

47000 SERIES - 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 from 5W to 10W

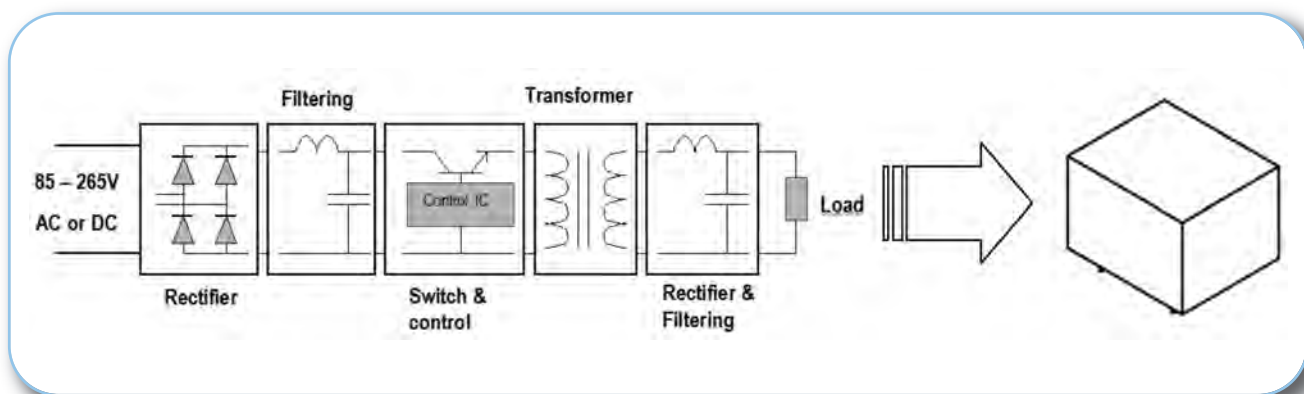
ENERGY SAVING due to high efficiency and low standby power



MAIN FEATURES

- Wide input voltage range
- Increased power. 3 x compared to standard EI30, EI38 and EI48 transformer
- 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 EI30, EI38 and EI48 transformer : Upgrade your application without redesign of PCB

Power from 2.5W to 10W



The applications for the Electronic serie are :

- Alternative to the linear transformers in all AC/DC applications of power up to 10W
- 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 a EI30, EI38 and EI48 transformer, they will replace:

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

Regulated types will also replace linear regulator and heatsink

SAFETY STANDARDS

APPROVALS:

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

EMC STANDARDS

Conducted and radiated emissions conform to

- EN 55014-1
- EN 55022 class B

Immunity conform to

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

**ELECTRICAL SPECIFICATIONS**

Input voltage range

85 to 265 Volts AC

85 to 370 Volts DC

Input Frequency 47 to 63 Hz

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

 $-25^{\circ}\text{C} / +\text{Ta}$ (See table)Storage temperature: $-40^{\circ}\text{C} / +85^{\circ}\text{C}$

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
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

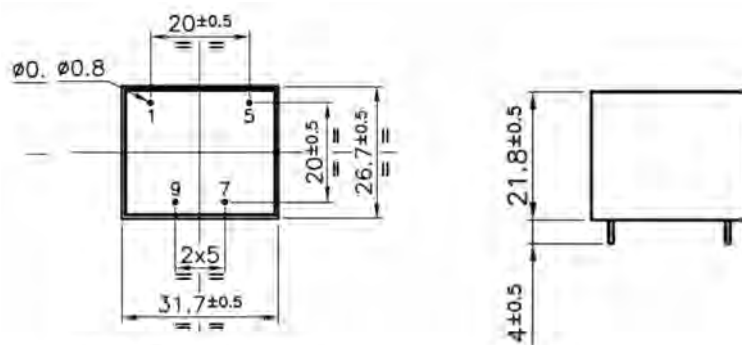
DIMENSIONS and PINOUT

4 pins

pins 1 & 5 : AC or DC Input

pin 7: DC output +V

pin 9: DC output 0V



(view from pins side):

**ELECTRICAL SPECIFICATIONS**

Input voltage range

85 to 265 Volts AC

85 to 370 Volts DC

Input Frequency 47 to 63 Hz

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

Load output voltage regulation 0/ +30%

No load input power < 300mW

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
47133	9	360	3.2	73	+70
47134	12	270	3.2	75	+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

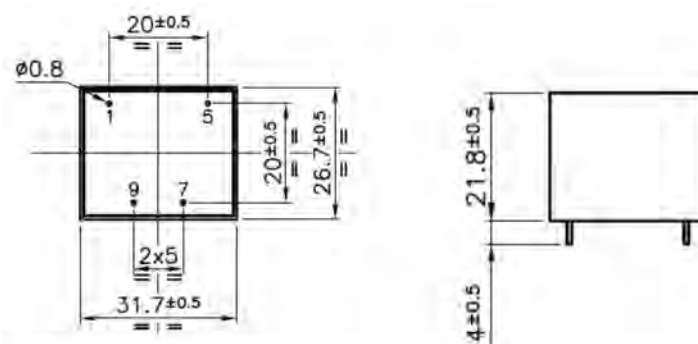
* Nota: Power up to 5.4W is possible with input voltage ≥ 97 Vac**DIMENSIONS and PINOUT**

4 pins

pins 1 & 5 : AC or DC Input

pin 7: DC output +V

pin 9: DC output 0V



(view from pins side):

ELECTRICAL SPECIFICATIONS

Input voltage range

85 to 265Volts AC

85 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

The 2 outputs share a common 0v reference.

This enables closer coupling and a better cross-regulation of the outputs

SAFETY

Prepared for Class II – reinforced insulation

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**

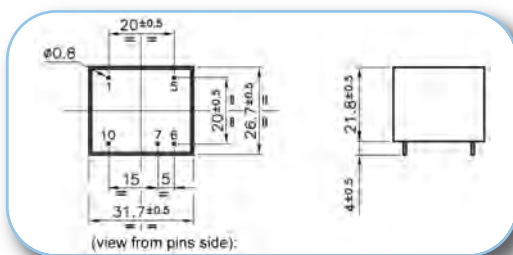
Reference	Output 1 Output 2 (DC Volts)	Output 1 Output 2 (DC mA)	Output Power (W)	Output 1 Output 2 accuracy	Efficiency (%)	Ta (°C)
47243	+10.5 +7	380 max 100 max	4 *	± 3% +15%	72	+60
47244	+ 15 +7	300 max 70 max	4 *	± 3% ± 15%	73	+60
47245	+12 +5.5	130 max 300 max	3.2	± 5% ± 10%	65	+70
47246	+5 +12	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 $T_a \leq 50^\circ\text{C}$ **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

COMMON OUTPUT

Input / Output Isolation test voltage: 4000 Vac

**DIMENSIONS and PINOUT**

5 pins

pins 1 & 5 : AC or DC Input

pin 6: Common output 0V

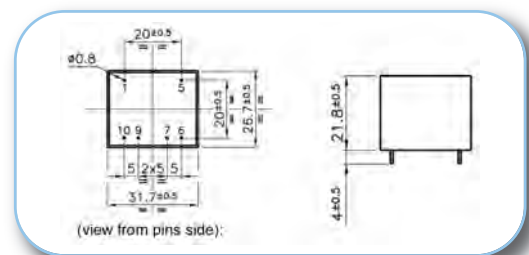
pin 7: DC output 1

pin 10: DC output 2

ISOLATED OUTPUT

Input / Output Isolation test voltage: 4000 Vac

Output1 / Output 2 isolation : 4000Vac

**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

**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 (COC level 5 stage 1)

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

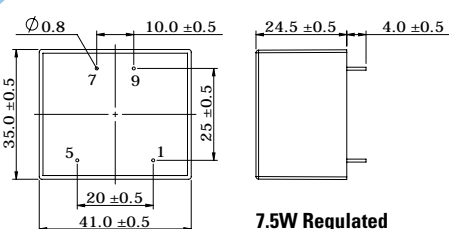
7.5W Regulated

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

10W Regulated

Reference	Output (DC Volts)	Output (DC mA)	Output voltage accuracy	Output Power (max W)	Load output voltage regulation	Efficiency (%) @230VAC	Ta (°C)
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
47216	3.3	3000	$\pm 3\%$	10	$\pm 3\%$	>76	+50

Note: other output voltages are available upon request

**DIMENSIONS and PINOUT**
4pinsPins 1 & 5 :
AC or DC Input
Pin 7 : DC output + V
Pin 9 : DC output OV