

**NEW!**



## AC/DC power supplies TESAV50 series



### Features

- Class: Industrial
- Cases with mounting flanges; or copper case (optional)
- Output current up to 10 A, output power 50 W; one or two output channels
- Input voltage ranges: 176...240 VAC; 80...140 VAC
- Power density up to **994** W/dm<sup>3</sup>
- Low profile 13 mm design
- Case operating temperature range: -60°C...+125°C
- Magnetic feedback without optocouplers
- Output voltage adjustment, remote on/off
- Max capacitance 8500 µF for U<sub>out</sub>=5 VDC

### Description

**Ultra-compact isolated AC/DC converters** are especially designed for industrial applications and harsh environment operation. These compact units (73 x 53 x 13 mm) have output power up to 50 W and operating temperature range between -60...+125°C. The absence of optocouplers in the converter's circuit empowers safeness during unit's entire lifetime even when performing in conditions of ionizing radiations and at high temperature. These modules are available with one or two **galvanic isolated** channels, can be switched on/off by a signal, have full protection complex against over current, shorting and overheating and can be connected in parallel or in series.

These modules are built using especially designed electronic components and sealed with heat-conducting potting material. They have wide operating temperature range and thermal protection chip. These modules undergo special thermal and limit tests, including burn-in-tests with extreme on/off modes. They are available in metal cases with mounting flanges.

An operating unit can withstand drop of input voltage in relation to the normal input voltage, and in many cases the module is able to provide needed output power when the input voltage decreases 10-30% compared to the normative.

Upon customers' request this module can be produced in copper cases (covered by "Black chrome"), allowing its installation on aluminum heat sink and providing a positive effect on the modules EMC and heat transfer.

Upon customers request a low-cost version of a module is available.

## Ordering information

### TESAV 50 - 230 D 0512 - U T B

1 2 3 4 5 6 7 8

- 1 - «TESAV» Series
- 2 - Max output power, W
- 3 - Input voltages
  - 230 – 230 VAC (176...240 VAC)
  - 115 – 115 VAC (80...140 VAC)
- 4 - Index of output channels quantity
  - S – one
  - D – two
- 5 - Nominal output voltage, VDC (two signs for a channel)
- 6 - Index of case design
  - U – metal case with flanges
- 7 - Index of operating temperature range of the case
  - T –60°C...+125°C (basic version)
- 8 - Index of low cost version
  - B – Low cost version (customer-considered simplified construction)

## Technical information

### Standard models with one output

Module	Input voltage range	Output power	Output voltage / nominal output current	Typical efficiency
TESAV50-115S05-XX	80...140 VAC	50 W	5 VDC / 10 A	82%
TESAV50-115S12-XX	80...140 VAC	50 W	12 VDC / 4,16 A	84%
TESAV50-115S15-XX	80...140 VAC	50 W	15 VDC / 3,3 A	84%
TESAV50-115S24-XX	80...140 VAC	50 W	24 VDC / 2,08 A	86%
TESAV50-115S27-XX	80...140 VAC	50 W	27 VDC / 1,85 A	86%
TESAV50-115S48-XX	80...140 VAC	50 W	48 VDC / 1,04 A	86%
TESAV50-230S05-XX	176...240 VAC	50 W	5 VDC / 10 A	83%
TESAV50-230S12-XX	176...240 VAC	50 W	12 VDC / 4,16 A	85%
TESAV50-230S15-XX	176...240 VAC	50 W	15 VDC / 3,3 A	85%
TESAV50-230S24-XX	176...240 VAC	50 W	24 VDC / 2,08 A	87%
TESAV50-230S27-XX	176...240 VAC	50 W	27 VDC / 1,85 A	87%
TESAV50-230S48-XX	176...240 VAC	50 W	48 VDC / 1,04 A	87%

### Standard models with two outputs

Module	Input voltage range	Output power	Output voltage / nominal output current	Typical efficiency
TESAV50-115D0505-XX	80...140 VAC	50 W	5 VDC / 5 A ; 5 VDC / 5 A	81%
TESAV50-115D0512-XX	80...140 VAC	50 W	5 VDC / 5 A ; 12 VDC / 2,08 A	81%
TESAV50-115D1212-XX	80...140 VAC	50 W	12 VDC / 2,08 A ; 12 VDC / 2,08 A	83%
TESAV50-115D1515-XX	80...140 VAC	50 W	15 VDC / 1,6 A ; 15 VDC / 1,6 A	83%
TESAV50-115D2727-XX	80...140 VAC	50 W	27 VDC / 0,92 A ; 27 VDC / 0,92 A	85%
TESAV50-230D0505-XX	176...240 VAC	50 W	5 VDC / 5 A ; 5 VDC / 5 A	82%
TESAV50-230D0512-XX	176...240 VAC	50 W	5 VDC / 5 A ; 12 VDC / 2,08 A	82%
TESAV50-230D1212-XX	176...240 VAC	50 W	12 VDC / 2,08 A ; 12 VDC / 2,08 A	84%
TESAV50-230D1515-XX	176...240 VAC	50 W	15 VDC / 1,6 A ; 15 VDC / 1,6 A	84%
TESAV50-230D2727-XX	176...240 VAC	50 W	27 VDC / 0,92 A ; 27 VDC / 0,92 A	86%

Modules with non-standard output voltage from 3 to 80 VDC with maximal output current up to 10 A, could be delivered by request.

<sup>1</sup> - Typical efficiency are stated for module which were set to an aluminum test heatsink (130x130x6 mm) through a heat-conducting paste.

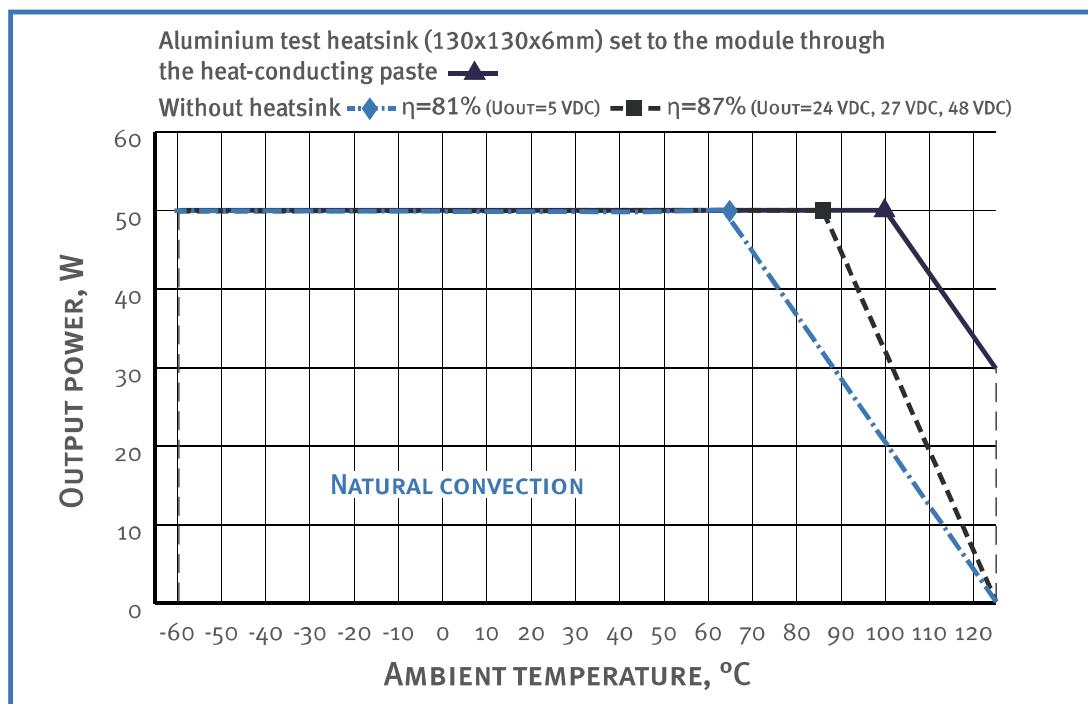
## Specifications for AC/DC power supplies TESAV50\*

<b>Input specifications</b>	
Input voltage range / transitional deviation, 1 sec 115	~80...140 VAC/~80...140 VAC
Input voltage range / transitional deviation, 1 sec 230	~176...240 VAC/~176...264 VAC
Input frequency	47...440 Hz
Input filter	absent
<b>Output specifications</b>	
Output voltage adjustment (single-channel models only)	±5% Uout
Instability of output voltage in accordance to changing of output current from 10 to 100% for single output model	±2%
Instability of output voltage in accordance to changing of output current from 10 to 100% for dual output model	±2% for chan.1, ±7% for chan.2
Instability of output voltage in accordance to changing of output current for dual output model with a voltage value ≥20%	±2% for chan.1, ±12% for chan.2
Instability of output voltage in accordance to instability of input voltage	±0,5%
Ripple and noise (peak-to-peak) (20 MHz)	<2% Uout
Short circuit protection**	>150% Iout nom, auto repair
Overvoltage protection**	<130 % Uout
Over current protection level**	Pout ... 1.3·Pout
Remote On/Off	Shuts down outputs by applying 0...1,1 VDC or connection of output «ON» and «- IN», I≤5mA
The maximum output power without the heatsink, Tamb=50°C	50 W
<b>General specifications</b>	
Case temperature (operating)	-60°C ...+125°C
Case temperature (storage)	-60°C ...+125°C
Case temperature power decrease (natural convection)	See diagram (dashed, dash-dotted curve)
Case temperature without power decrease with heat sink	See diagram (solid curve)
High humidity	100% @35 °C
Thermal resistance case — environment without heat sink	5,3 °C/W
Insulation voltage input/output	~3000 VAC
Insulation voltage input/case	~1500 VAC
Insulation voltage output/case	~500 VAC
Insulation voltage output/output	~500 VAC
Isolation resistance @ 500 VDC	>20 MOhm
EMC standards	EN 55022, class A with additional filter
Safety standard	IEC/ EN 60950
Typical MTBF (Tcase = 50°C; Pout = 0,7 Pout max)	100000 hrs
Cooling metod	Free air convection or forced air cooling
Weight (max)	110 g

\* All specifications are valid for normal climatic conditions, Uin.nom., Iout.nom., unless otherwise stated.

\*\* Parameters are stated for the information purposes and could not be used at long term work, exciding maximum output current, at work outside of a range of working temperatures, at module's work with the output voltage over a range of adjustment.

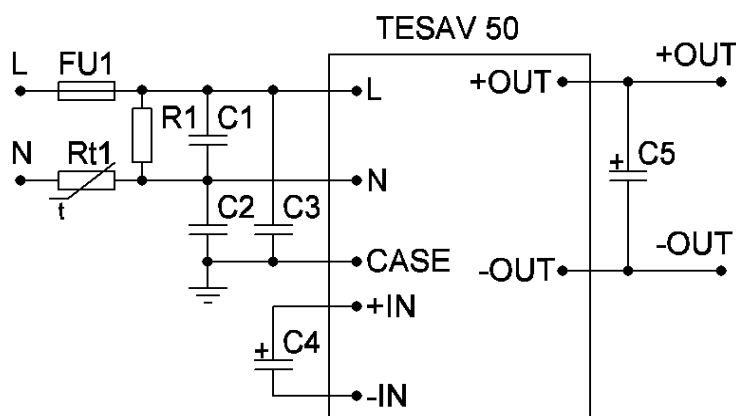
## Output power vs an ambient temperature at input voltage =176...240 VAC (copper case)



Dropping parts of the dashed and dash-dotted curves are in accordance with the **maximum temperature of the case**. Output power must not exceed the values which are limited by corresponding curve for a given ambient temperature.

At points ◆, ■ and ▲ simultaneously present several extreme worst-case conditions, such as the combination of maximum case temperature and maximum output power. Continuous module operation at these points should be avoided.

### Typical connection diagram

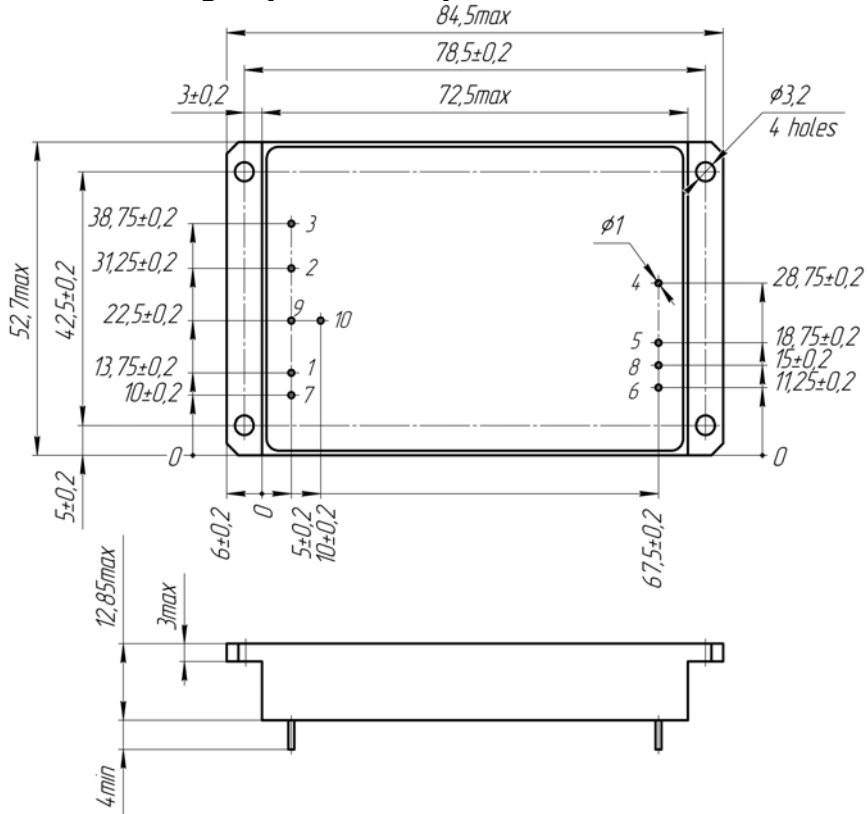


C1	0.1uF 275VAC, X2 class
C2, C3	2200pF 250VAC, Y2 class
C4	33uF 400V
C5	Tantalum, Low ESR
R1	470kOhm 0.5W
Rt1	NTC 200hm 1A
FU1	3A 250V

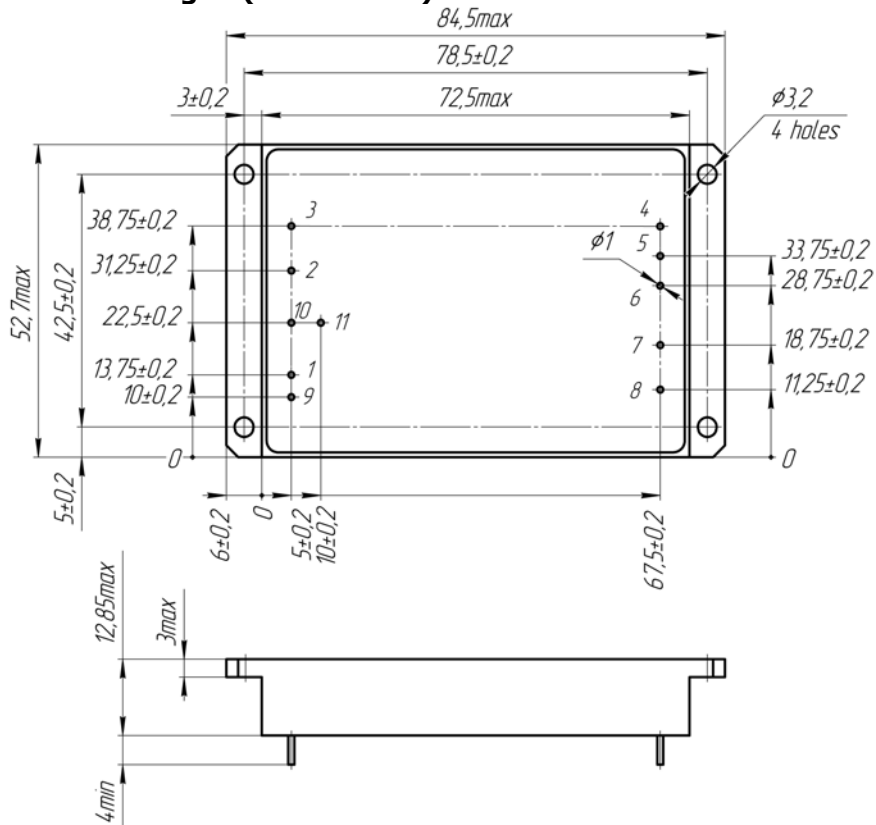
## Pin out

Nº Pin	1	2	3	4	5	6	7	8	9	10	11
<b>Single output</b>	+IN	-IN	ON	+OUT	-OUT	CASE	CASE	ADJ	L	N	-
<b>Dual output</b>	+IN	-IN	ON	+OUT1	-OUT1	+OUT2	-OUT2	CASE	CASE	L	N

### Single output model with flanges (V case size)



### Dual output model with flanges (V case size)



## Certificates

Certificate ISO\*  
CE conformity declaration

\*Management system of Alexander Electric is ISO certified

## Note

The label can be placed on the top surface of the module and must be removed before installation.

Please, note that all information in this material is for reference only. Further detailed information (including: additional requirements, manuals and circuit schemes) is found on our website <http://www.teslaelectric-eu.com>.

## Contact information

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