50-48S9	36-72V	9.0	5.55	150	88%	2200
WDH50-48S12	36-72V	12	4.17	150	88%	2200
WDH50-48S15	36-72V	15	3.33	150	88%	2200
WDH50-48S24	36-72V	24	2.08	150	88%	1000
WDH50-48S28	36-72V	28	1.79	150	88%	1000
WDH50-48S48	36-72V	48	1.04	400	88%	470
WDH50-110S5	66-160V	5.05	10	100	90%	10000
WDH50-110S12	66-160V	12	4.17	150	88%	2200
WDH100-110S13V8	66-160V	13.8	3.62	150	90%	2200
WDH50-110S15	66-160V	15	3.33	150	90%	2200
WDH50-110S24	66-160V	24	2.08	150	88%	1000
WDH50-110S48	66-160V	48	1.04	400	88%	470
WDH75-24S3V3	18-36V	3.3	15	100	90%	10000
WDH75-24S5	18-36V	5.05	15	100	90%	10000
WDH75-24S9	18-36V	9.0	8.33	150	88%	2200
WDH75-24S12	18-36V	12	6.25	150	88%	2200
WDH75-24S13V8	18-36V	13.8	5.43	150	90%	2200
WDH75-24S15	18-36V	15	5	150	89%	2200
WDH75-24S24	18-36V	24	3.13	150	90%	1000
WDH75-24S28	18-36V	28	2.68	150	90%	1000
WDH75-24S48	18-36V	48	1.56	400	88%	470
WDH75-48S3V3	36-72V	3.3	15	100	90%	10000

WDH75-48S5	36-72V	5.05	15	100	90%	10000
WDH75-48S9	36-72V	9.0	8.33	150	88%	2200
WDH75-48S12	36-72V	12	6.25	150	88%	2200
WDH75-48S15	36-72V	15	5	150	88%	2200
WDH75-48S24	36-72V	24	3.13	150	88%	1000
WDH75-48S28	36-72V	28	2.68	150	88%	1000
WDH75-48S48	36-72V	48	1.56	400	88%	470
WDH75-110S5	66-160V	5.05	15	100	90%	10000
WDH75-110S12	66-160V	12	6.25	150	88%	2200
WDH75-110S13V8	66-160V	13.8	5.43	150	90%	2200
WDH75-110S15	66-160V	15	5	150	89%	2200
WDH75-110S24	66-160	24	3.13	150	88%	1000
WDH75-110S48	66-160	48	1.56	400	88%	470
WDH100-24S3V3	18-36V	3.3	20	100	90%	10000
WDH100-24S5	18-36V	5.05	20	100	90%	10000
WDH100-24S9	18-36V	9.0	11.1	150	88%	2200
WDH100-24S12	18-36V	12	8.33	150	88%	2200
WDH100-24S13V8	18-36V	13.8	7.25	150	90%	2200
WDH100-24S15	18-36V	15	6.67	150	89%	2200
WDH100-24S24	18-36V	24	4.17	150	90%	1000
WDH100-24S28	18-36V	28	3.57	150	90%	1000
WDH100-24S48	18-36V	48	2.08	200	88%	470
WDH100-48S3V3	36-72V	3.3	20	100	90%	10000
WDH100-48S5	36-72V	5.05	20	100	90%	10000
WDH100-48S9	36-72V	9.0	11.1	150	88%	2200
WDH100-48S12	36-72V	12	8.33	150	88%	2200
WDH100-48S15	36-72V	15	6.67	150	89%	2200
WDH100-48S24	36-72V	24	4.17	150	90%	1000
WDH100-48S28	36-72V	28	3.57	150	90%	1000
WDH100-48S48	36-72V	48	2.08	200	88%	470
WDH100-110S5	66-160V	5.05	20	100	90%	10000
WDH100-110S12	66-160V	12	8.33	150	89%	2200
WDH100-110S13V8	66-160V	13.8	7.25	150	90%	2200
WDH100-110S15	66-160V	15	6.67	150	90%	2200
WDH100-110S24	66-160V	24	4.17	150	88%	1000
WDH100-110S48	66-160V	48	2.08	200	88%	470
WDH150-24S3V3	18-36V	3.3	30	100	90%	10000

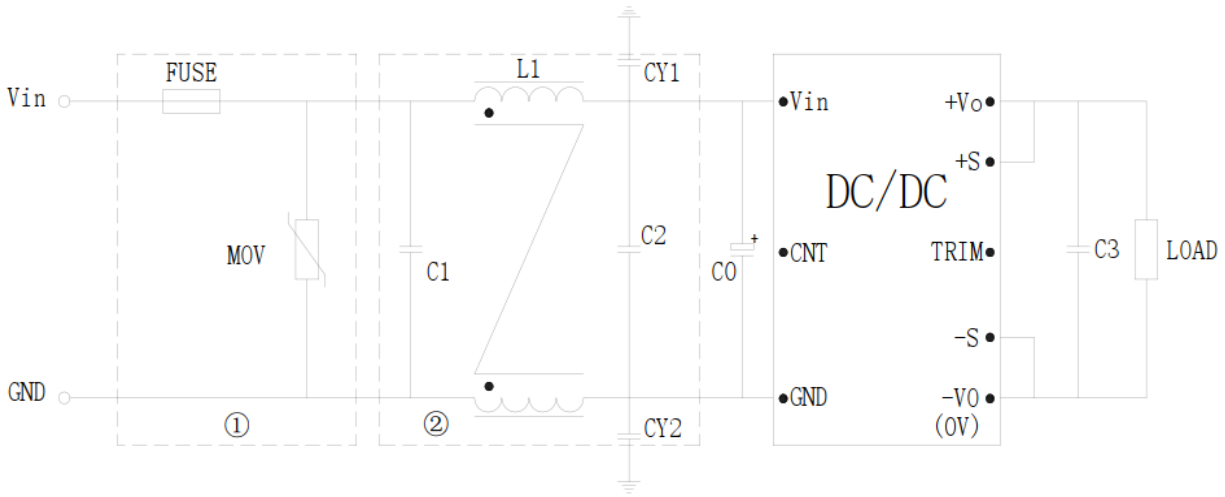
WDH150-24S5	18-36V	5.05	30	100	90%	10000
WDH150-24S9	18-36V	9.0	16.6	150	88%	2200
WDH150-24S12	18-36V	12	12.5	150	89%	2200
WDH150-24S13V8	18-36V	13.8	10.87	150	90%	2200
WDH150-24S15	18-36V	15	10	150	90%	2200
WDH150-24S24	18-36V	24	6.25	150	88%	1000
WDH150-24S28	18-36V	28	5.36	150	88%	1000
WDH150-24S48	18-36V	48	3.13	200	88%	470
WDH150-48S3V3	36-72V	3.3	30	100	92%	10000
WDH150-48S5	36-72V	5.05	30	100	92%	10000
WDH150-48S9	36-72V	9.0	16.6	150	88%	2200
WDH150-48S12	36-72V	12	12.5	150	88%	2200
WDH150-48S15	36-72V	15	10	150	89%	2200
WDH150-48S24	36-72V	24	6.25	150	90%	1000
WDH150-48S28	36-72V	28	5.36	150	90%	1000
WDH150-48S48	36-72V	48	3.13	150	88%	1000
WDH150-110S5	66-160V	5.05	30	100	90%	10000
WDH150-110S12	66-160V	12	12.5	150	88%	2200
WDH150-110S13V8	66-160V	13.8	10.87	150	90%	2200
WDH150-110S15	66-160V	15	10	150	89%	2200
WDH150-110S24	66-160V	24	6.25	150	90%	1000
WDH150-110S48	66-160V	48	3.13	150	88%	1000
WDH200-24S3V3	18-36V	3.3	40	100	89%	10000
WDH200-24S5	18-36V	5.05	40	100	89%	10000
WDH200-24S9	18-36V	9.0	22.2	150	88%	2200
WDH200-24S12	18-36V	12	16.67	150	87%	2200
WDH200-24S13V8	18-36V	13.8	14.49	150	90%	2200
WDH200-24S15	18-36V	15	13.33	150	87%	2200
WDH200-24S24	18-36V	24	8.33	150	87%	1000
WDH200-24S28	18-36V	28	7.14	150	87%	1000
WDH200-24S48	18-36V	48	4.17	200	88%	470
WDH200-48S3V3	36-72V	3.3	40	100	90%	10000
WDH200-48S5	36-72V	5.05	40	100	90%	10000
WDH200-48S9	36-72V	9.0	22.2	150	88%	2200
WDH200-48S12	36-72V	12	16.67	150	88%	2200
WDH200-48S15	36-72V	15	13.33	150	89%	2200
WDH200-48S24	36-72V	24	8.33	150	90%	1000

WDH200-48S28	36-72V	28	7.14	150	90%	1000
WDH200-48S48	18-36V	48	4.17	150	88%	1000
WDH200-110S5	66-160V	5.05	40	100	90%	10000
WDH200-110S12	66-160V	12	16.67	150	88%	2200
WDH200-110S13V8	66-160V	13.8	14.49	150	90%	2200
WDH200-110S15	66-160V	15	13.33	150	90%	2200
WDH200-110S24	66-160V	24	8.33	150	88%	1000
WDH200-110S48	66-160V	48	4.17	150	88%	1000
WDH150-24S24W	9-36V	24	6.25	150	88%	1000
WDH150-24S28W	9-36V	28	5.36	150	88%	1000
WDH200-24S24W	9-36V	24	8.33	150	88%	1000
WDH200-24S28W	9-36V	28	7.14	150	88%	1000
WDH300-110S13V8	66-160V	13.8	21.7	200	90%	2200
WDH300-24S12	18-36V	12	25	150	87%	2200
WDH300-24S15	18-36V	15	20	150	87%	2200
WDH300-24S24	18-36V	24	12.5	200	87%	1000
WDH300-24S28	18-36V	28	10.8	200	87%	1000
WDH300-24S48	18-36V	48	6.25	200	88%	470
WDH300-48S12	36-72V	12	25	150	87%	2200
WDH300-48S15	36-72V	15	20	150	87%	2200
WDH300-48S24	36-72V	24	12.5	200	88%	1000
WDH300-48S28	36-72V	28	10.8	200	87%	1000
WDH300-48S48	36-72V	48	6.25	200	88%	470
WDH300-280S12	200-400V	12	25	150	85%	2200
WDH300-280S15	200-400V	15	20	150	85%	2200
WDH300-280S24	200-400V	24	12.5	200	87%	1000
WDH300-280S28	200-400V	28	10.8	200	87%	1000
WDH300-280S48	200-400V	48	6.25	300	87%	470
WDH300-540S24	380-700Vdc	24	12. 5	200	89%	1000
WDH300-540S28	380-700Vdc	28	10. 8	200	89%	1000
WDH300-540S48	380-700Vdc	48	6. 25	300	90%	470
WDH350-48S28	36-72V	28	12.5	200	92%	2200
WDH350-48S24	36-72V	24	14.58	200	92%	2200
WDH450-48S24	36-72V	24	18.75	200	93%	2200
WDH450-48S28	36-72V	28	16.07	200	93%	2200
WDH600-24S12	18-36V	12	50	150	90%	4700
WDH600-24S15	18-36V	15	40	150	90%	4700

WDH600-24S24	18-36V	24	25	200	91%	2200
WDH600-24S28	18-36V	28	21.5	200	90%	2200
WDH600-24S48	18-36V	48	12.5	480	89%	1000
WDH600-48S12	36-72V	12	50	150	90%	4700
WDH600-48S15	36-72V	15	40	150	90%	4700
WDH600-48S24	36-72V	24	25	200	91%	2200
WDH600-48S28	36-72V	28	21.5	200	90%	2200
WDH600-48S48	36-72V	48	12.5	480	89%	1000
WDH600-280S12	200-400Vdc	12	50	120	90%	4700
WDH600-280S24	200-400Vdc	24	25	240	89%	1000
WDH600-280S28	200-400Vdc	28	21.4	280	89%	1000
WDH600-280S48	200-400Vdc	48	12.5	480	90%	1000
WDH600-540S24	380-700Vdc	24	25	240	89%	1000
WDH600-540S28	380-700Vdc	28	21.4	280	89%	1000
WDH600-540S48	380-700Vdc	48	12.5	480	90%	1000
WDH800-24S12	18-36V	12	66.7	150	89%	4700
WDH800-24S15	18-36V	15	53.4	150	90%	4700
WDH800-24S24	18-36V	24	33.3	200	91%	2200
WDH800-24S28	18-36V	28	28.6	200	90%	2200
WDH800-24S48	18-36V	48	16.7	480	89%	1000
WDH800-48S12	36-72V	12	66.7	150	89%	4700
WDH800-48S15	36-72V	15	53.4	150	90%	4700
WDH800-48S24	36-72V	24	33.3	200	90%	2200
WDH800-48S28	36-72V	28	28.6	200	90%	2200
WDH800-48S48	36-72V	48	16.7	480	89%	1000

■说明：仅列出典型型号，其它型号，请确定功率，输入电压及输出电压，致电我公司。

电磁兼容应用（EMC）



型号	VIN:12V	Vin：24V	Vin：48V	VIN:110V
FUSE	根据具体电源模块型号电流选择			
MOV	14D101K	14D101K	14D101K	14D201K
C0	470μF/25V	220μF/50V	100μF/100V	100μF/250V
C1、C2	10μF/25V	4.7μF/50V	2.2μF100V	1μF/250V
C3	100μF			
LCM	0.5 mH	1mH		2 mH
CY1、CY2	2.2nF Y2 安规电容			

FUSE:推荐采用慢熔型的产品，FUSE 电流选择要考虑高温降额和冲击电流的影响。

MOV:压敏电阻，MOV 可以和保险丝串联应用，防止 MOV 失效。也可以两只 MOV 串联，增加可靠性。

C0 C3:高频电解电容

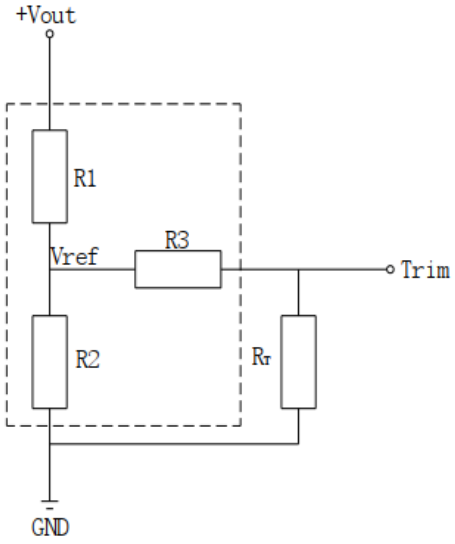
C1 C2:高频独石电容或者薄膜电容。

LCM:共模电感。具体型号请咨询销售人员。

CY1 CY2:安规 Y2 电容

输出调节应用（ TRIM Function）

负逻辑 TRIM：



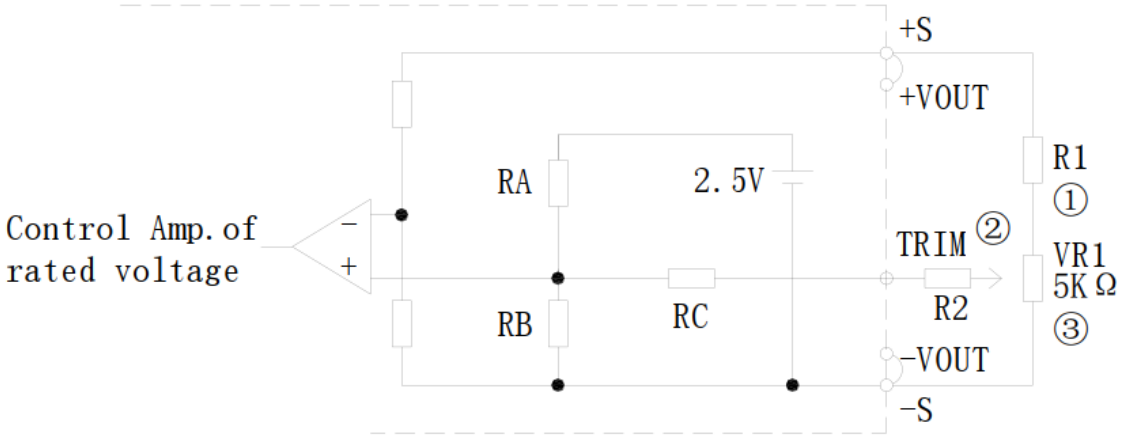
$$up: R_T = \frac{TR_2}{R_2 - T} - R_3 \qquad T = \frac{Vref}{Vo' - Vref}.R_1$$

$$down: R_T = \frac{TR_1}{R_1 - T} - R3 \qquad T = \frac{Vo' - Vref}{Vref}.R_2$$

Trim up

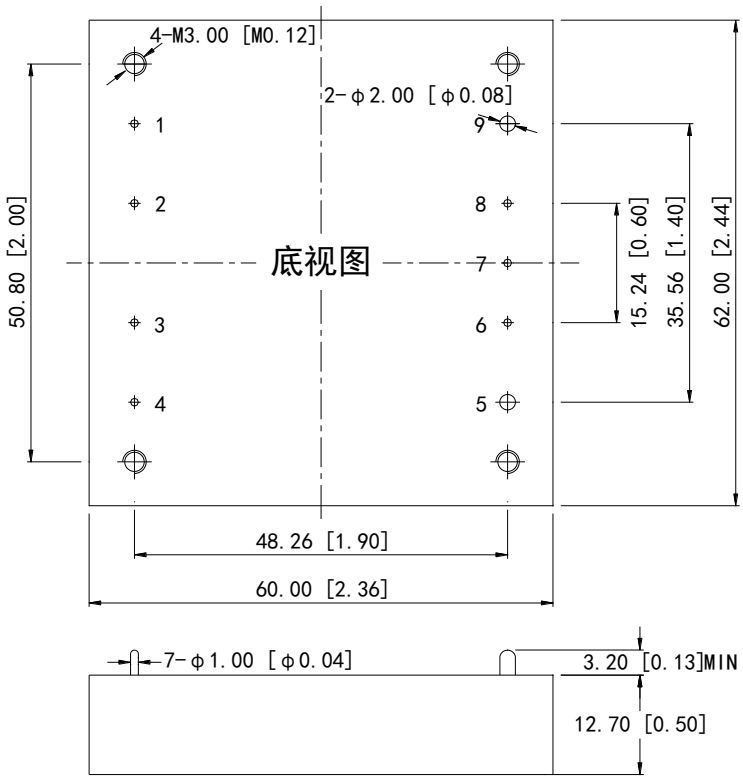
Vout（V）	R1(KΩ)	R2(KΩ)	R3(KΩ)	Vref(V)
3.3	3.32	2.0	8.2	1.24
5	2.55	2.49	8.2	2.5
9	6.49	2.49	10	2.5
12	9.53	2.49	12	2.5
13.8	11.1	2.49	12	2.5
15	12.5	2.49	15	2.5
24	21.5	2.49	20	2.5
28	25.5	2.49	20	2.5
48	45.3	2.49	20	2.5

正逻辑 TRIM(尾缀加 S 产品)：



NO.	VOUT	Adjustable range			
		VOUT±5%		VOUT±10%	
		R1	R2	R1	R2
1	1.8V	1.8KΩ	6.2KΩ	1.6KΩ	3.6KΩ
2	2.5V	2.7KΩ	7.5KΩ	2.4KΩ	4.7KΩ
3	3.3V	2.4KΩ	11 KΩ	2.4KΩ	6.8KΩ
4	5V	5.6KΩ		5.6KΩ	
5	12V	18KΩ		18KΩ	
6	15V	24KΩ		24KΩ	
7	24V	43KΩ		39KΩ	
8	28V	51KΩ		47KΩ	
9	32V	56KΩ		56KΩ	
10	48V	82KΩ		82KΩ	

机械图及管脚说明（ Mechanical Chart、 Pins） （Unit： mm/ inch）



引脚	1	2	3	4	5	6	7	8	9
功能	-Vin	NP	CNT	+Vin	+Vo	+S	TRIM	-S	-Vo
备注	输入负	无连接	遥控	输入正	输出正	正极性遥测端子，不使用时与 +Vo 连接	电压调节	负极性遥测端子，不使用时与 -Vo 连接	输出地

注:安装定位尺寸公差按 GB/T1804-2000 F 级标准、外型尺寸公差按 GB/T1804-2000 C 级标准