# SHFA31 SERIES

## 30W Open-Frame Power Supply for Medical Equipment



- Wide Input Voltage 90 to 264 VAC, 47 to 63Hz
- Internal EMI Filter
- Output Voltage Available From 5VDC Thru 40VDC
- Input connector mates with Molex housing 09-50-3031 and Molex 2478 series crimp terminal
- Output connector mates with Molex housing 09-50-3041and Molex 2478 series crimp terminal
- Single Output
- Size: 1.5"x4"x0.83
- Class II Insulation
- Input Surge Current, Over Load and Over Voltage Protection
- Solution for Health Care Equipment

**2 Year Warranty**

Approvals:

## Single Output

| Product Number | Output Voltage | Output Current | Total Regulation | Maximum Output Power |
|---|---|---|---|---|
| SHFA31-S02 | 5 ~ 6 VDC | 4.00 ~ 3.33 A | 5% | 20W |
| SHFA31-S03 | 6 ~ 8 VDC | 3.83 ~2.87 A | 5% | 23W |
| SHFA31-S04 | 8 ~ 11 VDC | 3.37 ~ 2.45 A | 5% | 27W |
| SHFA31-S05 | 11 ~ 13 VDC | 2.72 ~ 2.31 A | 5% | 30W |
| SHFA31-S06 | 13 ~ 16 VDC | 2.31 ~ 1.88 A | 5% | 30W |
| SHFA31-S07 | 16 ~ 21 VDC | 1.88 ~ 1.43 A | 5% | 30W |
| SHFA31-S08 | 21 ~ 27 VDC | 1.43 ~ 1.12 A | 3% | 30W |
| SHFA31-S09 | 27 ~ 33 VDC | 1.12 ~ 0.91 A | 3% | 30W |
| SHFA31-S10 | 33 ~ 40 VDC | 0.91 ~ 0.76 A | 3% | 30W |

## Electrical Characteristics

| Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Input Voltage | Operating Voltage | 90 | | 264 | VAC |
| Input Frequency | | 47 | | 63 | Hz |
| Output Power Range | Vin= 90 to 264 VAC | 0 | | 30 | W |
| Input Current (Low Line) | Io=Full load, Vin=115 VAC | | | 0.8 | A |
| Input Current (High Line) | Io=Full load, Vin= 230 VAC | 0.3 | | 0.4 | A |
| Low Line Inrush Current | Io=Full load, 25℃, Cool start, Vin=115VAC | | 15 | 18 | A |
| High Line Inrush Current | Io=Full load, 25℃, Cool start, Vin=230 VAC | | 25 | 30 | A |
| Efficiency | Io=Full Load, Vin=230VAC | 75 | 85 | 89 | % |
| Line Regulation | Io=Full Load | | 0.5 | 1 | % |
| Load Regulation | Vin=230VAC | | 3 | 5 | % |
| Over Current Protection | | 110 | | 150 | % |
| Transient Response | Io=Full Load to Half Load, Vin=100VAC | | | 4 | mS |
| Hold-Up Time | Io=Full Load, Vin=110VAC | 12 | 18 | | mS |
| Start Up Time | Io=Full Load, Vin=100VAC | | 0.25 | 0.5 | S |
| Ripple & Noise (Peak to Peak) | Full Load, Vin=90VAC | | 0 .5 | 1 | % |
| Safety Ground Leakage Current | Io= Full Load, Vin=240VAC | | 0.1 | 0.3 | mA |
| Temperature Coefficient | All output | -0.04 | | 0.04 | %/°C |

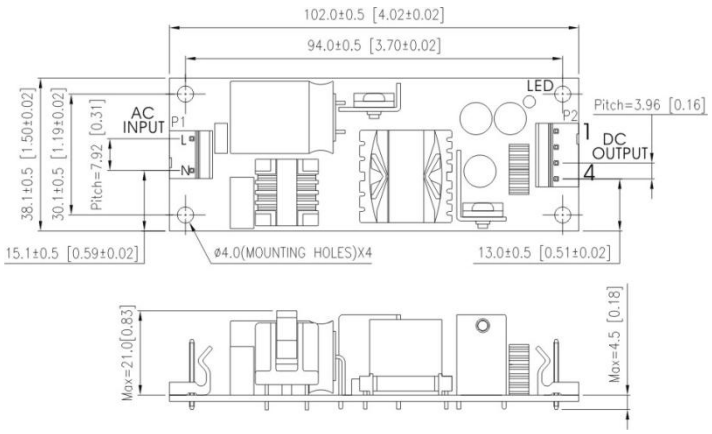
## Conditions

| Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Operating Temperature | | 0 | 40 | 70 | ℃ |
| Storage Temperature | | -40 | | 85 | ℃ |
| Relative Humidity | | 5 | | 95 | % |
| Operation temperature at 25℃, calculated per MIL-HDBK-217F | | 100 | | | KHrs |
| Derate linearly from 100% load at 40°C to 50% load at 70°C | | | | | |

## Approvals and Compliances

| Parameter | Test Conditions | Min. | Unit |
|---|---|---|---|
| Dielectric Withstanding Voltage for Primary to secondary | Primary to secondary | 5600 | VDC |
| EMI requirements for CISPR-11 EN550111 Emission Limits | Vin=220VAC | B | CLASS |
| EMI requirements for FCC PART-18 | Vin=110VAC | B | CLASS |

## Mechanical and PIN out




**Note:**

1. Dimensions are shown in mm & inch
2. Weight: approx. 85g
3. Input connector mates with Molex housing 09-50-3031 and Molex 2478 series crimp terminal.
4. Output connector mates with Molex housing 09-50-3041 and Molex 2478 series crimp terminal.