



Features

- . Input 90V to 264VAC, 50~60Hz suitable for worldwide use
- . Output voltage optional from 3.3V to 48Vdc constant voltage
- . Protections: Short Circuit / Overload / Over Voltage Protection
- . 100% full load burn-in test for 2Hrs to make every unit reliable
- . Suitable for BF application with appropriate system consideration
- . Cooling by free air convection, operating temperature -40~60°C
- . Long life and high reliability design with 3 years warranty
- . Low standby consumption power <0.075W
- . No minimum load required and extremely low leakage current

Safety Standards

- . IEC60601-1 CB report for worldwide use
- . UL ANSI/AAMI ES60601-1/CAN/CSA-C22.2 for USA
- . TUV BS EN/EN 60601-1 for European Union



Product Description:

This is a highly reliable and small size AC/DC on board type 30W medical grade switching power supply solution with wide range 90-264Vac input and designed strictly according to the international medical safety standards. The design is with a very low no load power consumption less than 0.075W and ultra-low leakage current. The entire series supplies different models with output voltages ranging between 3.3Vdc and 48Vdc that can satisfy the demands for various types of medical equipment such as portable medical device, mobile clinical workstation, medical computer monitor, medical examination instrument and so on. The 30W PCB type medical switching power supply is built-in full protections of over load / short circuit and over voltage with small and compact size of 65.5 x 35 x 23mm.

Technical Specification

| Typ. Model | KMFM-30-3.3 | KMFM-30-5 | KMFM-30-12 | KMFM-30-24 | KMFM-30-48 |
|------------------------|--|-----------|------------|------------|------------|
| Output | | | | | |
| Output Voltage | 3.3VDC | 5VDC | 12VDC | 15VDC | 48VDC |
| Rated Current | 6A | 6A | 2.5A | 1.3A | 0.63A |
| Current Range | 0 ~ 6A | 0 ~ 6A | 0 ~ 2.5A | 0 ~ 1.4A | 0 ~ 0.63A |
| Output Power | 19.8W Max. | 30W Max. | 30W Max. | 31.2W Max. | 30.2W Max. |
| Voltage Tolerance | ±3% | ±3% | ±3% | ±3% | ±3% |
| Ripple & Noise | 100mVp-p | 100mVp-p | 200mVp-p | 200mVp-p | 200mVp-p |
| Input | | | | | |
| Input voltage | 90 - 264Vac or 120- 370Vdc | | | | |
| Input Frequency | 50-60Hz (When the input is AC) | | | | |
| Input Current | 0.75A Max. @ 100 ~240Vac 50/60Hz input | | | | |
| Inrush Current | 45A Max. @ 100 ~240Vac 50/60Hz input | | | | |
| Efficiency (Typ.) | 82% | 86% | 89% | 90% | 91% |
| Leakage Current | ≤0.08mA @ full input range | | | | |
| Protections | | | | | |
| Over current | 110~180% rated output power. Auto-Recovery when the fault is removed | | | | |
| Short Circuit | No damage. Auto-Recovery when the fault is removed | | | | |
| Over temperature | Shut down o/p voltage, re-power on to recover | | | | |
| Environmental | | | | | |
| Operation Temperature | -40°C to +60°C, 20%RH to 90%RH | | | | |
| Storage Temp, Humidity | -45~ +85°C, 10%RH to 95%RH | | | | |
| Operation Altitude | ≤5000m @ full load and rated operating temperatures | | | | |
| MTBF | ≥50000Hrs @ full load and rated operating temperatures | | | | |
| Mechanical | | | | | |
| Dimensions (L x W x H) | 65.5 x 35.0 x 23.0mm (2.58 x 1.38 x 0.91 inch) | | | | |
| Unit Weight | 53g±5 grams | | | | |
| Packing Information | 144pcs/ Carton, carton dimensions:47*37*20cm, 8.6kgs/ Carton | | | | |

TEST REPORT

OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDIDTION | RESULT | VERDICT |
|----|-------------------|---------------------|--|-----------------------------------|---------|
| 1 | RIPPLE & NOISE | 150mVp-p (Max) | I/P:230VAC / O/P:FULL LOAD / Ta:25°C | 87mVp-p | P |
| 2 | VOLTAGE TOLERANCE | -3% ~ +3% (Max) | I/P:90VAC~264VAC O/P:FULL~MIN. LOAD / Ta:25°C | -1.0% ~ +1.0% of output voltage | P |
| 3 | LINE REGULATION | -0.3% ~ +0.3% (Max) | I/P:90VAC ~264VAC O/P:FULL LOAD / Ta:25°C | -0.09% ~ +0.08% of output voltage | P |
| 4 | LOAD REGULATION | -0.5% ~ +0.5% (Max) | I/P:230VAC O/P:FULL ~MIN LOAD / Ta:25°C | -0.29% ~ +0.28% of output voltage | P |
| 5 | OVER/UNDERSHOOT | <±5% | I/P: 230VAC O/P:FULL LOAD / Ta:25°C | 0.8% | P |
| 6 | SET UP TIME | 500 mS (Max) | I/P:230VAC O/P:FULL LOAD / Ta:25°C | 410 mS | P |
| 7 | RISE TIME | 30 mS (Max) | I/P: 230VAC O/P:FULL LOAD / Ta:25°C | 24 mS | P |
| 8 | HOLD UP TIME | 12 mS (Min) | I/P: 115VAC O/P:FULL LOAD / Ta:25°C | 15 mS | P |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDIDTION | RESULT | VERDICT |
|----|--------------------|------------------------------------|--|------------------------------------|---------|
| 1 | VOLTAGE RANGE | 90VAC~264VAC | I/P:TESTING O/P:FULL LOAD / Ta:25°C | 79V~264V | P |
| 2 | FREQUENCY RANGE | 50HZ - 60HZ (Typ) NO DAMAGE OSC | I/P: 100VAC ~ 240VAC O/P:FULL~MIN LOAD / Ta:25°C | TEST: OK | P |
| 3 | EFFICIENCY | 82% (Typ) | I/P:230VAC O/P:FULL LOAD / Ta:25°C | 83.183% | P |
| 4 | AVERAGE EFFICIENCY | 80% | I/P:115/230VAC & O/P:25%、50%、75%、100% LOAD & Ta:25°C | 80.55% (115VAC) 81.32% (230VAC) | P |
| 5 | AC CURRENT | 0.75A (Max) | I/P:100VAC & O/P:FULL LOAD Ta:25°C | 0.72A | P |
| 6 | INRUSH CURRENT | <45A COLD START | I/P: 230VAC / O/P:FULL LOAD Ta:25°C | 38.39A | P |
| 7 | LEAKAGE CURRENT | <0.08mA | I/P:240VAC & O/P:Min LOAD Ta:25°C | L-FG:0.051mA N-FG:0.052mA | P |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDIDTION | RESULT | VERDICT |
|----|-------------------------|----------------------------------|---------------------------------------|--|---------|
| 1 | OVER LOAD PROTECTION | 115 ~ 165% (Typ) | I/P:230VAC & O/P:TESTING Ta:25°C | 150.3% HICCUP MODE | P |
| 2 | OVER VOLTAGE PROTECTION | 115 ~ 135% (Typ) | I/P:230VAC O/P:MIN LOAD & Ta:25°C | Hiccup mode ,recovers automatically after fault condition is removed | P |
| 3 | SHORT PROTECTION | SHORT OUTPUT 1 HOUR NO DAMAGE | I/P:264VAC O/P:FULL LOAD & Ta:25°C | NO DAMAGE HICCUP MODE | P |

SAFETY TEST & E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDIDTION | RESULT | VERDICT |
|----|----------------------|---|--|--|---------|
| 1 | WITHSTAND VOLTAGE | I/P-O/P: 4KVAC/min I/P- FG: 2KVAC/min O/P-FG:0.5KVAC/min | I/P-O/P: 4 KVAC/min I/P-FG: 2.4KVAC/min O/P-FG: 0.6KVAC/min Ta:25°C | I/P-O/P:3.18mA I/P-FG: NA O/P-FG: NA NO DAMAGE | P |
| 2 | ISOLATION RESISTANCE | I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ | I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C | I/P-O/P: 9999MΩ I/P-FG: NA O/P-FG: NA NO DAMAGE | P |
| 3 | CONDUCTION | BS EN/EN55032(CISPR32), FCC PART 15 / CISPR22 CAN | I/P: 230 VAC (50HZ) O/P: FULL/50% LOAD Ta: 25°C | PASS Test by certified Lab | P |
| 4 | RADIATION | BS EN/EN55032(CISPR32), FCC PART 15 / CISPR22 CAN | I/P: 230 VAC (50HZ) O/P: FULL LOAD Ta: 25°C | PASS Test by certified Lab | P |
| 5 | SURGE | BS EN/EN61000-4-5 LIGHT INDUSTRY L-N: 1KV | I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C | CRITERIA B | P |
| 6 | E.S.D | BS EN/EN61000-4-2 LIGHT INDUSTRY AIR: 8KV / Contact: 4KV | I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C | CRITERIA B | P |

| TEST RESULT | TESTER | REVIEW | APPROVAL |
|-------------|---------------|----------------|-----------------|
| PASS | ZHU LI | WANG LW | ZHANG DL |