

典型性能 Features

- ◆ 70 瓦功率输出 (70 Watts of Output Power)
- ◆ 超宽电压输入 (2: 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	W尾缀提供5-15V
	18V	24V	36V	W尾缀提供9-36V
	36V	48V	72V	W尾缀提供18-72V
	66V	74V/110V	160V	W尾缀提供40-160V
控制功能 ON/OFF Control		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
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
	50V		66V	110V 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%	一路
			±3%	二路
负载效应 Load Regulation			±0.5%	二路
源效应 Line Regulation			±0.2%	二路
输出电压调节 TRIM Range			±10%	
动态响应 Dynamic Response			4%Vo Pk deviation 400μS settling time	50~75% load 50~25% load
温度系数 Temperature Regulation		±0.2%/°C		

输出过流保护 Current Limit Threshold		110%		160%	
输出过压保护 Over-voltage Protection		110%		140%	
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		1500Vdc			
开关频率 Switching Frequency			300KHz		
平均故障间隔时间 MTBF			2×10 ⁶ Hrs		Mil HDBK 217F Tc=25℃
工作壳温 Case Temperature	工业级	-40℃		+90℃	
	AD、AG 级	-40℃		+95℃	
	AHII 级	-55℃		+100℃	
储存温度 Storage Temperature		-55℃		+125℃	
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 °C
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 ±6KV air ±8KV perf. Criteria A			
浪涌抗扰度 Surge Immunity		GB17626/EN61000-4-5 ±2KV (推荐电路见图) perf. Criteria A			
脉冲群抗扰度 Electrical Fast Transient		GB17626/EN61000-4-4 ±2KV (推荐电路见图) perf. CriteriaA			

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
WD25-12S3V3	9-18V	3.3	6.0	50	86%	6800
WD25-12S5	9-18V	5.05	5.0	50	86%	6800
WD25-12S9	9-18V	9	2.78	90	85%	680
WD25-12S12	9-18V	12	2.08	100	85%	680
WD25-12S15	9-18V	15	1.67	100	85%	680
WD25-12S18	9-18V	18	1.39	100	85%	470

WD25-12S24	9-18V	24	1.04	100	87%	470
WD25-12S48	9-18V	48	0.52	200	85%	100
WD25-24S3V3	18-36V	3.3	6.0	50	86%	6800
WD25-24S5	18-36V	5.05	5.0	50	88%	6800
WD25-24S9	18-36V	9	2.78	90	85%	680
WD25-24S12	18-36V	12	2.08	100	86%	680
WD25-24S15	18-36V	15	1.67	100	86%	680
WD25-24S18	18-36V	18	1.39	100	85%	470
WD25-24S24	18-36V	24	1.04	100	87%	470
WD25-24S48	18-36V	48	0.52	200	85%	100
WD25-48S3V3	36-72V	3.3	6.0	50	88%	6800
WD25-48S5	36-72V	5.05	5.0	50	88%	6800
WD25-48S9	36-72V	9	2.78	90	87%	680
WD25-48S12	36-72V	12	2.08	100	87%	680
WD25-48S15	36-72V	15	1.67	100	87%	680
WD25-48S18	36-72V	18	1.39	100	87%	470
WD25-48S24	36-72V	24	1.04	100	88%	470
WD25-48S48	36-72V	48	0.52	200	85%	100
WD25-110S3V3	66-160V	3.3	6.0	50	85%	6800
WD25-110S5	66-160V	5.05	5.0	50	86%	6800
WD25-110S12	66-160V	12	2.08	100	86%	680
WD25-110S15	66-160V	15	1.67	100	86%	680
WD25-110S24	66-160V	24	1.04	100	87%	470
WD25-110S48	66-160V	48	0.52	200	86%	100
WD25-12D5	9-18V	±5.05	±2.5	50	84%	2200
WD25-12D12	9-18V	±12	±1.04	100	86%	220
WD25-12D15	9-18V	±15	±0.83	100	86%	220
WD25-24D5	18-36V	±5.05	±2.5	50	85%	2200
WD25-24D12	18-36V	±12	±1.04	100	86%	220
WD25-24D15	18-36V	±15	±0.83	100	86%	220

WD25-48D5	36-72V	±5.05	±2.5	50	85%	2200
WD25-48D12	36-72V	±12	±1.04	100	87%	220
WD25-48D15	36-72V	±15	±0.83	100	87%	220
WD25-110D5	66-160V	±5.05	±2.5	50	85%	2200
WD25-110D12	66-160V	±12	±1.04	100	86%	220
WD25-110D15	66-160V	±15	±0.83	100	86%	220
WD25-12T5D12	9-18V	+5/+12.3/-12.3	+3.5/+0.3/-0.3	50/100/100	80%	1000/100/100
WD25-12T5D15	9-18V	+5/+15/-15	+3.5/+0.25/-0.25	50/100/100	80%	1000/100/100
WD25-12T5S12	9-18V	+5.05/+12.3/-5.05/	+3.5/+0.3/-1.0	50/100/50	80%	1000/1000/100
WD25-24T5D12	18-36V	+5/+12.3/-12.3	+3.5/+0.3/-0.3	50/100/100	81%	1000/100/100
WD25-24T5D15	18-36V	+5/+15/-15	+3.5/+0.25/-0.25	50/100/100	81%	1000/100/100
WD25-24T5S12	18-36V	+5.05/+12.3/-5.05/	+3.5/+0.3/-1.0	50/100/50	81%	1000/1000/100
WD25-48T5D12	36-72V	+5/+12.3/-12.3	+3.5/+0.3/-0.3	50/100/100	82%	1000/100/100
WD25-48T5D15	36-72V	+5/+15/-15	+3.5/+0.25/-0.25	50/100/100	82%	1000/100/100
WD25-48T5S12	36-72V	+5.05/+12.3/-5.05/	+3.5/+0.3/-1.0	50/100/50	82%	1000/1000/100
WD30-12S3V3	9-18V	3.3	7.0	50	86%	6800
WD30-12S5	9-18V	5.05	6.0	50	86%	6800
WD30-12S9	9-18V	9	3.33	90	85%	680
WD30-12S12	9-18V	12	2.5	100	85%	680
WD30-12S15	9-18V	15	2.0	100	85%	680
WD30-12S18	9-18V	18	1.67	100	85%	470
WD30-12S24	9-18V	24	1.25	100	87%	470
WD30-12S48	9-18V	48	0.63	200	85%	100
WD30-24S3V3	18-36V	3.3	7.0	50	86%	6800
WD30-24S5	18-36V	5.05	6.0	50	88%	6800
WD30-24S9	18-36V	9	3.33	90	85%	680
WD30-24S12	18-36V	12	2.5	100	86%	680
WD30-24S15	18-36V	15	2.0	100	86%	680
WD30-24S18	18-36V	18	1.67	100	85%	470
WD30-24S24	18-36V	24	1.25	100	87%	470

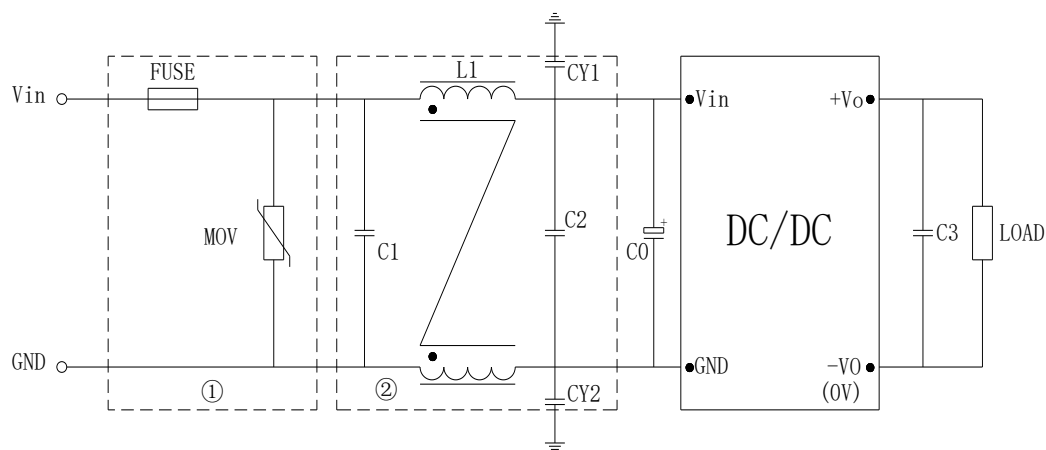
WD30-24S48	18-36V	48	0.63	200	85%	100
WD30-48S3V3	36-72V	3.3	7.0	50	88%	6800
WD30-48S5	36-72V	5.05	6.0	50	88%	6800
WD30-48S9	36-72V	9	3.33	90	87%	680
WD30-48S12	36-72V	12	2.5	100	87%	680
WD30-48S15	36-72V	15	2.0	100	87%	680
WD30-48S18	36-72V	18	1.67	100	87%	470
WD30-48S24	36-72V	24	1.25	100	88%	470
WD30-48S48	36-72V	48	0.63	200	85%	100
WD30-110S3V3	66-160V	3.3	7.0	50	85%	6800
WD30-110S5	66-160V	5.05	6.0	50	86%	6800
WD30-110S12	66-160V	12	2.5	100	86%	680
WD30-110S15	66-160V	15	2.0	100	86%	680
WD30-110S24	66-160V	24	1.25	100	87%	470
WD30-110S48	66-160V	48	0.63	200	86%	100
WD30-12D5	9-18V	±5.05	±3.0	50	84%	2200
WD30-12D12	9-18V	±12	±1.25	100	86%	220
WD30-12D15	9-18V	±15	±1.0	100	86%	220
WD30-24D5	18-36V	±5.05	±3.0	50	85%	2200
WD30-24D12	18-36V	±12	±1.25	100	86%	220
WD30-24D15	18-36V	±15	±1.0	100	86%	220
WD30-48D5	36-72V	±5.05	±3.0	50	85%	2200
WD30-48D12	36-72V	±12	±1.25	100	87%	220
WD30-48D15	36-72V	±15	±1.0	100	87%	220
WD30-110D5	66-160V	±5.05	±3.0	50	85%	2200
WD30-110D12	66-160V	±12	±1.25	100	86%	220
WD30-110D15	66-160V	±15	±1.0	100	86%	220
WD30-12T5D12	9-18V	+5.05/+12.3/-12.3	+4/+0.5/-0.5	50/100/100	80%	1000/100/100
WD30-12T5D15	9-18V	+5.05/+15/-15	+4/+0.4/-0.4	50/100/100	80%	1000/100/100
WD30-12T5S12	9-18V	+5.05/+12.3/-5.05/	+4/+0.5/-1	50/100/50	80%	1000/1000/100

WD30-24T5D12	18-36V	+5.05/+12.3/-12.3	+4/+0.5/-0.5	50/100/100	81%	1000/100/100
WD30-24T5D15	18-36V	+5.05/+15/-15	+4/+0.4/-0.4	50/100/100	81%	1000/100/100
WD30-24T5S12	18-36V	+5.05/+12.3/-5.05/	+4/+0.5/-1	50/100/50	81%	1000/1000/100
WD30-48T5D12	36-72V	+5.05/+12.3/-12.3	+4/+0.5/-0.5	50/100/100	82%	1000/100/100
WD30-48T5D15	36-72V	+5.05/+15/-15	+4/+0.4/-0.4	50/100/100	82%	1000/100/100
WD30-48T5S12	36-72V	+5.05/+12.3/-5.05/	+4/+0.5/-1	50/100/50	82%	1000/1000/100
WD40-12S3V3	9-18V	3.3	10	50	83%	6800
WD40-12S5	9-18V	5.05	8	50	84%	6800
WD40-12S9	9-18V	9	4.44	90	85%	680
WD40-12S12	9-18V	12	3.33	100	85%	680
WD40-12S15	9-18V	15	2.67	100	85%	680
WD40-12S18	9-18V	18	2.22	100	85%	470
WD40-12S24	9-18V	24	1.67	100	87%	470
WD40-12S48	9-18V	48	0.83	200	85%	100
WD40-24S3V3	18-36V	3.3	10	50	84%	6800
WD40-24S5	18-36V	5.05	8	50	84%	6800
WD40-24S9	18-36V	9	4.44	90	85%	680
WD40-24S12	18-36V	12	3.33	100	87%	680
WD40-24S15	18-36V	15	2.67	100	87%	680
WD40-24S18	18-36V	18	2.22	100	88%	470
WD40-24S24	18-36V	24	1.67	100	88%	470
WD40-24S48	18-36V	48	0.83	200	85%	100
WD40-48S3V3	36-72V	3.3	10	50	84%	6800
WD40-48S5	36-72V	5.05	8	50	85%	6800
WD40-48S9	36-72V	9	4.44	90	87%	680
WD40-48S12	36-72V	12	3.33	100	87%	680
WD40-48S15	36-72V	15	2.67	100	87%	680
WD40-48S18	36-72V	18	2.23	100	88%	470
WD40-48S24	36-72V	24	1.67	100	89%	470
WD40-48S48	36-72V	48	0.83	200	85%	100

WD40-110S3V3	66-160V	3.3	10	50	83%	6800
WD40-110S5	66-160V	5.05	8	50	84%	6800
WD40-110S12	66-160V	12	3.33	100	86%	680
WD40-110S15	66-160V	15	2.67	100	86%	680
WD40-110S24	66-160V	24	1.67	100	88%	470
WD40-110S48	66-160V	48	0.83	200	85%	100
WD40-12D5	9-18V	±5.05	±4.0	50	84%	2200
WD40-12D12	9-18V	±12	±1.67	100	86%	220
WD40-12D15	9-18V	±15	±1.33	100	86%	220
WD40-24D5	18-36V	±5.05	±4.0	50	85%	2200
WD40-24D12	18-36V	±12	±1.67	100	87%	220
WD40-24D15	18-36V	±15	±1.33	100	87%	220
WD40-48D5	36-72V	±5.05	±4.0	50	85%	2200
WD40-48D12	36-72V	±12	±1.67	100	87%	220
WD40-48D15	36-72V	±15	±1.33	100	87%	220
WD40-110D5	66-160V	±5.05	±4.0	50	85%	2200
WD40-110D12	66-160V	±12	±1.67	100	87%	220
WD40-110D15	66-160V	±15	±1.33	100	87%	220
WD60-110S12	66-160V	12	5.0	100	90%	680
WD60-110S24	66-160V	24	2.5	100	90%	470
WD70-48S12	36-72V	12	5.83	100	90%	680

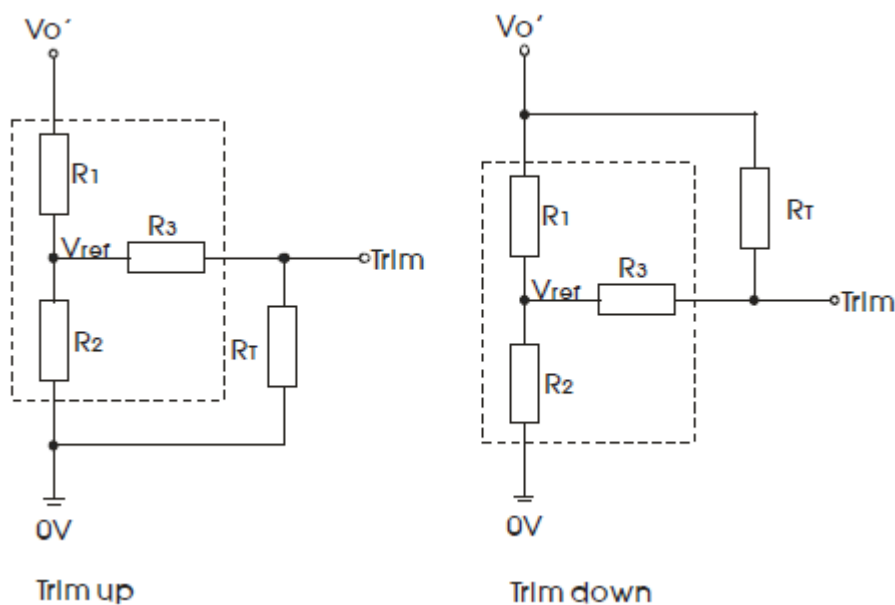
■说明：仅列出典型型号，其它型号，请确定功率，输入电压及输出电压，致电我公司。
尾缀加 H 产品，配散热器。

电磁兼容应用（EMC）



型号	Vin: 12V	Vin: 24V	Vin: 48V	Vin: 110V
FUSE	根据功率选择			
MOV	14D101K	14D101K	14D101K	14D201K
C0	220μF/25V	220μF/50V	100μF/100V	68μF/250V
C1、C2	10μF/25V	4.7μF/50V	2.2μF100V	1μF250V
C3	5V 以下: 470μF 9-24V:220μF 48V 以上: 100μF			
LCM	1mH			
CY1、CY2	2.2nF Y2 安规电容			

输出调节应用（TRIM Function）

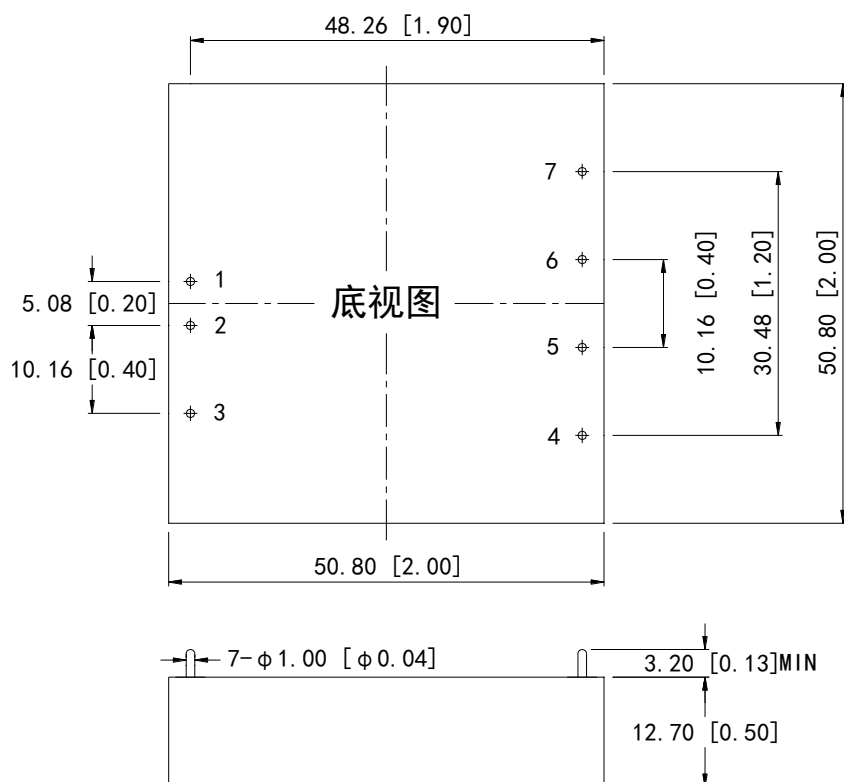


$$up: R_T = \frac{TR_2}{R_2 - T} - R_3 \quad T = \frac{V_{ref}}{V_{o'} - V_{ref}} \cdot R_1 \text{ (调高电压)}$$

$$down: R_T = \frac{TR_1}{R_1 - T} - R_3 \quad T = \frac{V_{o'} - V_{ref}}{V_{ref}} \cdot R_2 \text{ (调低电压)}$$

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
15	12.5	2.49	15	2.5
24	21.5	2.49	20	2.5
48	45.32	2.49	20	2.5

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



管脚 Pin	1	2	3	4	5	6	7
单路 Single	+Vin	-Vin	CNT	TRIM	-Vo	+Vo	NP
双路 Dual	+Vin	-Vin	CNT	TRIM	-Vo2	COM	+Vo1

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。