Features

- Class: Industrial, power density up to **1191** W/dm3
- Low profile 13 mm design
- Case operating temperature range: –40°C…+85°C, for request up to +110°C
- Output current up to 9 A, output power 100 W
- Input voltage ranges: 43…108 VDC, 57…144 VDC, 66…165 VDC
- Protection against input overvoltage and surges according to EN50121-3-2, EN50155, IEC60571, RIA12 up to 500 VDC with duration of 20 msec (for input network 110 VDC)
- Output voltage adjustment, remote on/off
- Max capacitance 3600 µF (for Uout=12 VDC, 50% Output power)
- Metal case, with mounting flanges

For all special requirements placed on the last page of datasheet please click here.

Description

DC/DC converters with protection from transient voltage surges on the input are especially designed for industrial applications and harsh environment operation. Modules are perfect for power systems mobile and stationary objects, powered by a generator. Modules are able to operate in a wide temperature range (-40...85°C). 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 specially designed electronic components and sealed with heat-conducting potting material. They have wide operating temperature range and a 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.

Ordering information

TESZ 100 - 110Z S 12 - U N

1 2 3 4 5 6 7

1 - «TESZ» Series
2 - Max output power, W
3 - Input voltages
72 Z – 72 VDC (43…108 VDC)
96 Z – 96 VDC (57…144 VDC)
110 Z – 110 VDC (66…165 VDC)
4 - Index of output channels quantity
S – one
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
N –40°C…+85°C, for request up to +110°C

Technical information

Standard models with one output

Module	Input voltage range	Output power	Output voltage / nominal output current	Typical efficiency
TESZ100-72ZS12-UN	43…108 VDC	100 W	12 VDC / 8,33 A	80%
TESZ100-72ZS15-UN	43…108 VDC	100 W	15 VDC / 6,67 A	80%
TESZ100-72ZS24-UN	43…108 VDC	100 W	24 VDC / 4,16 A	81%
TESZ100-72ZS27-UN	43…108 VDC	100 W	27 VDC / 3,7 A	81%
TESZ100-72ZS48-UN	43…108 VDC	100 W	48 VDC / 2,1 A	84%
TESZ100-96ZS12-UN	57…144 VDC	100 W	12 VDC / 8,33 A	80%
TESZ100-96ZS15-UN	57…144 VDC	100 W	15 VDC / 6,67 A	80%
TESZ100-96ZS24-UN	57…144 VDC	100 W	24 VDC / 4,16 A	81%
TESZ100-96ZS27-UN	57…144 VDC	100 W	27 VDC / 3,7 A	81%
TESZ100-96ZS48-UN	57…144 VDC	100 W	48 VDC / 2,1 A	84%
TESZ100-110ZS12-UN	66…165 VDC	100 W	12 VDC / 8,33 A	80%
TESZ100-110ZS15-UN	66…165 VDC	100 W	15 VDC / 6,67 A	80%
TESZ100-110ZS24-UN	66…165 VDC	100 W	24 VDC / 4,16 A	81%
TESZ100-110ZS27-UN	66…165 VDC	100 W	27 VDC / 3,7 A	81%
TESZ100-110ZS48-UN	66…165 VDC	100 W	48 VDC / 2,1 A	84%

Modules with non-standard output voltage from 12 to 60 VDC with maximal output current up to 20 A, could be delivered on request.

Specifications for DC/DC converters TESZ100 series*

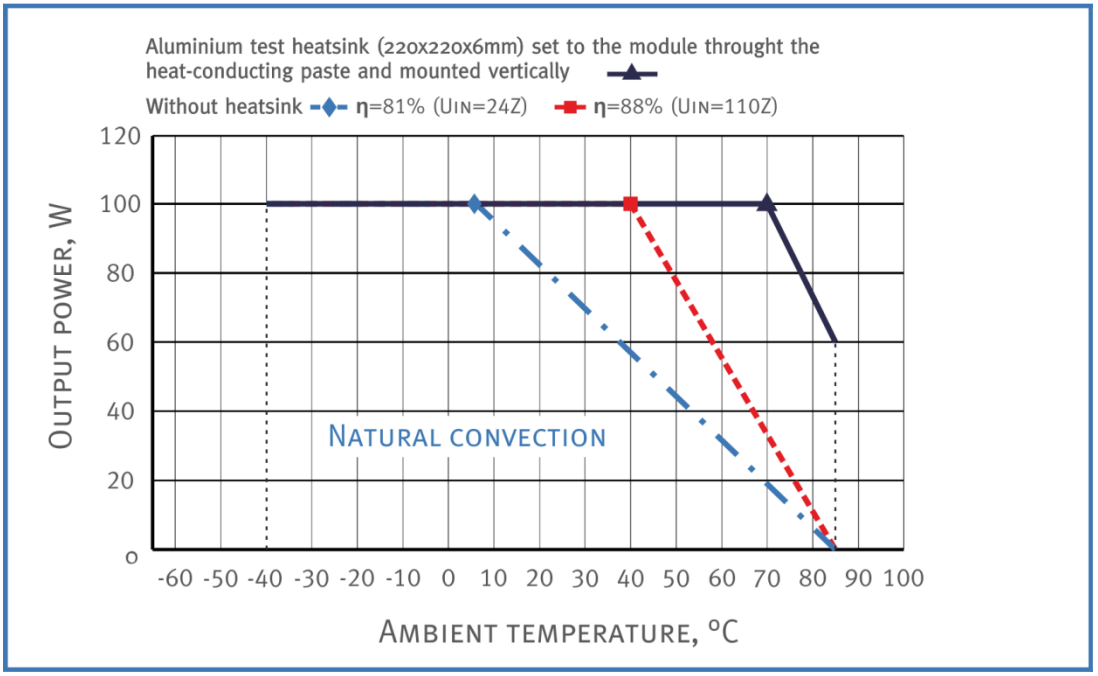
Input specifications	
Input voltage range 72 Z	=43…108 VDC
Input voltage range 96 Z	=57…144 VDC
Input voltage range 110 Z	=66…165 VDC
Surge and transient protection **	
Input surge protection 72 Z	252 VDC @ 20 ms trise=tfall = 2 ms, Rsourse=0,2 Ω
Input surge protection 96 Z	336 VDC @ 20 ms trise=tfall = 2 ms, Rsourse=0,2 Ω

Input surge protection 110 Z	385 VDC @ 20 ms trise=tfall = 2 ms, Rsourse=0,2 Ω
Input transient protection ***	
Input transient protection 72 Z, 96 Z, 110 Z	Umax=960 V trise=10 µs, tduration=100 µs@0,5 Umax Rsourse=5Ω
	Umax=1800 V trise=5 µs, tduration=50 µs@0,5 Umax Rsourse=5Ω
	Umax=3600 V trise=0,5 µs, tduration=5 µs@0,5 Umax Rsourse=100Ω
	Umax=4800 V trise=0,1 µs, tduration=0,1 µs@0,5 Umax Rsourse=100Ω
	Umax=8400 V trise=0,05 µS, tduration=0,1 µs@0,5 Umax Rsourse=100Ω
Input filter	In accordance with EN50121-3-2, EN50155
Output specifications	
Output voltage adjustment	±5% Uout nom.
Instability of output voltage in accordance to changing of output current from 10 to	±2%
Ripple and noise (peak-to-peak) (20 MHz)	<2% Uout nom.
Short circuit protection****	auto repair
Overvoltage protection****	<150 % Uout nom.
Over current protection level****	Pout … 1.8·Pout
Remote On/Off	Shuts down outputs by applying 0…1,1 VDC or connection of output «ON» and «- IN», I≤5 mA
The maximum output power without the heatsink, Tamb=50°C	100 W
Max capacitance for Uout=12 VDC, 50% Output power	3600 µF *****
General specifications	
Case temperature (operating)	–40°C …+85°C
Case temperature (storage)	–40°C …+85°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	3,3 °C/W
Conversion frequency	200 kHz typical
Insulation voltage input/output	~1500 VAC
Insulation voltage input/case	~1500 VAC
Insulation voltage output/case	~500 VAC
Isolation resistance @ 500 VDC	>20 MOhm
EMC standards	EN 55022, class A with additional filter
Safety standards	IEC/ EN 60950, EN50116
Surge and Transient Protection	EN50155, IEC60571, RIA12
Typical MTBF (Tcase = 50°C; Pout = 0,7 Pout max)	50 000 hrs
Cooling metod	Free air convection with heat sink or forced air cooling
Weight (max)	175 g

* All specifications are valid for normal climatic conditions, Uin.nom., Iout.nom., unless otherwise stated.
** Surges and transients may be assumed to be non-repetive, and they should not occur at time interval at less than 10 second.
*** For capatitor discharge voltage transient test.
**** 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 operating temperatures

***** For other output voltages the maximum output capacity is calculated from the fact that $\frac{Cmax \times Uout^2}{2}$ is a constant.

Output power vs an ambient temperature



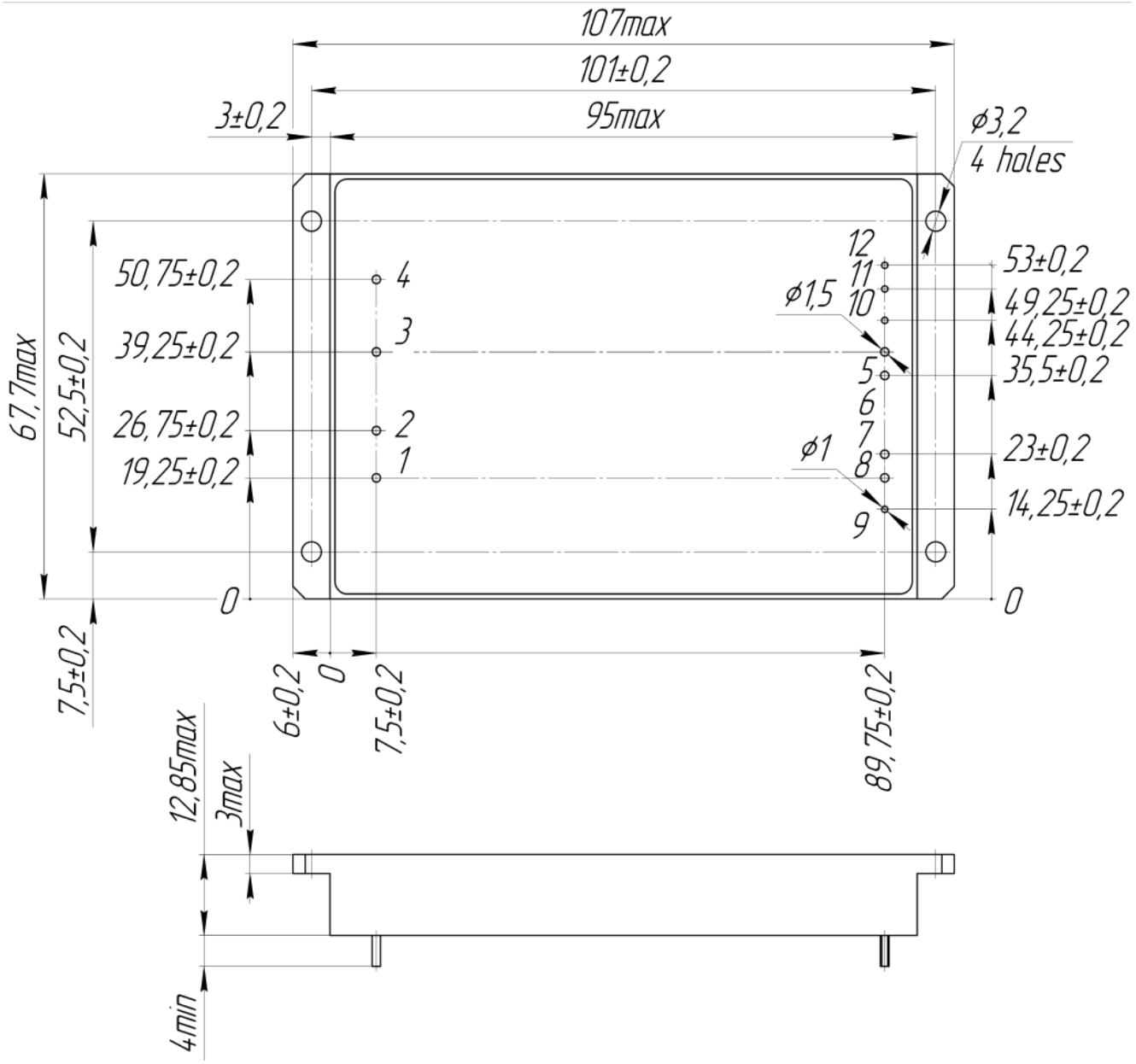
Dropping parts of the dashed and dash-dotted curves are in accordance with the **maximum temperature of the case**. Output power must not exceed the values which are limited by corresponding curve for a given ambient temperature.
Modules can be used without a heat sink only when screwing them heat conductive plate with thermal paste and with the length and width not less than case size and thickness of not less than 2,5 mm.

At point ▲, ◆ 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.

Pin out

№ Pin	1	2	3	4	5	6	7	8	9	10	11	12
Single output	ON	-IN	+IN	CASE	-OUT	-OUT	+OUT	+OUT	+RS	-RS	ADJ	PARAL

Single output model with flanges (VI case type)



Certificates

Certificate ISO 9001*
CE conformity declaration

* Management system and R&D of Alexander Electric is ISO certified

Note

The label with sign “remove before use” 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.goncharov-jet.com

Contact information

http://www.goncharov-jet.com, e-mail: aeps@aeps-group.cz, tel./fax: +420 281 001 341

According to company’s policy in view of constant improvements of the production design the manufacturer reserves the right to itself change the contents of promotional materials without prior notification.

Special requirements