



#### 产品特点 Features

- 体积小，结构紧凑，厚度仅为30mm
- 输入交直流两用
- 全球电压宽范围输入：85~264Vac/120~370Vdc
- 关键元器件采用国内外知名品牌
- 不锈钢和铝合金制成的外壳能适用于更恶劣的环境
- 宽范围的工作环境温度：-40℃~+70℃
- 电源散热方式：自然冷却
- 低纹波噪声
- 低待机功耗、高效率
- 输入与输出间的隔离电压高达4000Vac
- 可承受300Vac输入浪涌电压5S
- 满足5000m海拔应用
- 过电压等级III
- 输出过载保护、过压保护、短路保护
- 安全性能和电磁兼容符合国际和中国的最新标准
- 3年有限质保
- 尺寸：99\*65\*30mm
- Compact size & low profile with thickness only 30mm
- Suitable for both AC and DC input
- Universal range of input voltage: 85~264Vac/120~370Vdc
- Famous brand components for key parts
- Stainless steel & aluminum alloy enclosure suitable for more critical environments
- Wide range of operating temperature: -40℃~+70℃
- Cooling method: convection
- Low ripple & noise
- Low standby power consumption & high efficiency
- Isolation voltage from input to output up to 4000Vac
- Withstand 300Vac surge input for 5 seconds
- Operating altitude up to 5000m
- Overvoltage level III
- Protections: overload/ over voltage/ short circuit
- Meet the latest international and Chinese safety & EMC standards
- 3 years limited warranty
- Dimension: 99\*65\*30mm

#### 产品介绍 Product Introduction

HF50W-LSK系列产品是衡孚为客户实现降本增效、节能环保及良好适应性而精心设计的第三代金属机壳型开关电源，具备超薄小体积和全面的安全规范。该系列电源支持交直流两用，具有全球电压宽范围输入、宽广的工作温度范围、高海拔适应能力、低功耗与高效率、高可靠性以及安全隔离等显著优势，能够有效适配感性和容性负载，其电磁兼容性及安全性能符合EN55014-1, EN55014-2, EN55032 Class B, EN55035, EN61000-3-2, EN61000-3-3, EN61000-4-2, 3, 4, 5, 6, 8, 11, EN61000-6-2, 4, GB17625.1, GB/T9254.1, IEC/EN62368-1, EN61558-1/-2-16, EN60335-1, GB4943.1等国际和中国的最新标准。常规输出电压可提供 5V /12V /15V /24V /28V /36V /48V /54V等多种配置以满足不同需求。如有特殊要求，请联系销售人员进行定制。

The HF50W-LSK series are the third-generation metal enclosed switching power supplies which we designed with utmost effort to better satisfy our customers, with the principles of cost optimization, efficiency enhancement, energy saving and better environment adaptability. This series have the advantages including AC/DC input compatibility, wide range of global voltage input, wide operating temperature range, high altitude adaptability, low power consumption, high efficiency, high reliability and safe isolation. They can be applied to both inductive and capacitive loads, which comply with the latest international and Chinese EMC & safety standards including EN55014-1, EN55014-2, EN55032 Class B, EN55035, EN61000-3-2, EN61000-3-3, EN61000-4-2, 3, 4, 5, 6, 8, 11, EN61000-6-2, 4, GB17625.1, GB/T9254.1, IEC/EN62368-1, EN61558-1/-2-16, EN60335-1, GB4943.1. Normal output voltage such as 5V /12V /15V /24V /28V /36V /48V /54V is available, and other special requirements can be customized upon request.

### ■ 应用领域 Diverse Application

广泛应用于工业控制、自动化机械、农业机械、激光设备、仪器仪表、光伏储能、新能源汽车、充电桩、通信设备、医疗器材、智能家居、安防系统、轨道交通、电力电气、LED灯饰、LED显示屏等领域。

It can be widely used in various fields such as industrial control, automation machinery, agricultural machinery, laser equipment, instruments and apparatuses, photovoltaic energy, new energy vehicles, charging station, telecom equipment, medical equipment, smart home, security system, rail transportation, electric power, LED lighting, LED signs.

### ■ 型号编码 Model Definition



### ■ 电气规格 Electrical Specifications

| 型号<br>Model No. | 额定输出电压<br>DC Voltage | 额定输出电流<br>Rated Current | 输出电流范围<br>Current Range | 额定功率<br>Rated Power | 纹波与噪声 <sup>5</sup><br>Ripple & Noise | 效率<br>Efficiency |
|-----------------|----------------------|-------------------------|-------------------------|---------------------|--------------------------------------|------------------|
| HF50W-LSK-5     | 5V                   | 10A                     | 0~10A                   | 50.0W               | ≤80mVp-p                             | >82%             |
| HF50W-LSK-12    | 12V                  | 4.2A                    | 0~4.2A                  | 50.4W               | ≤120mVp-p                            | >85%             |
| HF50W-LSK-15    | 15V                  | 3.4A                    | 0~3.4A                  | 51.0W               | ≤150mVp-p                            | >85%             |
| HF50W-LSK-24    | 24V                  | 2.2A                    | 0~2.2A                  | 52.8W               | ≤150mVp-p                            | >86%             |
| HF50W-LSK-28    | 28V                  | 1.8A                    | 0~1.8A                  | 50.4W               | ≤150mVp-p                            | >86%             |
| HF50W-LSK-36    | 36V                  | 1.45A                   | 0~1.45A                 | 52.2W               | ≤150mVp-p                            | >87%             |
| HF50W-LSK-48    | 48V                  | 1.1A                    | 0~1.1A                  | 52.8W               | ≤150mVp-p                            | >88%             |
| HF50W-LSK-54    | 54V                  | 1.0A                    | 0~1.0A                  | 54.0W               | ≤150mVp-p                            | >88%             |

| ■ 输入电气特性 Input Electrical Characteristics <sup>1</sup> |                       | 参数 & 测试条件 Parameters & Test Conditions |
|--------------------------------------------------------|-----------------------|----------------------------------------|
| 额定输入电压                                                 | Rated input voltage   | 100~240Vac (140~340Vdc)                |
| 输入电压范围                                                 | Input voltage range   | 85~264Vac (120~370Vdc)                 |
| 额定输入频率                                                 | Rated input frequency | 50/60Hz                                |
| 输入频率范围                                                 | Input frequency range | 47~63Hz                                |
| 输入电流                                                   | Input current         | < 1.2A/115Vac; < 0.6A/230Vac           |
| 输入启动冲击电流                                               | Input inrush current  | 45A/230Vac, 冷启动 cold start             |
| 输入漏电流                                                  | Input leakage current | < 0.75mA/240Vac                        |

| ■ 输出电气特性 Output Electrical Characteristics <sup>1</sup> |                              | 参数 & 测试条件 Parameters & Test Conditions                                                       |
|---------------------------------------------------------|------------------------------|----------------------------------------------------------------------------------------------|
| 输出电压调节范围                                                | Output voltage adjust range  | ±10%                                                                                         |
| 电网调整率 <sup>2</sup>                                      | Line regulation <sup>2</sup> | ±0.5%                                                                                        |
| 负载调整率 <sup>3</sup>                                      | Load regulation <sup>3</sup> | ±0.5%                                                                                        |
| 输出电压精度                                                  | Output voltage tolerance     | ±1%                                                                                          |
| 待机功耗                                                    | Standby power consumption    | < 0.5W/230Vac                                                                                |
| 启动时间                                                    | Set up time                  | ≤2000ms/115Vac; ≤1000ms/230Vac                                                               |
| 上升时间                                                    | Rise time                    | <50ms/230Vac                                                                                 |
| 保持时间                                                    | Hold up time                 | ≥12ms/115Vac; ≥40ms/230Vac                                                                   |
| 输出过载保护                                                  | Output overload protection   | 105~150%, 打嗝模式 (异常条件移除后可自动恢复)<br>105~150%, hiccup mode, auto-recovery after fault is removed |



# 50W单路输出LSK系列开关电源

## 50W Single Output LSK Series Power Supply

### HF50W-LSK-\*\*

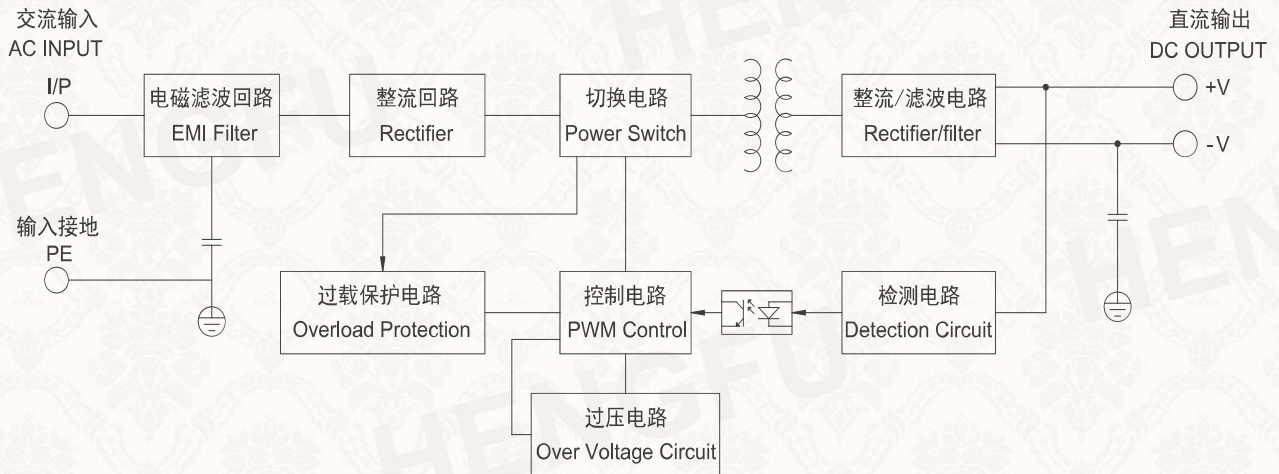
|        |                          |                                                                                            |
|--------|--------------------------|--------------------------------------------------------------------------------------------|
| 输出过压保护 | Over voltage protection  | 115~150%，打嗝模式（异常条件移除后可自动恢复）<br>115~150%, hiccup mode, auto-recovery after fault is removed |
| 输出短路保护 | Short circuit protection | 打嗝模式（异常条件移除后可自动恢复）<br>Hiccup mode, auto-recovery after fault is removed                    |

| ■ 工作环境 Working Conditions |                                 | 参数 & 测试条件 Parameters & Test Conditions <sup>1</sup>                                                                                                           |
|---------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 工作温度                      | Operating temperature           | -40°C~+70°C（参考减额曲线图 refer to derating curve）                                                                                                                  |
| 储存温度                      | Storage temperature             | -40°C~+85°C                                                                                                                                                   |
| 工作湿度                      | Operating humidity              | 20%~90%RH，无凝露 non-condensing                                                                                                                                  |
| 储存湿度                      | Storage humidity                | 20%~95%RH，无凝露 non-condensing                                                                                                                                  |
| 温度漂移系数                    | Temperature coefficient         | ±0.03%                                                                                                                                                        |
| 工作海拔 <sup>6</sup>         | Operating altitude <sup>6</sup> | ≤5000m                                                                                                                                                        |
| 冷却方式                      | Cooling method                  | 自然冷却 convection                                                                                                                                               |
| 冲击实验                      | Impact test                     | 半正弦波，加速度20G，持续时间11ms，沿X,Y,Z 轴各进行3次冲击<br>Half sine wave, acceleration 20G, duration 11ms, 3 cycles each along X,Y,Z axes                                       |
| 振动实验                      | Vibration test                  | 正弦波，振动频率10~500Hz，加速度5G，每个扫频循环10min，沿X,Y,Z 轴各进行6个扫频循环<br>Sine wave, vibration frequency 10-500Hz, acceleration 5G, 10min/cycle, 6 cycles each along X,Y,Z axes |

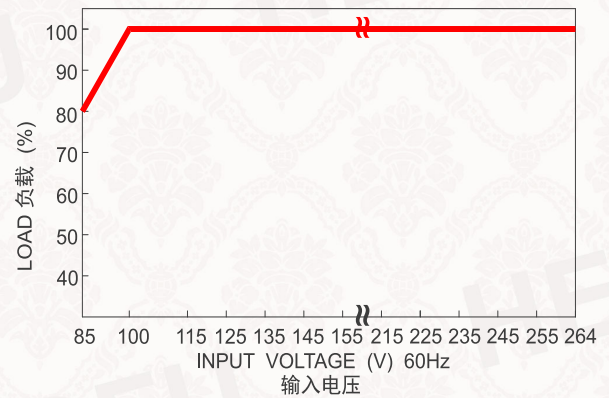
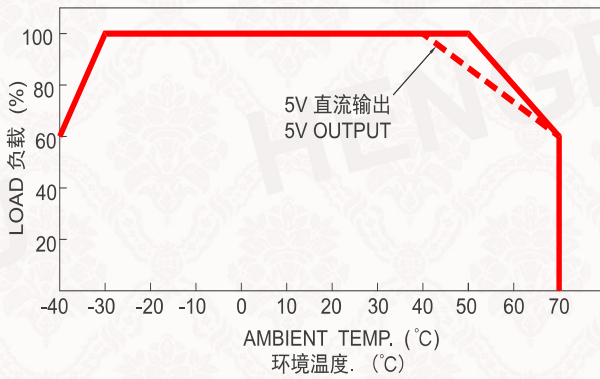
| ■ 安规和电磁兼容 (Safety & EMC) <sup>7</sup> |                                | 参数 & 测试条件 Parameters & Test Conditions <sup>1</sup>                                                                                                     |
|---------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 安全标准                                  | Safety standards               | 符合 meet IEC/EN62368-1, EN61558-1/-2-16, EN60335-1, GB4943.1                                                                                             |
| 电磁兼容标准                                | EMC standards                  | 符合 meet EN55014-1, EN55014-2, EN55032 Class B, EN55035, EN61000-3-2, EN61000-3-3, EN61000-4-2, 3, 4, 5, 6, 8, 11, EN61000-6-2, 4, GB17625.1, GB/T9254.1 |
| 绝缘强度（输入-输出）                           | Withstand voltage (I/P-O/P)    | 4.0KVac/1min                                                                                                                                            |
| 绝缘强度（输入-地）                            | Withstand voltage (I/P-FG)     | 2.0KVac/1min                                                                                                                                            |
| 绝缘强度（输出-地）                            | Withstand voltage (O/P-FG)     | 1.5KVac/1min                                                                                                                                            |
| 绝缘电阻（输入-输出）                           | Isolation resistance (I/P-O/P) | > 100MΩ（测试条件 test condition: 500Vdc）                                                                                                                    |
| 绝缘电阻（输入-地）                            | Isolation resistance (I/P-FG)  | > 100MΩ（测试条件 test condition: 500Vdc）                                                                                                                    |
| 绝缘电阻（输出-地）                            | Isolation resistance (O/P-FG)  | > 100MΩ（测试条件 test condition: 500Vdc）                                                                                                                    |
| 认证                                    | Approval                       | CE CB CCC                                                                                                                                               |
| 绿色节能                                  | Green & energy saving          | 绿色节能 ECO                                                                                                                                                |

| ■ 外观特性 Appearance Characteristics |                        | 参数 Parameters                                              |
|-----------------------------------|------------------------|------------------------------------------------------------|
| 安装方式                              | Installation method    | 机壳型 Enclosed type                                          |
| 外壳材质                              | Enclosure material     | 不锈钢与铝合金制成的外壳<br>Stainless steel & aluminum alloy enclosure |
| 外形尺寸（长*宽*高）                       | Dimension (L*W*H)      | 99*65*30mm                                                 |
| 接线端子                              | Terminal block         | 8.25mm-5P                                                  |
| 适用线径                              | Wire                   | 22-14AWG                                                   |
| 端子螺丝/ 扭矩                          | Terminal screw/ torque | M3/0.5N·m                                                  |
| 重量（kg/台）                          | Weight (kg/pcs)        | 0.14kg                                                     |
| 最小包装量                             | Packing (MPQ)          | 81pcs, 13.5kg/CTN                                          |

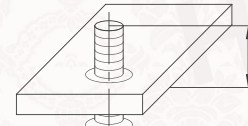
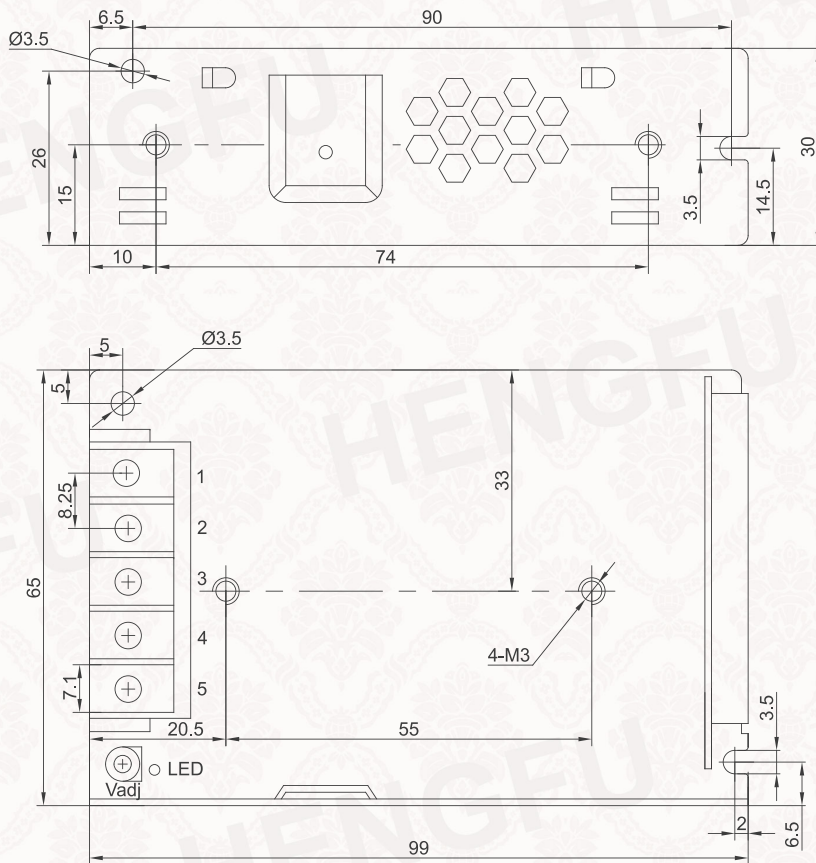
#### ■ 方框图 Block Diagram



#### ■ 减额曲线图 Derating Curve



#### ■ 安装图纸 Drawing



机壳 Frame

注意：  
安装螺丝进入  
机壳长度≤4mm  
螺丝刀扭矩≤0.4N·m

NOTICE:  
Mounting screws into  
frame max.4mm.  
Screwdriver torque max.0.4N·m

#### 接线端子排布 Terminal Pin No. Assignment

| 位号 No. | 功能 Function | 引脚定义                 |
|--------|-------------|----------------------|
| 1      | AC(L)       | 输入AC(L)接线端口          |
|        | DC(+)       | 输入DC正极接线端口           |
| 2      | AC(N)       | 输入AC(N)接线端口          |
|        | DC(-)       | 输入DC负极接线端口           |
| 3      | PE          | 输入接地端口 (与外壳相通)       |
| 4      | -V          | 输出负极接线端口             |
| 5      | +V          | 输出正极接线端口             |
| Vadj   | Vadj        | 输出电压微调电位器            |
| LED    | LED         | 绿色LED指示灯点亮表示电源工作状态正常 |

#### Pin Definition

AC Input terminal for live line  
DC Input terminal for positive pole  
AC Input terminal for neutral line  
DC Input terminal for negative pole  
Protective earth (enclosure is linked to ground)  
DC output terminal for negative pole  
DC output terminal for positive pole  
Trimmer for output voltage adjustment  
Green LED light on indicates the power supply is in normal operation



# 50W单路输出LSK系列开关电源

## 50W Single Output LSK Series Power Supply

### HF50W-LSK-\*\*

#### ■ 备注 Notes

- 除特殊说明外，上述所有参数的测试条件都在室温=25℃，湿度<75%RH，输入230Vac和额定负载时测得。  
Unless specially mentioned, all above parameters are measured at ambient temperature 25℃, humidity <75%RH, 230Vac input and rated load.
- 电网调整率是在额定负载条件下从低电网到高电网的输出电压变化率。  
Line regulation is the output voltage change rate from low line to high line at rated load.
- 负载调整率是负载电流从额定负载的0%到100%变化时的输出电压变化率。  
Load regulation is the output voltage change rate from 0% to 100% rated load.
- 负载最大交叉调整率是各路负载在输出电流范围的极限条件下测得 (适用于多路输出的电源)。  
Max. cross line regulation is measured under the extreme conditions of the output current range for each load (only applies to multi-output power supplies).
- 纹波和噪声的检测是用20MHz带宽示波器，从被测电源的端口连接一根长30cm的20AWG (0.5mm<sup>2</sup>) 屏蔽双绞线，且在绞线末端并接上0.1uF高频电容和47uF电解电容后测得。  
Ripple & noise are measured by an oscilloscope at 20MHz of bandwidth, using a 30cm 20AWG (0.5mm<sup>2</sup>) twisted pair-wire connected to the power supply, terminated with a 0.1uF high-frequency & 47uF electrolytic parallel capacitor.
- 当工作海拔高于2000米时，操作温度须调降5℃/1000米。  
The ambient temperature derating of 5℃/1000m is needed for operating altitude greater than 2000m.
- 开关电源被视为用户整机的一个部件，整机是否符合EMC指令还需重新测试并验证。  
The power supply is regarded as a component which will be installed into the final equipment. The final equipment must be re-confirmed that it still meets EMC directives.
- 关于产品的安装使用说明及售后政策，请扫描下方二维码《产品使用说明及服务承诺》获取详细内容。  
For installation, usage instructions and after-sales policies of the product, please scan the QR code below "Product Instruction Manual and Service Commitment" to learn more details.
- 如需了解更多信息，请浏览衡孚官网 [www.hengfu.com](http://www.hengfu.com)。  
For more information, please visit [www.hengfu.com](http://www.hengfu.com).

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衡孚官网  
Hengfu Official Website



微信公众号  
WeChat Official Account



天猫旗舰店  
Tmall Flagship Store



京东旗舰店  
JD Flagship Store



官方抖音号  
Official Tiktok Account



产品使用说明及服务承诺  
Product Instruction Manual  
and Service Commitment

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