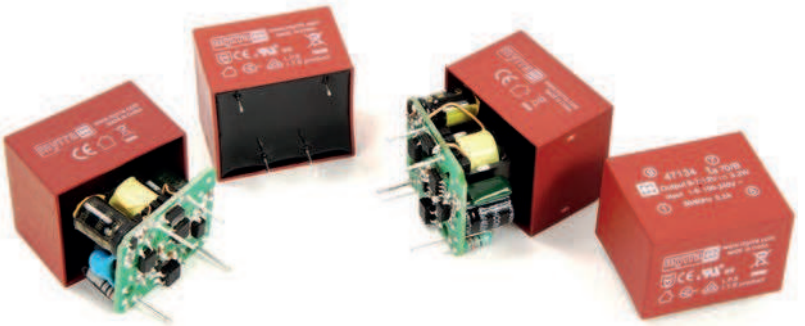
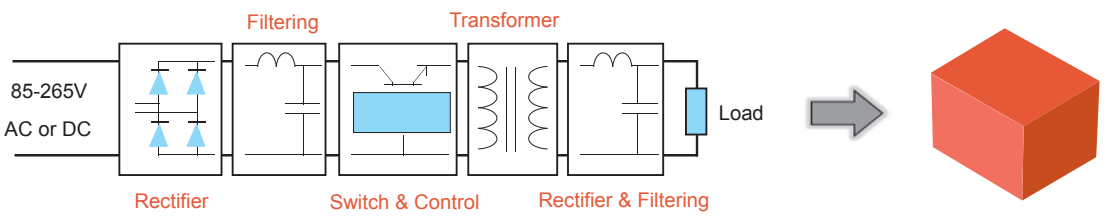
POWER SUPPLIES 1W to 60W



Series 47/48000



MYRRA encapsulated Switched Mode Power Supplies is based on Flyback topology.

They constitute an interesting alternative to the traditional supply in the most common applications of power from 1W to 60W.

ENERGY SAVING due to high efficiency and low standby power.

Application for our Power Supplies:

- Alternative to the linear transformers in all AC/DC applications of power up to 60W
- Alternative to DC/DC converters for application in D.C. current (Telecom supplies, electric substations etc.)
- Industrial, domestic and consumer electronics applications
- Standby devices and others DC or AC auxiliary supplies

With the same footprint as an EI30 transformer, they will replace:

- 50 Hz Transformer
- Fuse
- Bridge Rectifier
- Filtering Capacitor

Regulated types will also replace linear regulator and heatsink

MAIN FEATURES

- **Wide input voltage range**
- **Increased power: 3 x compared to standard EE20-EI30-EI38 transformers**
- **Better energetic efficiency: 70% typical compared to 40% for the conventional supply**
- **Very low Standby Power consumption: meets requirements of Energy Star or EC Code of Conduct**
- **Same footprint as EE20-EI30-EI38-EI48 transformer: (1W~10W)**
  Upgrade your application without redesign of PCB

SAFETY STANDARDS

Meets all requirements of:

- EN 60950
- EN 60335
- EN 61558-2-16
- EN 61558-1
- UL 60950-1
- CSA 22.2 N°60950-1
- UL 94-V0

EMC STANDARDS

Conducted and radiated emissions conform to

- EN 55014-1
- EN 55032 class B

Immunity conform to

- EN 55014-2
- EN 61000-4-x

TWO OUTPUTS - ISOLATED 3.5W to 4W

MAIN FEATURES

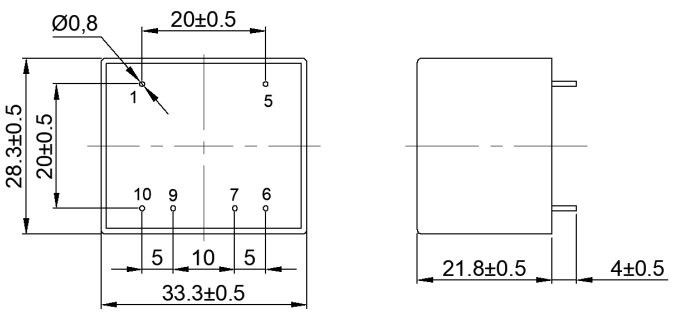
- Small Compact Size - P C B Mount
- Two Isolated Output
- Output Voltage Accuracy :
- See Table For 15 to 100% Rated Load Of Each Output
  (includes line and load variations)
- Input Range : 85VAC - 265VAC/47 - 63Hz Or 120VDC - 370VDC
- Very Low Standby Power Consumption < 0.2W
- Better Energetic Efficiency : Meet Requirements Of Energy Star
- Encapsulated Design And Same Footprint As EI30 Transformer : Upgrade Your Application Without Redesign Of PCB
- Safety : Meets All Requirements of: IEC/EN61558-2-16, IEC/EN60950, IEC/EN60335, UL/CUL60950,CE, VDE, ENEC Mark
- Materials : Uses UL 94-V0 Plastic And Resin
- EMC : Conducted And Radiated Emissions Conform To EN55014, EN55032, CLASS B
- Immunity Conform To:
  EN61000-3-2 CLASS A, EN61000-3-3, IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-11

Part Number	Output Power (W)	Output Voltage (Vdc)	Output Current (mA)	Output Load Regulation (%)	Max.Operating Ambient (°C)	Min. Part Efficiency(%)
47252	3.5	5 5	350 (600 max) 350	± 3 ± 15	60	60
47254	4	12 12	165 (300max) 165	± 5 ± 15		72
47255		15 15	135 (200 max) 135	± 5 ± 15		73
47257		5 12	400 (600 max) 170	± 3 ± 15		68
47258		18 8	150 (200 max) 150	± 5 ± 15		72

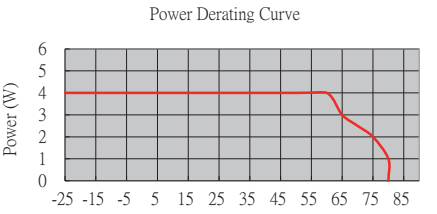
DIMENSIONS and PINOUT

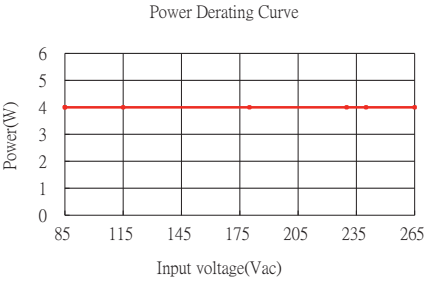
6 pins

pins 1 & 5: AC or DC Input
pin 6: DC output 1 0V
pin 7: DC output 1 +V
pin 9: DC output 2 0V
pin 10: DC output 2 +



View From Pins Side





Model : Two Common Outputs 3 TO 5W		Specification
AC Input Characteristics	Rated AC input Voltage	100~240Vac Or 140VDC-340VDC
	AC Input Voltage Range	85~265Vac Or 120VDC-370VDC
	AC Input Frequency Range	47Hz~63Hz
	Rated AC Input Frequency	50/60Hz
	Input Current	0.2A Max@85Vac~265Vac, at full load
	Standby Power	0.2W Max (Meet Requirements Of Energy Star And EC Code Of Conduct)
DC Output Characteristics	Output Voltage Accuracy	See Table For 15 To 100% Rated Load Of Each Output (includes line and load variations)
	Efficiency	See Table(Meet Requirements Of Energy Star And EC Code Of Conduct)
Protection Characteristics	Over Current Protection	The power supply shall automatic protection. The power supply shall autorecovery normal operation after the deformation is removed. No excessive heat, odor, or plastic deformation shall occur, no safety hazard
	Output Short Circuit Protection	The power supply shall withstand a continuous output short without damage in 24 hours; The short may be applied before power on, or after power on ; The power supply shall resume normal operation after the short is removed, no excessive heat, odor, or plastic deformation shall occur, no safety hazard
	Over Temperature Protection	The power supply shall shut down when the junction temperature of PWM controller exceeds the thermal shutdown temperature, typically 140°C±10°C.
Environmental	Operation Temperature	-25°C ~ +Ta (see table)
	Operation Humidity	10~ 90% RH(No Condensing) @ full load
	Storage Temperature	-40°C~ +85°C
	Storage Humidity	5%~95%
Safety & EMC Requirement	Dielectric Strength	Primary to Secondary: 4000Vac 5mA, 3 sec.
	Radiation	Meet EN55032,EN55014, Class B. under 3dB margin
	Conduction	Meet EN55032,EN55014,Class B. under 3dB margin
	Safety Standards	Meets all requirements of UL/CUL60950 IEC/EN60950 IEC/EN60335 IEC/EN61558-2-16 CE,VDE, And ENEC Mark VDE Approval No. 40034334 UL Approval No.E345767
Reliability Requirement	MTBF	Calculated by MIL-HDBK-217-F2 550K Hours Min. @230VAC input, 25deg.C
	Burn-In Test	The unit shall be burned in for 2~ 5hours under 230Vac input and DC with full load at an ambient temperature of 30~45 degrees C
Net Weight	About 30 grams per product unit	
Guarantee	This product meet to RoHS standard	

Application notes for 47000 & 48000 Series

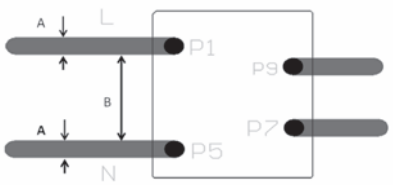
1 – Storage Guide:

Storage temperature : -40℃ to +85℃, Storage humidity : 5% to 95%

2 – Shelf life Guide :

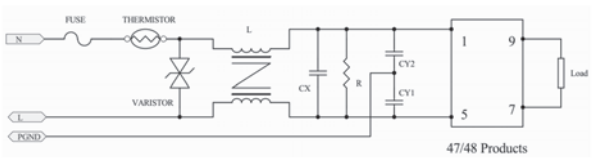
To ensure best power supply reliability and life, we would recommend clients to keep the shelf life less than 6 months.
If the power supply is not used or is kept in stock more than 12 months, it is recommended that the Power Supply should be subject to a 2 hour burn-in process.

3- Safety and recommend wiring : linewidth A≥2mm, B≥5mm.



4- Recommended circuit for applications requiring higher EMC performance :

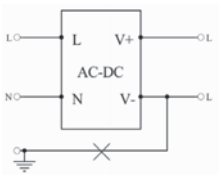
The 47/48 series are already certified as compliant to EN55022 and EN55014 CLASS B for emc. For this compliance no additional external components are required. Should a more stringent emc performance be required the circuit below can be proposed



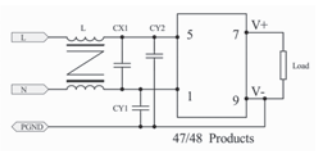
Fuse: recommended parameters : 5A to 10A/250Vac, Time-lag type.
THERMISTOR: recommended parameters : 2A, 5Ω,1.8W to 5A D10,2.5Ω,2.4W.
Varistor: recommended parameters : 14D471,300Vac, maximum energy 118 Joule.
L is a common mode inductor : recommended parameters : 10mH to 30mH
CX is a X2 capacitor : recommended parameters : 0.1uF to 0.22uF/275Vac
CY1 and CY2 are Y capacitors : recommended parameters : 1000pF to 2200pF/400V
R is a resistor : recommended parameters: 1.0MΩ to 3.0 MΩ.

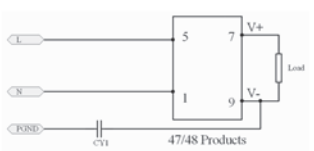
5 – Application of the connection to ground :

This application is not supported for 47 / 48 products



The following proposed circuit may assist :





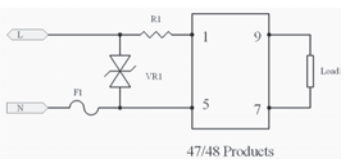
L : is a common mode inductor, the recommended parameters: 10mH to 30mH

CX1 : is an X2 capacitor, the recommended parameters : 0.1uF to 0.22uF/275Vac

CY1 and CY2 are Y capacitors, the recommended parameters : 1000pF to 2200pF/400V

6 – High surge circuit :

The 47 / 48 Series is tested and certified for a surge level in accordance with IEC61000-4-5 as standard without requiring any additional external components. To extend the surge level to 6KV the external circuit below can be proposed.



VR1 is a varistor, the recommended parameters : 14D471, 300Vac, maximum energy 118 Joule.

R1 is a wire-wound resistor, the recommended parameters : 10R/1W to 10R/3W, resistance wire Φ0.1 to 0.23mm. F1 is a fuse, the recommended parameters : 6.3A to 10A/250Vac, Time-lag type.

The information contained in this document is subject to change without notice.