



DC/DC 铁路机车电源模块

DC/DC Railway locomotive power supply module

JWDHR--5W 三路输出 H 系列

JWDHR-5W triple output H series

典型性能 Typical Performance

- ◆外形尺寸: 56*46*22 (mm)
Dimension: 56*46*22 (mm)
- ◆宽输入电压范围
Wide range input voltage
- ◆105℃长寿命电解电容
105℃ long life electrolytic capacitors
- ◆高效率、高功率密度、低纹波
High efficiency、High power density、Low ripple & noise
- ◆黑金属外壳, 八面屏蔽, 通孔安装
Black metal shell, Eight face shield, Hole is installed
- ◆安规: EN60950
Ann rules: EN60950



输入特性 Input Features

输入电压范围 Input voltage range	标称 110V Nominal voltage 110V 标称 72V Nominal voltage 72V	66~160VDC 45~135VDC
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输出特性 Output Features

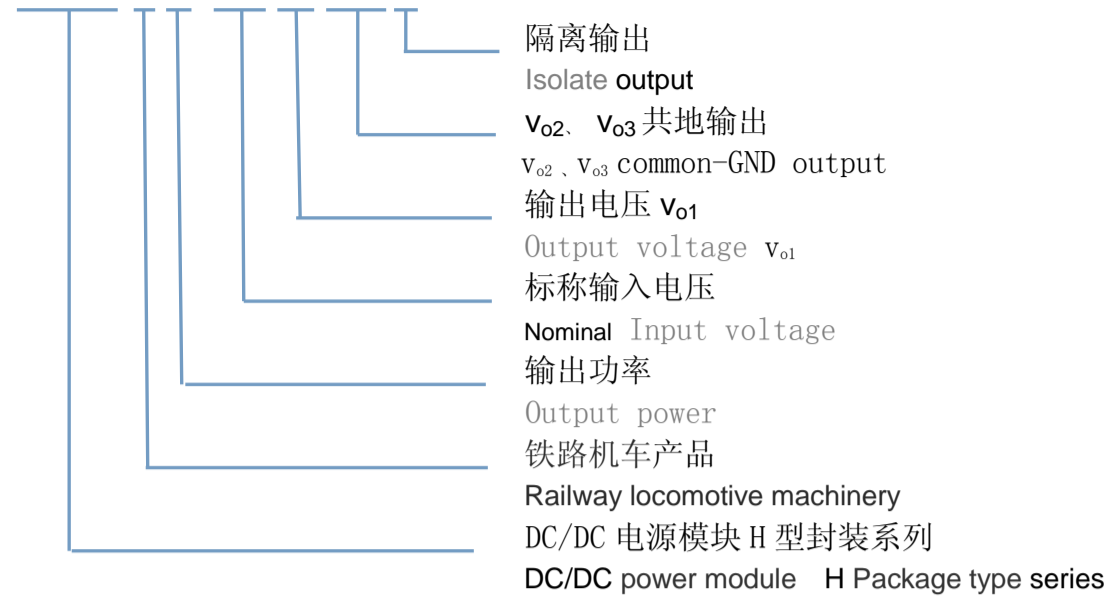
输出电压精度 Voltage tolerance	标称电压 Nominal voltage	$V_{O1} \cong \pm 1\%$ (3.3V、5V $\cong \pm 2\%$), $V_{O2} \cong \pm 3\%$, $V_{O3} \cong \pm 5\%$
电压调整率 Line regulation (full load)	输入电压从低端到高端变化 Change of input voltage from lowend to highend	$V_{O1} \cong \pm 0.5\%$, V_{O2} 、 $V_{O3} \cong \pm 1.5\%$
负载调整率 Load regul	20%~100%负载变化 20%~100% Load change	$V_{O1} \cong \pm 0.5\%$, $V_{O2} \cong \pm 3\%$, $V_{O3} \cong \pm 5\%$
纹波噪声 Ripple&Noise	20M 带宽 20M Bandwidth	$\cong 1\%$
温度系数 Temperature coefficient		$\pm 0.02\%/^{\circ}\text{C}$
过功率保护 Output overpower Protection		115~150%额定功率, 自恢复 115~150%rated outputt power,auto recovery
短路保护 Short Circuit Protection		长期, 自恢复 Long-term,auto recovery
启动延迟时间 Turn-on delay time	输入标称电压、满载 Input rated voltage、Fullload	$\cong 300\text{mS}$
保持时间 Hold up time	输入标称电压、满载 Input rated voltage、Fullload	80mS (典型值) 80ms (typical)
过冲幅度 Overshoot	25%额定负载变化 25% rated load change	$\cong 500\mu\text{S}$
	$\Delta V_{O1} / V_{O1}$	$\cong \pm 5.0\%$

一般特性 General Features

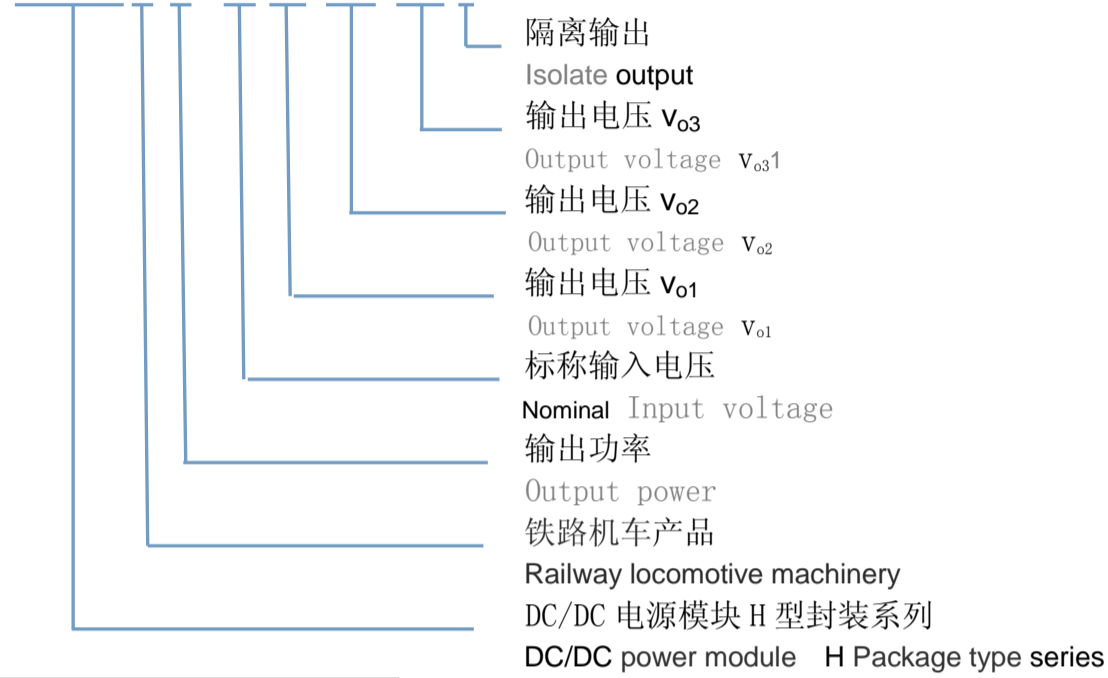
隔离耐压 Withstand voltage	输入对输出、输入对地 I/P-O/P、I/P-F/G 输出对地 O/P -F/G 输出对输出 (隔离) O/P-O/P (1分钟, 漏电流 $\cong 5\text{mA}$) (1Mintute ,leakage current) $\cong 5\text{mA}$)	3000VDC 500VDC 500VDC
绝缘电阻 Isolation resistance	500V	$\cong 100\text{M}\Omega$
MTBF	环境 25℃ Environment 25℃	$2.0 \times 10^5 \text{Hrs}$
开关频率 switching frequency		300KHz
工作温度 Operating temperature	70℃以上降额使用 Above 75℃ derating make	-45℃~85℃
储存温度 Storage temperature		-45℃~105℃
工作相对湿度 Operating humidity	无凝露及结冰现象 (non condensing)	10%~90%RH
储存相对湿度 Storage humidity	无凝露及结冰现象 (non condensing)	5%~95%RH
冷却方式 Cooling method		自然冷却 Convection

命名方式 Naming Rules

JWDHR 5 -110 S5 D12I



JWDHR 5 - 72 S5 S12 S-5 I



产品选型 Product selection

产品型号 Model No.	输入电压 Input voltage V _{in}	输出电压 Output voltage V _O	输出电流 Output current I _O	输出电压精度 Output voltage tolerance	纹波噪声 R&N V _(P-P) mV	最大容性负载 Capacitive load maximum	效率 Efficiency
JWDHR5-110S5D5I	66~160V	+ 5V	0.08~0.80A	±2%	80mV	650 μF	76%
		+5V	0.01~0.10A	±5%	80mV	50 μF	
		-5V	0.01~0.10A	±5%	80mV	50 μF	
JWDHR5-110S5D12I		+5V	0.06~0.60A	±2%	80mV	470 μF	78%
		+12V	0.01~0.10A	±3%	100mV	50 μF	
JWDHR5-110S5D15I		+ 5V	0.06~0.60A	±2%	80mV	470 μF	79%
		+ 15V	0.01~0.08A	±3%	120mV	50 μF	
JWDHR5-110S5D24I		+ 5V	0.06~0.60A	±2%	80mV	50 μF	80%
		+24V	0.01~0.05A	±3%	150mV	33 μF	
JWDHR5-110S12D5I		-24V	0.01~0.05A	±3%	150mV	50 μF	78%
		+12V	0.03~0.33A	±1%	120mV	220 μF	
JWDHR5-110S24D5I		+5V	0.01~0.1A	±5%	80mV	50 μF	80%
	-5V	0.01~0.1A	±5%	80mV	50 μF		
JWDHR5-110S24D12I	+24V	0.01~0.10A	±1%	150mV	50 μF	81%	
	+12V	0.01~0.1A	±3%	100mV	50 μF		
	-12V	0.01~0.1A	±3%	100mV	50 μF		
JWDHR5-110S5S110S-5I	+ 5V	0.05~0.50A	±2%	80mV	75 μF	77%	
	+12V	0.02~0.16A	±3%	120mV	75 μF		
	-5V	0.01~0.10A	±5%	80mV	50 μF		
JWDHR5-72S5D5I	45~135V	+ 5V	0.08~0.80A	±2%	80mV	650 μF	76%
		+5V	0.01~0.10A	±5%	80mV	50 μF	
		-5V	0.01~0.10A	±5%	80mV	50 μF	
JWDHR5-72S5D12I		+5V	0.06~0.60A	±2%	80mV	470 μF	78%
		+12V	0.01~0.10A	±3%	100mV	50 μF	
JWDHR5-72S5D15I		-12V	0.01~0.10A	±3%	100mV	50 μF	79%
		+ 5V	0.06~0.60A	±2%	80mV	470 μF	
JWDHR5-72S5D24I		+ 15V	0.01~0.08A	±3%	120mV	50 μF	80%
		-15V	0.01~0.08A	±3%	120mV	50 μF	
JWDHR5-72S12D5I		+ 5V	0.06~0.60A	±2%	80mV	50 μF	78%
		+24V	0.01~0.05A	±3%	150mV	33 μF	
JWDHR5-72S24D5I		-24V	0.01~0.05A	±3%	150mV	50 μF	80%
	+12V	0.03~0.33A	±1%	120mV	220 μF		
JWDHR5-72S24D5I	+5V	0.01~0.1A	±5%	80mV	50 μF	78%	
	-5V	0.01~0.1A	±5%	80mV	50 μF		
	+24V	0.02~0.16A	±1%	150mV	75 μF		
JWDHR5-72S24D5I	+5V	0.01~0.1A	±5%	80mV	50 μF	80%	
	-5V	0.01~0.1A	±5%	80mV	50 μF		
	+5V	0.01~0.1A	±5%	80mV	50 μF		

JWDHR5-72S24D12I	45~135V	+24V	0.01~0.10A	±1%	150mV	50 μF	81%
		+12V	0.01~0.1A	±3%	100mV	50 μF	
		-12V	0.01~0.1A	±3%	100mV	50 μF	
JWDHR5-72S5S110S-5I		+5V	0.05~0.50A	±2%	80mV	75 μF	77%
		+12V	0.02~0.16A	±3%	120mV	75 μF	
		-5V	0.01~0.10A	±5%	80mV	50 μF	

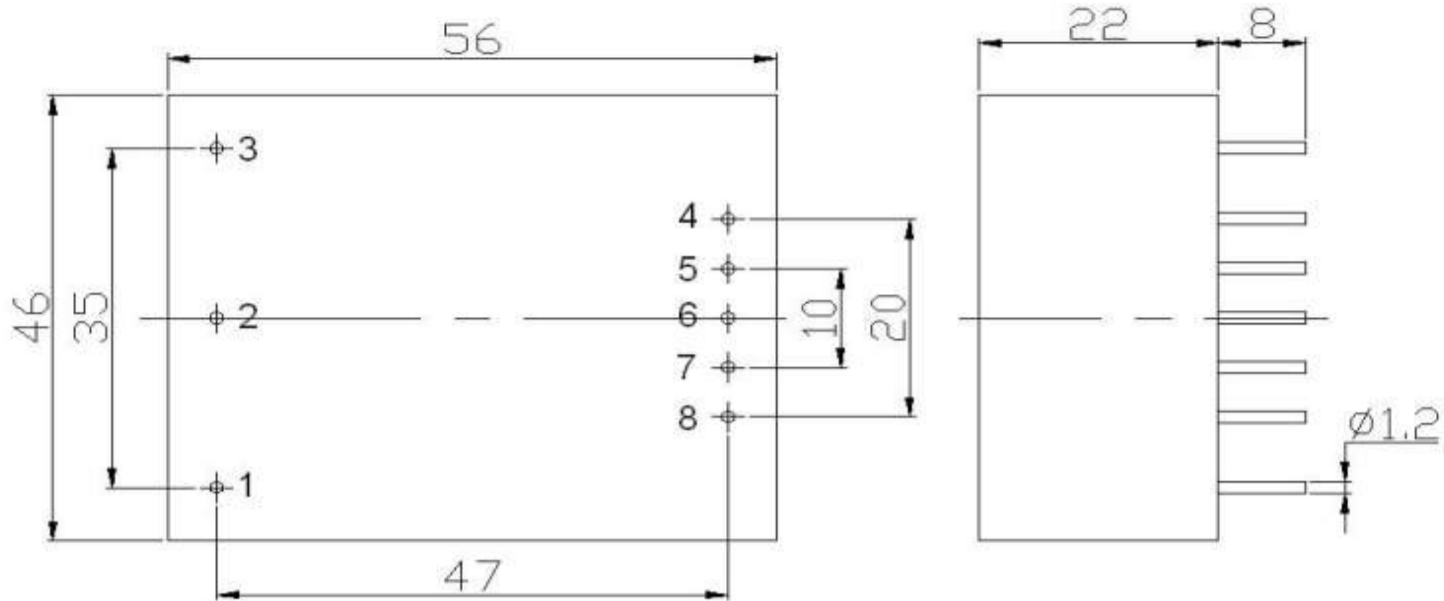
注：因篇幅有限，以上只是部分产品列表，若需列表以外产品，请与本公司销售部联系。

输出纹波噪声（峰-峰值）的测量，请参照模块测试说明中介绍的方法进行。

Note: Due to space limitations, the above list is only for some products. If other than a list of products, please contact the Company's sales department.

Output ripple noise measurement (peak - peak), please refer to the module test notes method is introduced.

封装尺寸图 Mechanical Data



管脚定义 Pin Assignments

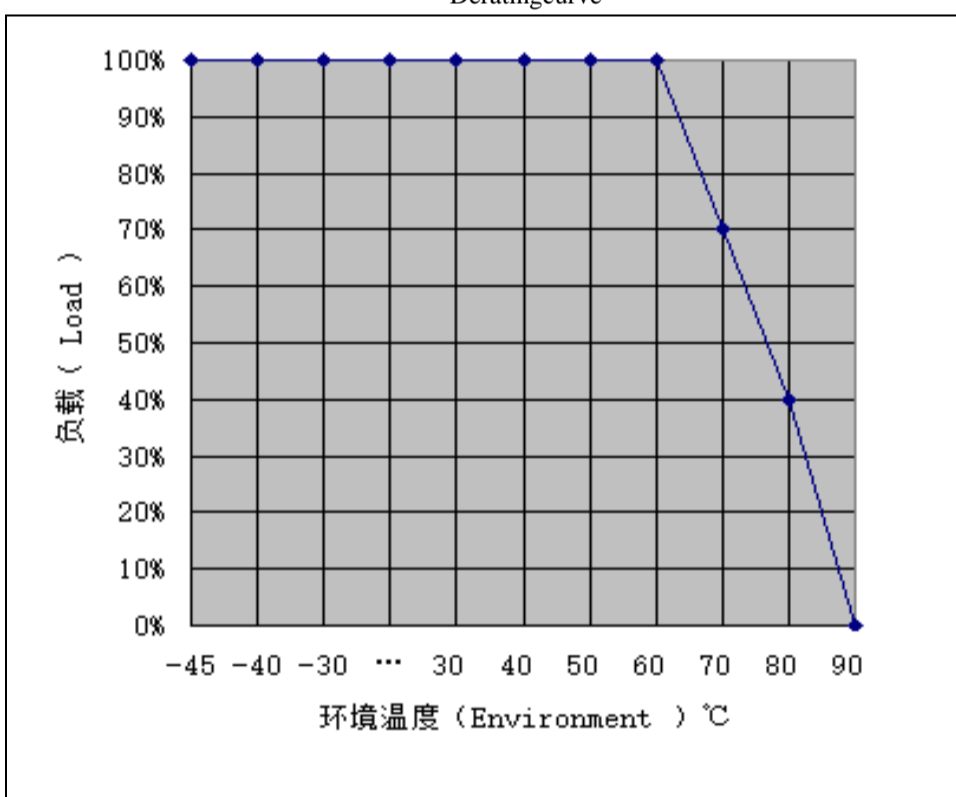
P1	P2	P3	P4	P5	P6	P7	P8
FG	V _{in+}	V _{in-}	V _{O2+}	COM	V _{O3-}	V _{O1+}	GND1

注：电源模块的外形尺寸和管脚定义如与选型手册不符，请以实物实际尺寸为准。

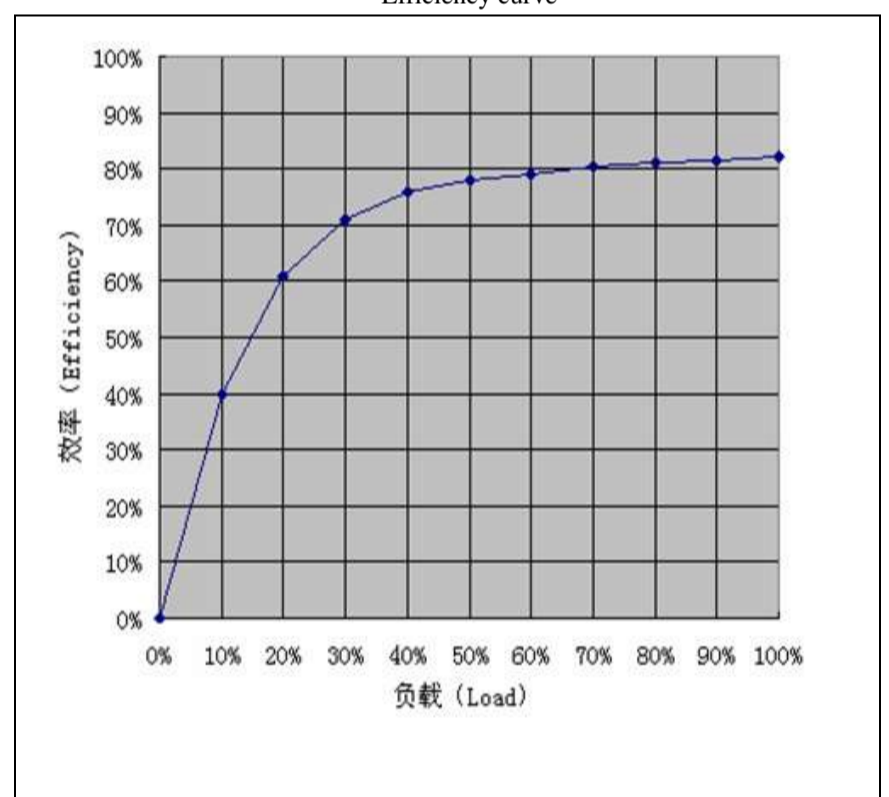
Note: Dimensions and pin definitions of power module such as inconsistent with the hand book, please in kind prevail actual size

典型曲线 Typical curve

降额曲线
Derating curve



效率曲线
Efficiency curve



纹波噪声测试：（靠测法 20MHz）

测试方法：纹波&噪声用示波器来测试。测试模块噪声时为了避免引入额外噪声，须用示波器探头直接接触模块输出引脚

