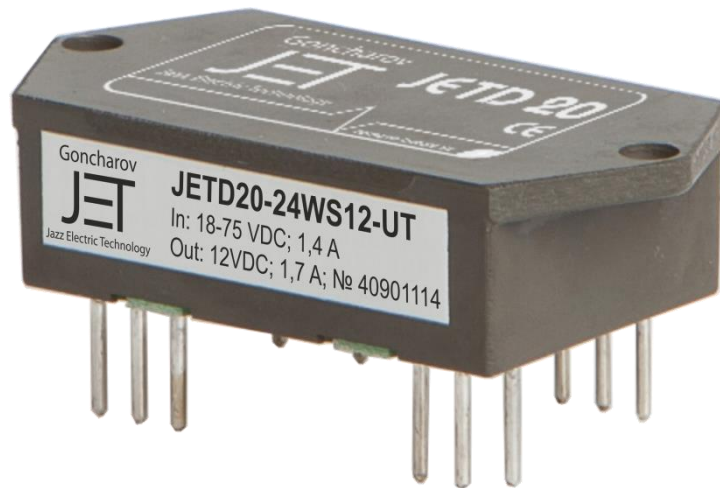


## DC/DC converters JETD20



### Features

- Class: Expert, power density up to **3333** W/dm<sup>3</sup> (54,6 W/In<sup>3</sup>)
- Low profile 8 mm design
- Case operating temperature range: -60°C...+125°C
- Output current up to 4 A
- Output power 20 W (single channel), 15 W (double channel)
- Input voltage ranges: 9...18 VDC, 9...36 VDC, 17...36VDC, 18...36 VDC, 18...75 VDC, 36...75 VDC
- Output voltage adjustment, remote on/off
- Max capacitance 1600 µF (for Pout=20 W, Uout=5 VDC, 50% Output power), 2\*600 µF (for Pout=15 W, Uout=±5 VDC, 50% Output power),
- Metal case with mounting flanges

### Description

**Ultra-compact isolated DC/DC converters (modules)** are specially designed for industrial applications and harsh environment operation. These compact units (30 x 20 x 10 mm) have output power up to 20 W and wide operating temperature range between -60...+125°C.

These modules are available with one or two **galvanically 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 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.

## Ordering information

**JETD 20 - 24W S 12 - U T**

**1 2 3 4 5 6 7**

- 1 - «JETD» Series
- 2 - Max output power, W
- 3 - Input voltages
  - 12W** - 12 VDC (9...36 VDC)
  - 12** - 12 VDC (9...18 VDC)
  - 24W** - 24 VDC (18...75 VDC)
  - 24** - 24 VDC (18...36 VDC)
  - 27** - 27 VDC (17...36 VDC)
  - 48** - 48 VDC (36...75 VDC)
- 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** - copper case with flanges
- 7 - Index of operating temperature range of the case
  - T** -60°C...+125°C

## Technical information

### Standard models with one output

Module	Input voltage range	Output power	Output voltage / nominal output current	Typical efficiency
JETD20-12S05-XX	9...18 VDC	<b>20 W</b>	5 VDC / 4 A	84%
JETD20-12S12-XX			12 VDC / 1,7 A	87%
JETD20-12S15-XX			15 VDC / 1,3 A	87%
JETD20-12S24-XX			24 VDC / 0,83 A	87%
JETD20-12S27-XX			27 VDC / 0,74 A	87%
JETD20-12WS05-XX	9...36 VDC		5 VDC / 4 A	83%
JETD20-12WS12-XX			12 VDC / 1,7 A	86%
JETD20-12WS15-XX			15 VDC / 1,3 A	86%
JETD20-12WS24-XX			24 VDC / 0,83 A	86%
JETD20-12WS27-XX			27 VDC / 0,74 A	86%
JETD20-27S05-XX	17...36 VDC		5 VDC / 4 A	84%
JETD20-27S12-XX			12 VDC / 1,7 A	87%
JETD20-27S15-XX			15 VDC / 1,3 A	87%
JETD20-27S24-XX			24 VDC / 0,83 A	87%
JETD20-27S27-XX			27 VDC / 0,74 A	87%
JETD20-24WS05-XX	18...75 VDC		5 VDC / 4 A	84%
JETD20-24WS12-XX			12 VDC / 1,7 A	87%
JETD20-24WS15-XX			15 VDC / 1,3 A	87%
JETD20-24WS24-XX			24 VDC / 0,83 A	87%
JETD20-24WS27-XX			27 VDC / 0,74 A	87%
JETD20-24S05-XX	18...36 VDC	5 VDC / 4 A	85%	
JETD20-24S12-XX		12 VDC / 1,7 A	88%	
JETD20-24S15-XX		15 VDC / 1,3 A	88%	
JETD20-24S24-XX		24 VDC / 0,83 A	88%	
JETD20-24S27-XX		27 VDC / 0,74 A	88%	
JETD20-48S05-XX	36...75 VDC	5 VDC / 4 A	85%	
JETD20-48S12-XX		12 VDC / 1,7 A	88%	
JETD20-48S15-XX		15 VDC / 1,3 A	88%	
JETD20-48S24-XX		24 VDC / 0,83 A	88%	
JETD20-48S27-XX		27 VDC / 0,74 A	88%	

## Standard models with two outputs

Module	Input voltage range	Output power	Output voltage / nominal output current	Typical efficiency
JETD20-12D0505-XX	9...18 VDC	15 W	5 VDC / 1,5 A ; 5 VDC / 1,5 A	81%
JETD20-12D0512-XX			5 VDC / 1,5 A ; 12 VDC / 0,63 A	82%
JETD20-12D1212-XX			12 VDC / 0,63 A ; 12 VDC / 0,63 A	83%
JETD20-12D1515-XX			15 VDC / 0,5 A ; 15 VDC / 0,5 A	83%
JETD20-12D2424-XX			24 VDC / 0,31 A ; 24 VDC / 0,31 A	85%
JETD20-12D2727-XX			27 VDC / 0,28 A ; 27 VDC / 0,28 A	85%
JETD20-12WD0505-XX	9...36 VDC		5 VDC / 1,5 A ; 5 VDC / 1,5 A	80%
JETD20-12WD0512-XX			5 VDC / 1,5 A ; 12 VDC / 0,63 A	81%
JETD20-12WD1212-XX			12 VDC / 0,63 A ; 12 VDC / 0,63 A	82%
JETD20-12WD1515-XX			15 VDC / 0,5 A ; 15 VDC / 0,5 A	82%
JETD20-12WD2424-XX			24 VDC / 0,31 A ; 24 VDC / 0,31 A	83%
JETD20-12WD2727-XX			27 VDC / 0,28 A ; 27 VDC / 0,28 A	84%
JETD20-27D0505-XX	17...36 VDC		5 VDC / 1,5 A ; 5 VDC / 1,5 A	81%
JETD20-27D0512-XX			5 VDC / 1,5 A ; 12 VDC / 0,63 A	82%
JETD20-27D1212-XX			12 VDC / 0,63 A ; 12 VDC / 0,63 A	83%
JETD20-27D1515-XX			15 VDC / 0,5 A ; 15 VDC / 0,5 A	83%
JETD20-27D2424-XX			24 VDC / 0,31 A ; 24 VDC / 0,31 A	85%
JETD20-27D2727-XX			27 VDC / 0,28 A ; 27 VDC / 0,28 A	85%
JETD20-24WD0505-XX	18...75 VDC		5 VDC / 1,5 A ; 5 VDC / 1,5 A	81%
JETD20-24WD0512-XX			5 VDC / 1,5 A ; 12 VDC / 0,63 A	82%
JETD20-24WD1212-XX			12 VDC / 0,63 A ; 12 VDC / 0,63 A	83%
JETD20-24WD1515-XX			15 VDC / 0,5 A ; 15 VDC / 0,5 A	83%
JETD20-24WD2424-XX			24 VDC / 0,31 A ; 24 VDC / 0,31 A	85%
JETD20-24WD2727-XX			27 VDC / 0,28 A ; 27 VDC / 0,28 A	85%
JETD20-24D0505-XX	18...36 VDC	5 VDC / 1,5 A ; 5 VDC / 1,5 A	82%	
JETD20-24D0512-XX		5 VDC / 1,5 A ; 12 VDC / 0,63 A	83%	
JETD20-24D1212-XX		12 VDC / 0,63 A ; 12 VDC / 0,63 A	84%	
JETD20-24D1515-XX		15 VDC / 0,5 A ; 15 VDC / 0,5 A	84%	
JETD20-24D2424-XX		24 VDC / 0,31 A ; 24 VDC / 0,31 A	86%	
JETD20-24D2727-XX		27 VDC / 0,28 A ; 27 VDC / 0,28 A	86%	
JETD20-48D0505-XX	36...75 VDC	5 VDC / 1,5 A ; 5 VDC / 1,5 A	82%	
JETD20-48D0512-XX		5 VDC / 1,5 A ; 12 VDC / 0,63 A	83%	
JETD20-48D1212-XX		12 VDC / 0,63 A ; 12 VDC / 0,63 A	84%	
JETD20-48D1515-XX		15 VDC / 0,5 A ; 15 VDC / 0,5 A	84%	
JETD20-48D2424-XX		24 VDC / 0,31 A ; 24 VDC / 0,31 A	86%	
JETD20-48D2727-XX		27 VDC / 0,28 A ; 27 VDC / 0,28 A	86%	

Modules with non-standard output voltage from 3 to 60 VDC with maximal output current up to 4 A, could be delivered on request.

## Specifications for DC/DC converters JETD20\*

<b>Input specifications</b>	
Input voltage range / transitional deviation, 1 sec 12	=9...18 VDC / =9...20 VDC
Input voltage range / transitional deviation, 1 sec 12W	=9...36 VDC / =9...40 VDC
Input voltage range / transitional deviation, 1 sec 27	=17...36 VDC / =17...80 VDC
Input voltage range / transitional deviation, 1 sec 24W	=18...75 VDC / =17...84 VDC
Input voltage range / transitional deviation, 1 sec 24	=18...36 VDC / =17...40 VDC
Input voltage range / transitional deviation, 1 sec 48	=36...75 VDC / =36...84 VDC
Input filter	P-type
<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 30 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 from 30 to 100% for dual output model with voltage difference between channels > 20%	±2% for chan.1, ±12% for chan.2
Instability of output voltage in accordance to changing 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...1,1VDC or connection of output «ON» and «- IN», I≤5mA
Max capacitance for Pout=20 W, Uout=5VDC; 50% Output power***	1600 µF
Max capacitance for Pout=15 W, Uout=±5VDC; 50% Output power***	600 µF/600 µF
<b>General specifications</b>	
Case temperature (operating) index T	-60°C ...+125°C
Case temperature (storage)	-60°C ...+125°C
Output power derating (natural convection)	See diagram (dashed, dash-dotted curve)
Output power with heatsink	See diagram (solid curve)
High humidity	100% @35 °C
Thermal resistance case — environment without heat sink	17,7 °C/W
Conversion frequency	300 kHz typ.
Insulation voltage input/output	=1500 VDC
Insulation voltage input/case	=1500 VDC
Insulation voltage output/case	=1000 VDC
Insulation voltage output/output	=500 VDC
Isolation resistance @ 500 VDC	>20 MOhm
EMC standards	EN 55022, class A; EN 55022, class B with additional filter
Safety standards	IEC/ EN 60950
Typical MTBF (Tcase = 50°C; Pout = 0,7 Pout max)	200 000 hrs
Cooling method	Free air convection or forced air cooling
Weight (max)	22 g

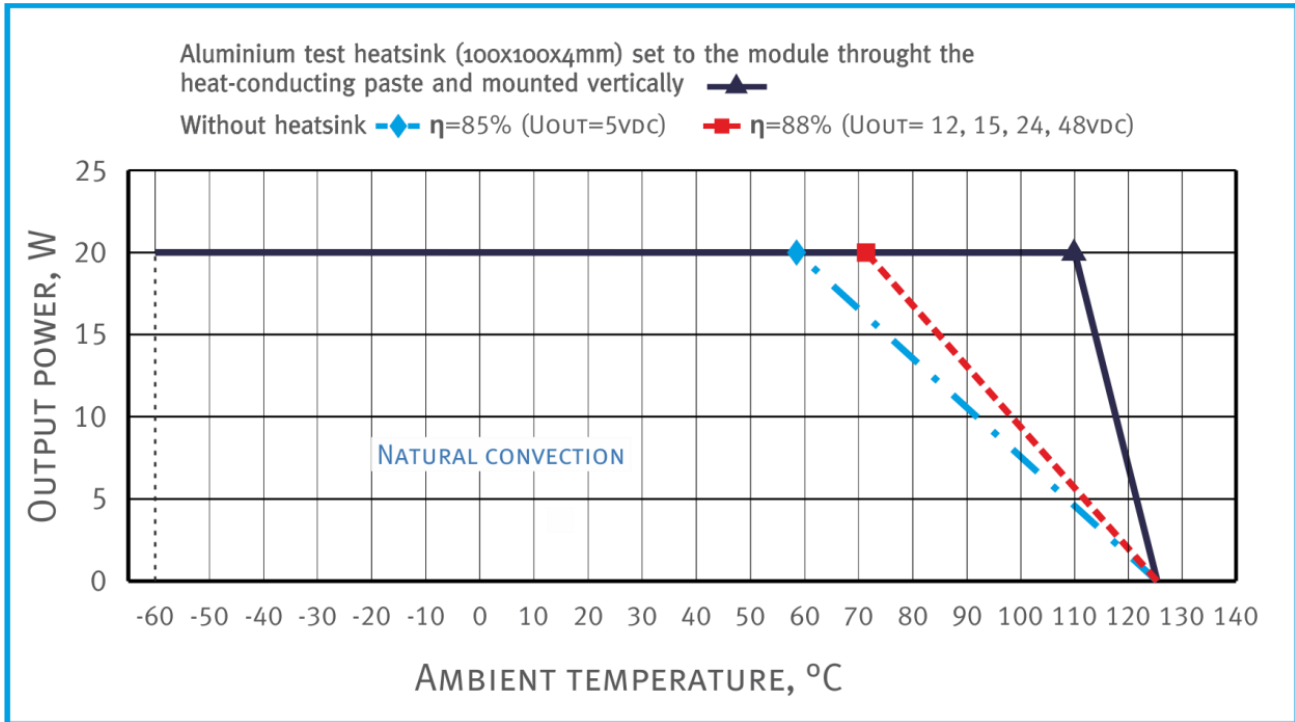
\* All specifications are valid for normal climatic conditions, Uin.nom., Iout.nom., unless otherwise stated.

\*\* 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 operating temperatures.

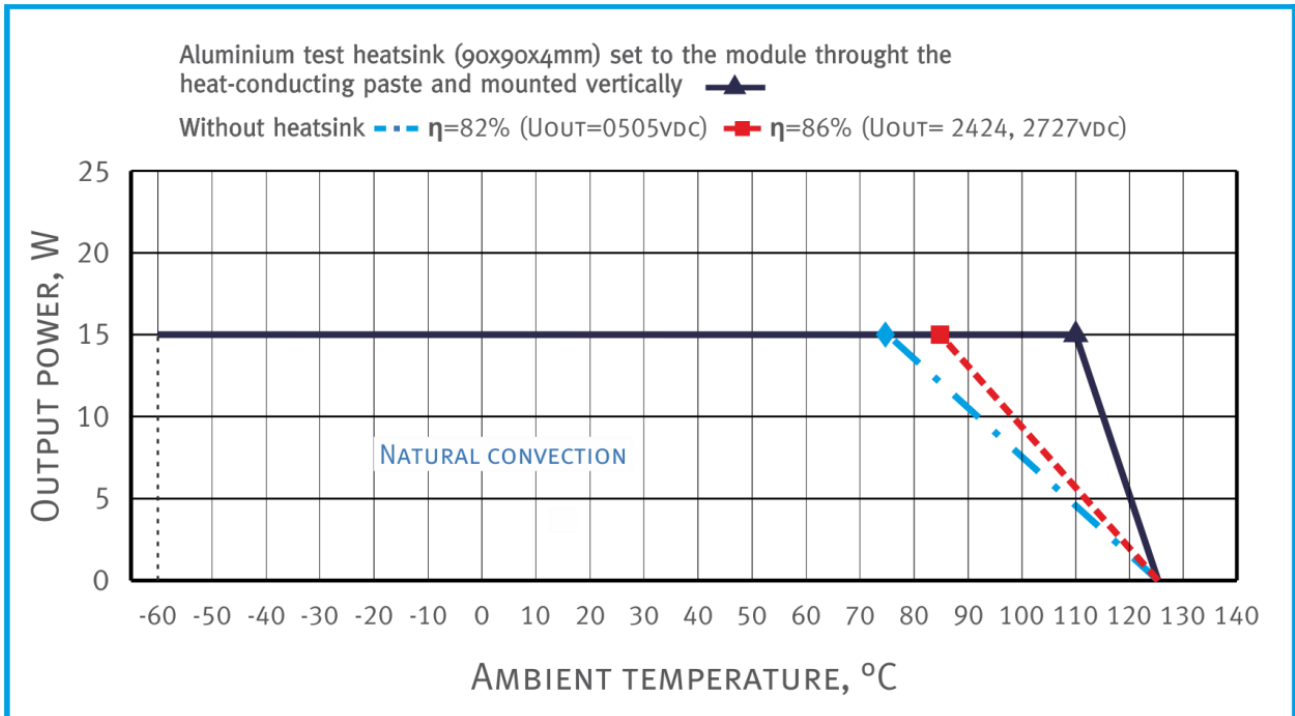
\*\*\* For other output voltages the maximum output capacity is calculated from the fact that  $\frac{C_{max} \times U_{out}^2}{2}$  is a constant.

## Output power vs an ambient temperature at input voltage 24V (index T)

(single channel)



(double channel)



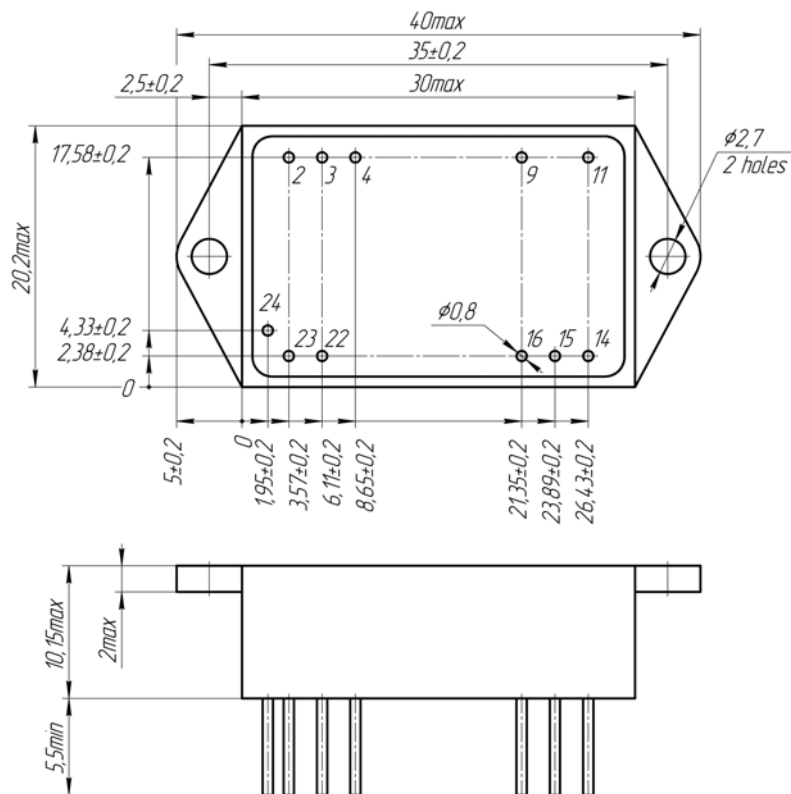
Dropping parts of the dashed and dash-dotted curves are in accordance with the **maximum temperature of the case**. Output power must not exceed the values which are limited by corresponding curve for a given ambient temperature.

Points ▲, ◆, and ■ represent simultaneously 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.

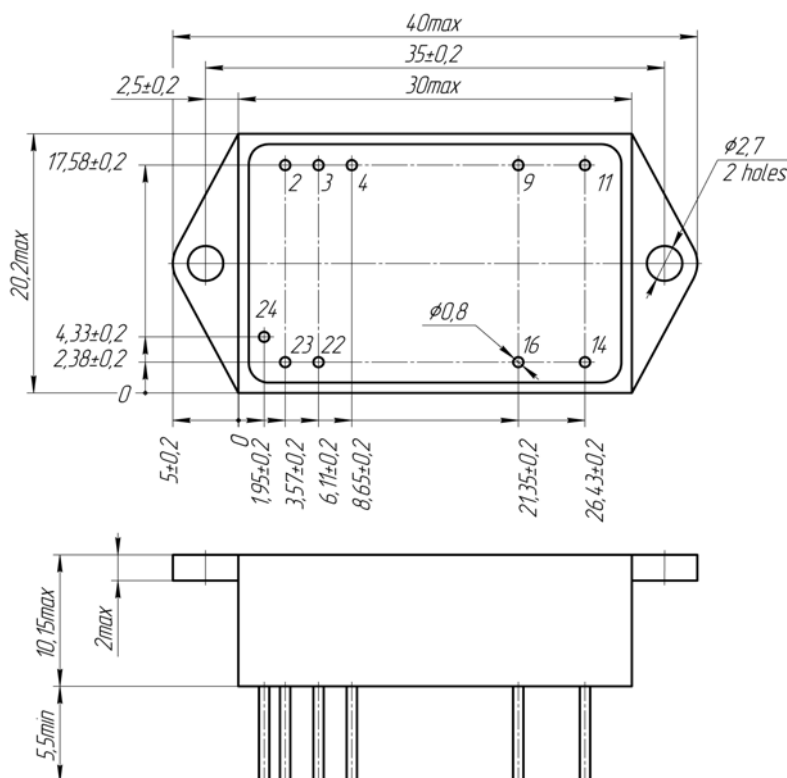
## Pin out

Nº Pin	2,3	4	9	11	14	15	16	22,23	24
Single output	-IN	ON	NOT USE	NOT USE	+OUT	ADJ	-OUT	+IN	CASE
Dual output	-IN	ON	+OUT2	-OUT2	+OUT1	-	-OUT1	+IN	CASE

### Single output model with flanges (1/16 mini BRICK)



### Dual output model with flanges (1/16 mini BRICK)



## 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.teslaelectric-eu.com>.

## Contact information

<http://www.teslaelectric-eu.com>, e-mail: [contact@teslaelectric-eu.com](mailto:contact@teslaelectric-eu.com), phone/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.