



**Features**

- . Input 90V to 264VAC, 50~60Hz suitable for worldwide use
- . Output voltage optional from 3.3V to 24Vdc 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 5W 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 24Vdc 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 5W 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 42 x 22.3 x 20.5mm.

**Technical Specification**

Typ. Model	KMFM-05-3.3	KMFM-05-5	KMFM-05-12	KMFM-05-15	KMFM-05-24
<b>Output</b>					
Output Voltage	3.3VDC	5VDC	12VDC	15VDC	24VDC
Rated Current	1.25A	1A	0.42A	0.33A	0.23A
Current Range	0 ~ 1.25A	0 ~ 1A	0 ~ 0.42A	0 ~ 0.33A	0 ~ 0.23A
Output Power	4.1W Max.	5W Max.	5W Max.	5W Max.	5W Max.
Voltage Tolerance	±3%	±3%	±3%	±3%	±3%
Ripple & Noise	100mVp-p	150mVp-p	200mVp-p	200mVp-p	200mVp-p
<b>Input</b>					
Input voltage	90 - 264Vac or 120- 370Vdc				
Input Frequency	50-60Hz (When the input is AC)				
Input Current	0.2A Max. @ 100 ~240Vac 50/60Hz input				
Inrush Current	45A Max. @ 100 ~240Vac 50/60Hz input				
Efficiency (Typ.)	74%	78%	81%	81%	82%
Leakage Current	≤0.08mA @ full input range				
<b>Protections</b>					
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				
<b>Environmental</b>					
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				
<b>Mechanical</b>					
Dimensions (L x W x H)	42.0 x 22.3 x 20.5mm (1.65 x 0.88 x 0.80 inch)				
Unit Weight	18g±3 grams				
Packing Information	270pcs/ Carton, carton dimensions:47*37*20cm, 5.8kgs/ Carton				

## TEST REPORT

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	RIPPLE & NOISE	100mVp-p (Max)	I/P:230VAC / O/P:FULL LOAD / Ta:25°C	33mVp-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	-0.07% ~ +0.07% of output voltage	P
4	LOAD REGULATION	-0.5% ~ +0.5% (Max)	I/P:230VAC O/P:FULL ~MIN LOAD / Ta:25°C	-0.22% ~ +0.23% of output voltage	P
5	OVER/UNDERSHOOT	<±5%	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	0.6%	P
6	SET UP TIME	1000 mS (Max)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	558 mS	P
7	RISE TIME	30 mS (Max)	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	26 mS	P
8	HOLD UP TIME	12 mS (Min)	I/P: 115VAC O/P:FULL LOAD / Ta:25°C	16 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	77V~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	74% (Typ)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	75.50%	P
4	AVERAGE EFFICIENCY	72%	I/P:115/230VAC & O/P:25%、50%、75%、100% LOAD & Ta:25°C	72.983% (115VAC) 73.52% (230VAC)	P
5	AC CURRENT	0.2A (Max)	I/P:100VAC & O/P:FULL LOAD Ta:25°C	0.15A	P
6	INRUSH CURRENT	<45A COLD START	I/P: 230VAC / O/P:FULL LOAD Ta:25°C	29.8A	P
7	LEAKAGE CURRENT	<0.08mA	I/P:240VAC & O/P:Min LOAD Ta:25°C	L-FG:0.055mA N-FG:0.053mA	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	OVER LOAD PROTECTION	110 ~ 180% (Typ)	I/P:230VAC & O/P:TESTING Ta:25°C	148.5% 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:2.32mA 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