# DC/DC 铁路机车电源模块

DC/DC Railway locomotive power supply module

## JWDBR--16W 单路输出系列

JWDBR--16W single output series


### 典型性能 Typical Performance

◆外形尺寸：850.*25.4*10.16（mm）
Dimension：50.8*25.4*10.16（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<br>Input voltage range | 标称 110V<br>Nominal voltage110V<br>标称 72V<br>Nominal voltage110V(W) | 66~160VDC<br><br>45~135VDC |

### 输出特性 Output Features

| | | |
|---|---|---|
| 输出电压精度<br>Voltage tolerance | 标称电压<br>Nominal voltage | ≦±1%（3.3V、5V≦±2%) |
| 电压调整率<br>Line regulation (full load) | 输入电压从低端到高端变化<br>Change of input voltage from lowend to highend | ≦±0.5% |
| 负载调整率<br>Load regul | 20%~100%负载变化<br>20%~100% Load change | $V_O$≦±0.5% |
| 纹波噪声<br>Ripple&Noise | 20M 带宽<br>20M Bandwidth | ≦1% |
| 温度系数<br>Temperature coefficient | | ±0.02%/℃ |
| 过流保护<br>Output overcircuit Protection | | 115~150%额定电流,自恢复<br>115~150%rated output circuit,auto recovery |
| 短路保护<br>Short Circuit Protection | | 长期，自恢复<br>Long-term,auto recovery |
| 启动延迟时间<br>Turn-on delay time | 典型值<br>Typical value | ≦300mS |
| 保持时间<br>Hold up time | 输入标称电压、满载<br>Input rated voltage、Fullload | 80mS （典型值）<br>80ms (typical) |
| 过冲幅度<br>Overshoot | 25%额定负载变化<br>25% rated load change | ≦500μ S |
| | $\Delta V_{01/} / V_{01}$ | ≦±5.0% |

### 一般特性 General Features

| | | |
|---|---|---|
| 隔离耐压<br>Withstand voltage | 输入对输出<br>I/P-O/P<br>（1 分钟，漏电流≦5mA ）<br>(1Mintute ,leakage current)≦5mA) | 1500VDC |
| 绝缘电阻<br>Isolation resistance | 500V | ≧100MΩ |
| MTBF | 环境 25℃<br>Environment 25℃ | $2.0*10^5$Hrs |
| 开关频率<br>switching frequency | | 300KHz |
| 最大壳温<br>The highest shell temperature | 工作环境温度较高时，需加装辅助散热措施，确保模块表面温度低于 95℃<br>When workingenvironment temperature is higher,need to add auxiliary colling measures,to ensure that the surface temperature below 95℃ | ＋95℃ |
| 工作温度<br>Operating temperature | 70℃以上降额使用<br>Above 75℃ derating make | -45℃~85℃ |
| 储存温度<br>Storage temperature | | -45℃~105℃ |
| 工作相对湿度<br>Operating humidity | 无凝露及结冰现象<br>(non condensing) | 10%~-90%RH |
| 储存相对湿度<br>Storage humidity | 无凝露及结冰现象<br>(non condensing) | 5%~-95%RH |
| 冷却方式<br>Cooling method | | 自然冷却<br>Convection |

## 命名方式 Naming Rules

JWDB R 16-110S5

- 输出电压 Output voltage
- 单路输出 Single Output
- 标称输入电压 Nominal Input voltage
- 输出功率 Output power
- 铁路机车系列 Railway locomotive series
- DC/DC 电源模块 外形尺寸 50.8*25.4(mm)
- DC/DC power module Dimension 50.8*25.4(mm)

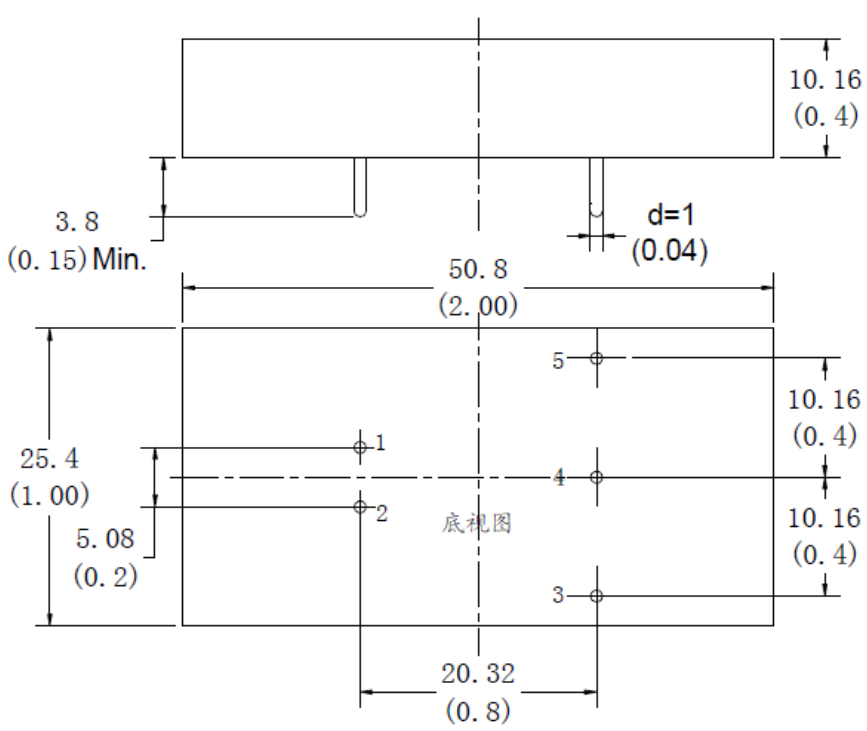
## 产品选型 Product selection

| 产 品 型 号 Model No. | 输入电压范围 Input voltage $V_{in}$ | 输出电压 Output voltage $V_O$ | 输出电流 Output current $I_O$ | 纹波噪声 R &N $V_{(P-P)mV}$ | 最大容性负载 Capacitive load maximum | 效 率 Efficiency |
|---|---|---|---|---|---|---|
| JWDBR16-110S3.3 | 66~160V | 3.3V | 4.85A | 50 | 4020uF | 77% |
| JWDBR16-110S5 | | 5V | 3.20A | 80 | 3300uF | 82% |
| JWDBR16-110S12 | | 12V | 1.33A | 100 | 1100uF | 84% |
| JWDBR16-110S15 | | 15V | 1.07A | 120 | 650uF | 85% |
| JWDBR16-110S24 | | 24V | 0.67A | 150 | 330uF | 87% |
| JWDBR16-72S3.3 | 45~135V | 3.3V | 4.85A | 50 | 4020uF | 82% |
| JWDBR16-72S5 | | 5V | 3.20A | 80 | 3300uF | 84% |
| JWDBR16-72S12 | | 12V | 1.33A | 100 | 1100uF | 85% |
| JWDBR16-72S15 | | 15V | 1.07A | 120 | 650uF | 86% |
| JWDBR16-72S24 | | 24V | 0.67A | 150 | 330uF | 87% |

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 MechanicalData




单位：mm(inch)

## 管脚定义 Pin Assignments

| P1 | P2 | P3 | P4 | P5 |
|---|---|---|---|---|
| Vin+ | Vin- | Vo- | NP | $V_{O+}$ |

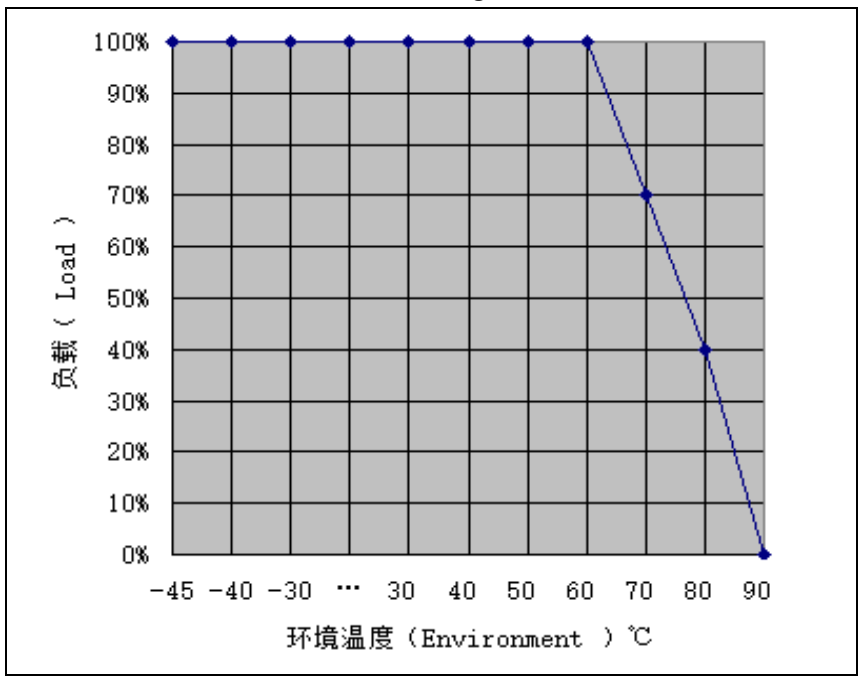
注：电源模块的外形尺寸和管脚定义如与选型手册不符，请以实物实际尺寸为准。

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

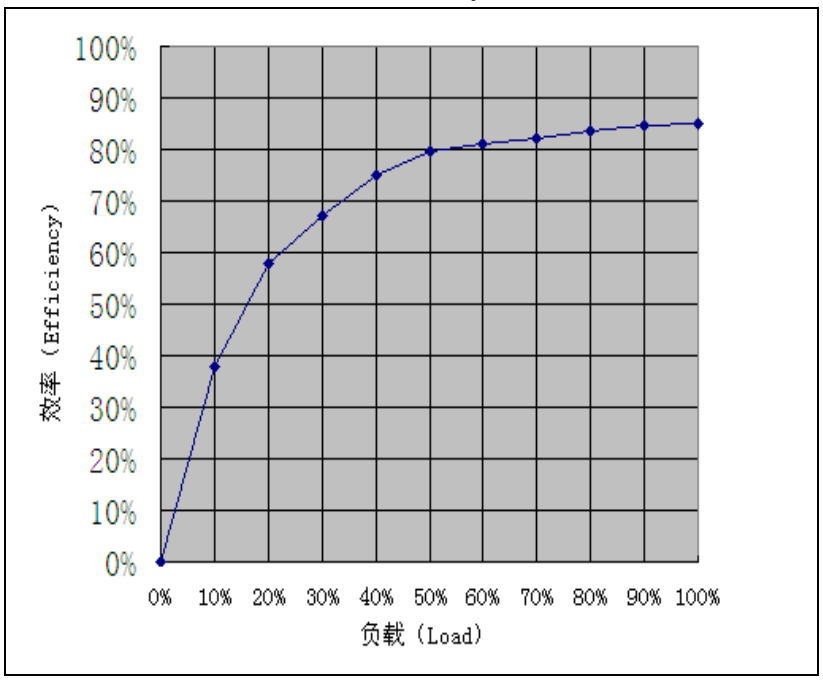
降额曲线

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