



ELECTRONICS TRANSFORMERS SWITCHING POWER SUPPLIES



47000 SERIES

*A fully certified range of PCB mounting Power supplies
from **1 W** up to **10 W***



myrra.com



Presenting the
**Electronic
 Transformers**

miniature power
 supplies at your
 fingertips

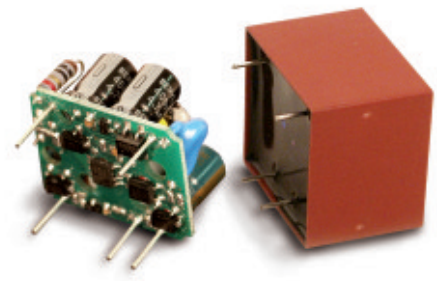
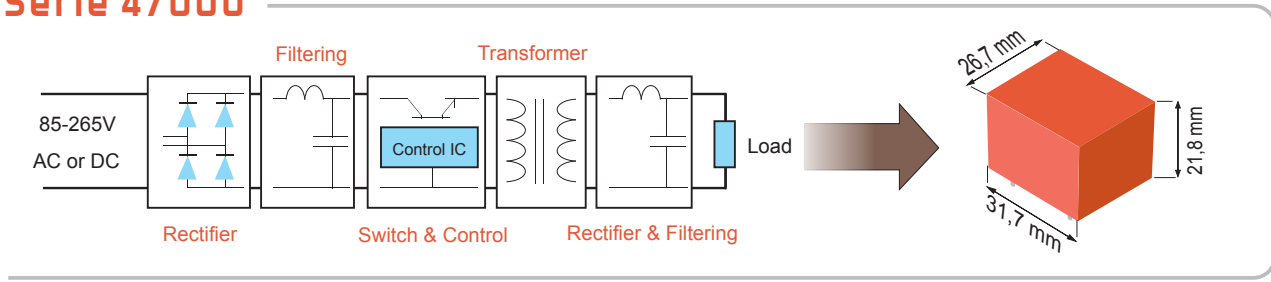
Enhanced efficiency, performance & flexibility
 all in existing formats EI30 / EI38 / EI48

full certification from global authorities     

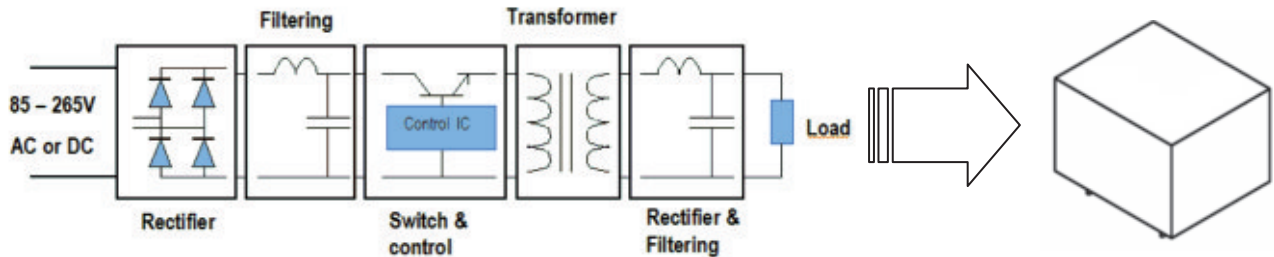
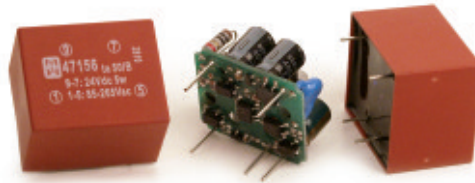
Encapsulated Power Supplies 2.5W, 5W, 7.5W & 10W

Regulated, unregulated, single & dual output voltage families

Serie 47000



ELECTRONIC TRANSFORMERS



MYRRA encapsulated electronic transformers are Switched Mode Power Supplies based on Flyback topology.

They constitute an interesting alternative to the traditional supply in the most common applications of power lower than 10W.

ENERGY SAVING due to high efficiency and low standby power

The applications for the Electronic serie are:

- o Alternative to the linear transformers in all AC/DC applications of power up to 10W
- o Alternative to DC/DC converters for application in D.C.current (Telecom supplies, electric substations etc.)
- o Industrial, domestic and consumer electronics applications
- o Standby devices and others DC or AC auxiliary supplies

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

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

Regulated types will also replace linear regulator and heatsink

MAIN FEATURES

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

SAFETY STANDARDS

Meets all requirements of:

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

EMC STANDARDS

Conducted and radiated emissions conform to

- o EN 55014-1
- o EN 55022 class B

Immunity conform to

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

ONE OUTPUT 2.5 & 5W - Regulated



79FH-98 °C

ELECTRICAL SPECIFICATIONS

Input voltage range
 85 to 265 Volts AC
 120 to 370 Volts DC
 Input Frequency 47 to 63 Hz

Output voltage accuracy (full load) $\pm 2\%$
 Line output voltage variation $\pm 0.3\%$
 Load output voltage variation $\pm 0.5\%$

No load input power $< 200\text{mW}$
 Energy consumption and efficiency :
 Meets requirements of Energy Star and
 EC Code of Conduct

SAFETY

Prepared for Class II – reinforced insulation
 Input / Output Isolation test voltage: 4000 Vac

Operating ambient temperature:
 - 25°C / + Ta (See table)

Storage temperature: - 40°C / + 85°C

Input protection by integrated fusible resistor

Output short circuit protection: automatic restarts
 when fault condition is removed

Thermal shutdown with automatic recovery if internal
 temperature exceeds allowable value

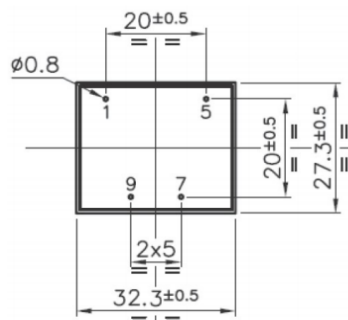
| Reference | Output voltage (DC Volts) | Output current (DC mA) | Output Power (W) | Efficiency (%) | Ta (°C) |
|-----------|---------------------------|------------------------|------------------|----------------|---------|
| 47121 | 3.3 | 750 | 2.5 | 65 | +70 |
| 47122 | 5 | 550 | 2.75 | 68 | +70 |
| 47123 | 9 | 270 | 2.5 | 72 | +70 |
| 47124 | 12 | 210 | 2.5 | 74 | +70 |
| 47125 | 15 | 170 | 2.5 | 75 | +70 |
| 47126 | 24 | 110 | 2.5 | 77 | +70 |
| 47151 | 3.3 | 1350 | 4.2 | 65 | +50 |
| 47157 | 3.8 | 1180 | 4.5 | 66 | +50 |
| 47152 | 5 | 900 | 4.5 | 68 | +50 |
| 47153 | 9 | 550 | 5 | 72 | +50 |
| 47154 | 12 | 420 | 5 | 75 | +50 |
| 47155 | 15 | 320 | 5 | 76 | +50 |
| 47156 | 24 | 220 | 5 | 79 | +50 |

* Note: custom options available

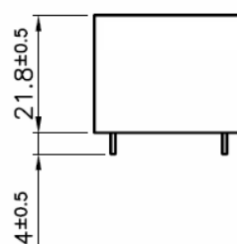
DIMENSIONS and PINOUT

4 pins

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



(view from pins side):



ONE OUTPUT 3.2 & 5W - Non Regulated



ELECTRICAL SPECIFICATIONS

Input voltage range
 85 to 265 Volts AC
 120 to 370 Volts DC
 Input Frequency 47 to 63 Hz

Output voltage accuracy (full load) $\pm 5\%$
 Line output voltage variation $\pm 3\%$
 Load output voltage variation $\pm 5\%$

No load input power $< 300\text{mW}$
 Energy consumption and efficiency :
 Meets requirements of Energy Star and
 EC Code of Conduct

SAFETY

Prepared for Class II – reinforced insulation
 Input / Output Isolation test voltage: 4000 Vac

Operating ambient temperature:
 - 25°C / + Ta (See table)

Storage temperature: - 40°C / + 85°C

Input protection by integrated fusible resistor

Output short circuit protection: automatic restarts
 when fault condition is removed

Thermal shutdown with automatic recovery if internal
 temperature exceeds allowable value

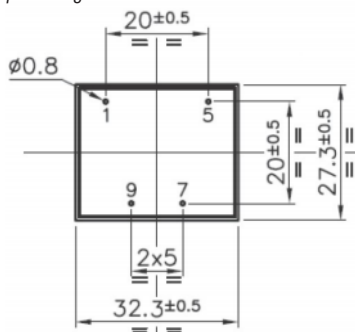
| Reference | Output voltage (DC Volts) | Output current (DC mA) | Output Power (W) | Efficiency (%) | Ta (°C) |
|-----------|---------------------------|------------------------|------------------|----------------|---------|
| 47114 | 12 | 200 | 2.4 | 74 | +70 |
| 47132 | 5 | 500 | 2.5 | | +70 |
| 47133 | 9 | 360 | 3.2 | 73 | +70 |
| 47134 | 12 | 270 | 3.2 | 75 | +70 |
| 4 3 | 18 | 180 | .2 | 8 | +70 |
| 47136 | 24 | 130 | 3.2 | 80 | +70 |
| 47163 | 9 | 560 | 5 * | 73 | +50 |
| 47164 | 12 | 420 | 5 * | 75 | +50 |
| 47166 | 24 | 210 | 5 * | 80 | +50 |

* Note: Power up to 5.4W is possible with input voltage ≥ 97 Vac

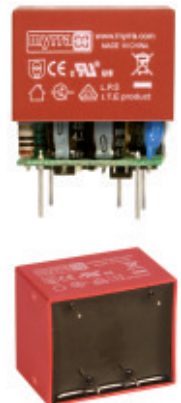
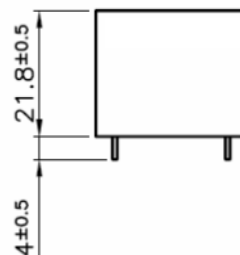
DIMENSIONS and PINOUT

4 pins

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



(view from pins side):



TWO OUTPUTS - COMMON & ISOLATED 3 to 5W - Regulated



79FH=98

ELECTRICAL SPECIFICATIONS

Input voltage range
85 to 265Volts AC
120 to 370V DC
Input Frequency 47 to 63 Hz

Output voltage accuracy : see table for
10 to 100% rated load of each output
(includes line and load variations)

No load input power < 200mW
Energy consumption and efficiency :
Meets requirements of Energy Star
or EC Code of Conduct

SAFETY

Prepared for Class II – reinforced insulation
Input / Output Isolation test voltage: 4000 Vac
Operating ambient temperature: - 25°C / + Ta (See table)

Storage temperature: - 40°C / + 85°C

Input protection by integrated fusible resistor

Output short circuit protection: automatic restarts
when fault condition is removed

Thermal shutdown with automatic recovery if
internal temperature exceeds allowable value

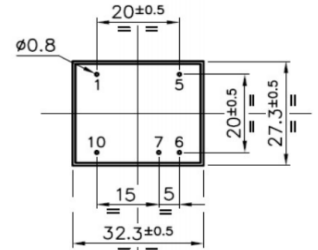
| COMMON OUTPUT | | | | | | |
|---------------|------------------------------------|---------------------------------|---------------------|----------------------------------|----------------|------------|
| Reference | Output 1 Output 2 (DC Volts) | Output 1 Output 2 (DC mA) | Output Power (W) | Output 1 Output 2 accuracy | Efficiency (%) | Ta (°C) |
| 47243 | +10.5 +7 | 380 max 100 max | 4 * | ± 3% +15% | 72 | +60 |
| 47244 | + 15 +7 | 300 max 70 max | 4 * | ± 3% ± 15% | 73 | +60 |
| 47245 | +12 +5.5 | 130 max 300 max | 3.2 | ± 5% ± 10% | 65 | +70 |
| 47246 | +5 +12 | 400 (600max) 170 max | 4 | ± 3% ± 15% | 65 | +60 |
| 47247 | +15 -15 | 130 max 130 max | 4 | ± 8% ± 8% | 73 | +60 |

* Nota: Power up to 5W is possible with input voltage ≥ 97 Vac and Ta ≤ 50°C

DIMENSIONS and PINOUT

5 pins

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



(view from pins side):

The 2 outputs share a common 0v reference.
This enables closer coupling and a better cross-
regulation of the outputs

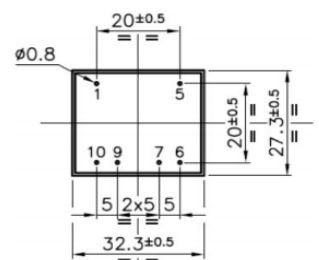


| ISOLATED OUTPUT | | | | | | |
|-----------------|------------------------------------|---------------------------------|---------------------|----------------------------------|----------------|------------|
| Reference | Output 1 Output 2 (DC Volts) | Output 1 Output 2 (DC mA) | Output Power (W) | Output 1 Output 2 accuracy | Efficiency (%) | Ta (°C) |
| 47252 | 5 5 | 350 (600max) 350 max | 3.5 | ± 3% +15% | 66 | +60 |
| 47254 | 12 12 | 165 (300max) 165 max | 4 | ± 5% ± 15% | 72 | +60 |
| 47255 | 15 15 | 135 (200max) 135 max | 4 | ± 5% ± 15% | 73 | +60 |
| 47257 | 5 12 | 400 (600max) 170 max | 4 | ± 3% ± 15% | 68 | +60 |
| 47258 | 18 8 | 150 (200max) 150 max | 4 | ± 5% ± 15% | 72 | +60 |

DIMENSIONS and PINOUT

6 pins

pins 1 & 5 : AC or DC Input
pin 6: DC output1 0V
pin 7: DC output1 +V
pin 9: DC output2 0V
pin 10: DC output2 +V



(view from pins side):

2 isolated outputs - Output 1 only is regulated and
should provide the higher power

Output1 / Output 2 isolation : 4000Vac



ONE OUTPUT 7,5W - Regulated



ELECTRICAL SPECIFICATIONS

Input voltage range
85 to 265 Volts AC
120 to 370 Volts DC
Input Frequency 47 to 63 Hz

Output voltage accuracy full load (see table)
Line output voltage regulation $\pm 0,5\%$
Load output voltage regulation (see table)

No load input power < 150mW
Energy consumption and efficiency :
Meets requirements of Energy Star and
EC Code of Conduct

SAFETY

Prepared for Class II – reinforced insulation
Input / Output Isolation test voltage: 4000 Vac

Operating ambient temperature:
- 25°C to (see table)

Storage temperature: - 40°C / + 85°C

Input protection by integrated fuse

Output short circuit protection : automatic restarts
when fault condition is removed

Thermal shutdown with automatic recovery if internal
temperature exceeds allowable value

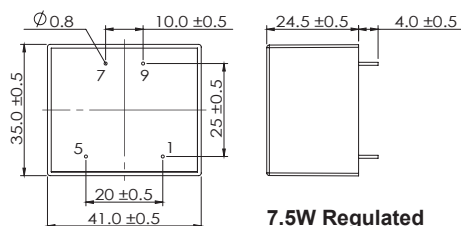
| Reference | Output (DC Volts) | Output (DC mA) | Output voltage accuracy | Output Power (max W) | Load output voltage regulation | Efficiency (%) @230VAC | Ta (°C) |
|-----------|-------------------|----------------|-------------------------|----------------------|--------------------------------|------------------------|---------|
| 47206 | 3.3 | 2270 | $\pm 3\%$ | 7.5 | $\pm 3\%$ | >74 | +70 |
| 47200 | 5 | 1500 | $\pm 2\%$ | 7.5 | $\pm 1\%$ | >76 | +70 |
| 47201 | 9 | 830 | $\pm 2\%$ | 7.5 | $\pm 1\%$ | >80 | +70 |
| 47202 | 12 | 625 | $\pm 2\%$ | 7.5 | $\pm 1\%$ | >82 | +70 |
| 47203 | 15 | 500 | $\pm 2\%$ | 7.5 | $\pm 1\%$ | >82 | +70 |
| 47204 | 18 | 420 | $\pm 2\%$ | 7.5 | $\pm 1\%$ | >82 | +70 |
| 47205 | 24 | 310 | $\pm 2\%$ | 7.5 | $\pm 1\%$ | >82 | +70 |

Note: other output voltages are available upon request

DIMENSIONS and PINOUT

4pins

Pins 1 & 5 :
AC or DC Input
Pin 7 : DC output + V
Pin 9 : DC output OV



(view from pins side)



ONE OUTPUT 10W - Regulated



ELECTRICAL SPECIFICATIONS

Input voltage range
85 to 265 Volts AC
120 to 370 Volts DC
Input Frequency 47 to 63 Hz

Output voltage accuracy full load (see table)
Line output voltage regulation $\pm 0,5\%$
Load output voltage regulation (see table)

No load input power $< 100\text{mW}$
Energy consumption and efficiency :
Meets requirements of Energy Star and
EC Code of Conduct

SAFETY

Prepared for Class II – reinforced insulation
Input / Output Isolation test voltage: 4000 Vac

Operating ambient temperature:
- 25°C to (see table)

Storage temperature: - 40°C / + 85°C

Input protection by integrated fuse

Output short circuit protection : automatic restarts
when fault condition is removed

Thermal shutdown with automatic recovery if internal
temperature exceeds allowable value

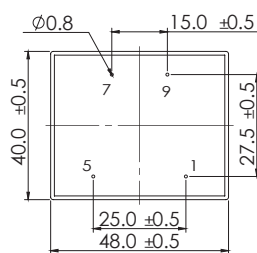
| Reference | Output (DC Volts) | Output (DC mA) | Output voltage accuracy | Output Power (max W) | Load output voltage regulation | Efficiency (%) @230VAC | Ta (°C) |
|-----------|-------------------|----------------|-------------------------|----------------------|--------------------------------|------------------------|---------|
| 47216 | 3.3 | 3000 | $\pm 4\%$ | 10 | $\pm 4\%$ | >76 | +50 |
| 47210 | 5 | 2100 | $\pm 3\%$ | 10 | $\pm 3\%$ | >76 | +60 |
| 47211 | 9 | 1100 | $\pm 2\%$ | 10 | $\pm 1\%$ | >79 | +60 |
| 47212 | 12 | 830 | $\pm 2\%$ | 10 | $\pm 1\%$ | >80 | +60 |
| 47213 | 15 | 670 | $\pm 2\%$ | 10 | $\pm 1\%$ | >80 | +60 |
| 47214 | 18 | 560 | $\pm 2\%$ | 10 | $\pm 1\%$ | >80 | +60 |
| 47215 | 24 | 420 | $\pm 2\%$ | 10 | $\pm 1\%$ | >80 | +60 |

Note: other output voltages are available upon request

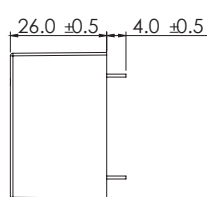
DIMENSIONS and PINOUT

4pins

Pins 1 & 5 :
AC or DC Input
Pin 7 : DC output + V
Pin 9 : DC output OV



(view from pins side)



10W Regulated





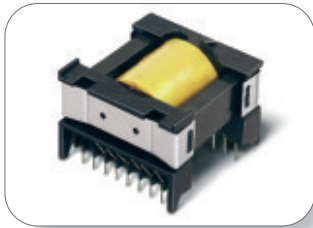
OTHER PRODUCTS

PCB MOUNTING TRANSFORMERS



Encapsulated Transformers 50 / 60 Hz (44000 and 45000 series)

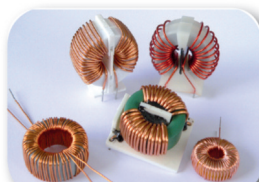
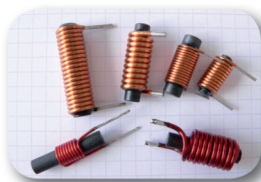
- Full range of standard products up to 60VA
- Safety isolating application
- Global certification VDE, UL/CSA, EN61558, UL-94V0, RoHs
- Fully automated production testing -100%



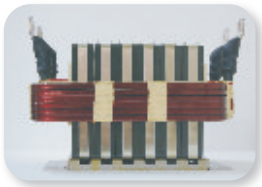
Ferrite core transformers and inductors (7400 series)

- Large range of applications: Flyback Transformers, CM chokes... etc
- Conforming to international standards
- Standard product and customised design available

INDUCTORS - THROUGH HOLES & SMD TYPE



POWER RANGE: TRANSFORMERS / FILTERS / INDUCTORS



50Hz & HF Technology (30000 series)

- Customised design against performance specification
- Conformance with international standards UL, IEC, CSA
- up to 200KVA and 1000V systems



Toroidal Transformers (60000 series)

- Custom design product
- Power Rating up to 30 KVA
- Conforms with International standards EN-61558, CE



47000 SERIES



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