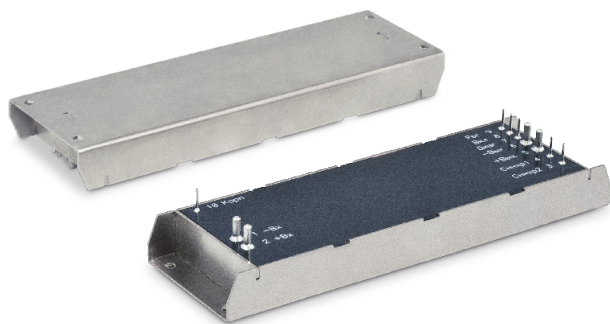


DC/DC Converters

MDA500



Features

- Up to 5 year warranty
- Output current up to 30 A
- Input voltage ranges:
22...33 VDC; 44...66 VDC; 270...300 VDC
- Switching frequency 470...530 kHz, external synchronization
- Power good signal
- Output voltage adjustment
- Low-profile design
- Typical efficiency 90...92%
- Case operating temperature $-60...+125^{\circ}\text{C}$
- Minimum load not required

Description

Low-profile isolated DC/DC converters for pulse current load are optimized for using in distributed power architecture systems such as transceiver modules and other similar power supply systems with pulse load, for example in radar applications.

The compact module's size allows to install it as close as possible to the point of load and reduce the dynamic voltage instability. Galvanically isolated differential synchronization input allows to synchronize switching frequency of parallel operating modules and to provide reliable hardware or software filtering of EMI.

The modules have the remote on/off function, the power good signal, overcurrent protection, short circuit protection, overvoltage protection. Polymer potting sealing protects modules from different factors: vibration, dirt, moisture and salt fog.

Compliance

Designed to meet MIL-STD-810G



DC/DC Converters

MDA500

Ordering information

MDA i 500 - F 12 U
 ① ② ③ ④ ⑤ ⑥

- ① - DC/DC converter MDA Family
- ② - Application index
 - i – from –40 to +85°C; 3 year warranty
 - m – from –60 to +125°C; 5 year warranty
- ③ - Rated output power, W
 - 340 – typical output power
 - 500 – typical output power
- ④ - Index of nominal input voltage
 - U – 27 VDC (22...33 VDC)
 - J – 60 VDC (44...66 VDC)
 - F – 300 VDC (270...300 VDC)
- ⑤ - Nominal output voltage, V (two signs)
- ⑥ - Case type
 - U – case with four mounting holes
 - D – case with eight mounting holes

DC/DC Converters

MDA500

Models range

Model	Input voltage range	Rated output power	Output voltage / rated output current
MDAx340-U09x	22...33 VDC	270 W	9 VDC / 30 A
MDAx340-U12,5x	22...33 VDC	340 W	12,5 VDC / 27,2 A
MDAx340-U28x	22...33 VDC	340 W	28 VDC / 12,1 A
MDAx340-U36x	22...33 VDC	340 W	36 VDC / 9,4 A
MDAx340-U40x	22...33 VDC	340 W	40 VDC / 8,5 A
MDAx340-U50x	22...33 VDC	340 W	50 VDC / 6,8 A
MDAx340-U60x	22...33 VDC	340 W	60 VDC / 5,6 A
MDAx340-J09x	44...66 VDC	270 W	9 VDC / 30 A
MDAx340-J12,5x	44...66 VDC	340 W	12,5 VDC / 27,2 A
MDAx340-J28x	44...66 VDC	340 W	28 VDC / 12,1 A
MDAx340-J36x	44...66 VDC	340 W	36 VDC / 9,4 A
MDAx340-J40x	44...66 VDC	340 W	40 VDC / 8,5 A
MDAx340-J50x	44...66 VDC	340 W	50 VDC / 6,8 A
MDAx340-J60x	44...66 VDC	340 W	60 VDC / 5,6 A
MDAx340-F09x	270...330 VDC	270 W	9 VDC / 30 A
MDAx340-F12,5x	270...330 VDC	340 W	12,5 VDC / 27,2 A
MDAx340-F28x	270...330 VDC	340 W	28 VDC / 12,1 A
MDAx340-F36x	270...330 VDC	340 W	36 VDC / 9,4 A
MDAx340-F40x	270...330 VDC	340 W	40 VDC / 8,5 A
MDAx340-F50x	270...330 VDC	340 W	50 VDC / 6,8 A
MDAx340-F60x	270...330 VDC	340 W	60 VDC / 5,6 A
MDAx500-U12,5x	22...33 VDC	375 W	12,5 VDC / 30 A
MDAx500-U28x	22...33 VDC	500 W	28 VDC / 17,8 A
MDAx500-U36x	22...33 VDC	500 W	36 VDC / 13,9 A
MDAx500-U40x	22...33 VDC	500 W	40 VDC / 12,5 A
MDAx500-U50x	22...33 VDC	500 W	50 VDC / 10 A
MDAx500-U60x	22...33 VDC	500 W	60 VDC / 8,3 A
MDAx500-J12,5x	44...66 VDC	375 W	12,5 VDC / 30 A
MDAx500-J28x	44...66 VDC	500 W	28 VDC / 17,8 A
MDAx500-J36x	44...66 VDC	500 W	36 VDC / 13,9 A
MDAx500-J40x	44...66 VDC	500 W	40 VDC / 12,5 A
MDAx500-J50x	44...66 VDC	500 W	50 VDC / 10 A
MDAx500-J60x	44...66 VDC	500 W	60 VDC / 8,3 A
MDAx500-F12,5x	270...330 VDC	375 W	12,5 VDC / 30 A
MDAx500-F28x	270...330 VDC	500 W	28 VDC / 17,8 A
MDAx500-F36x	270...330 VDC	500 W	36 VDC / 13,9 A
MDAx500-F40x	270...330 VDC	500 W	40 VDC / 12,5 A
MDAx500-F50x	270...330 VDC	500 W	50 VDC / 10 A
MDAx500-F60x	270...330 VDC	500 W	60 VDC / 8,3 A

A product with special output voltage rating can be made by customized order.



DC/DC Converters

MDA500

Specifications*

Input specifications	
Input voltage range	U 22...33 VDC J 44...66 VDC F 270...300 VDC
Output specifications	
Output voltage adjustment	±5% Uout. nom
Total regulation	max ±4%
Ripple and noise (p-p)	<2% Uout. nom
Output voltage transient deviation (0...100%...0 load step @ 2us front time)	max ±3%
Overload protection level***	<1,5 Pnom
Short circuit protection***	auto recovery, hiccup
General specifications	
Typical efficiency	92% for Uout.=28 VDC and rated output power
Frequency synchronization	
Internal switching frequency	450...470 kHz
Synchronization frequency	470...530 kHz
Synchronization off-duty factor	1,25...5
Synchronization amplitude	2,4...5,5 V
Power good signal	
If output voltage between (0,945·Uout) to (1,045·Uout) then "PGOOD" signal has high level ref. pin "-OUT", otherwise – low level	
High level on "PGOOD" signal ref. pin "-OUT"	2,4...3,3 VDC for source current up to 1 mA
Low level on "PGOOD" signal ref. pin "-OUT"	0...0,4 VDC for sink current up to 1 mA
Remote on/off	
Switch off	2,4...5,5 VDC to pin "ON" ref. pin "-OUT". I "ON" ≤1 mA
Switch on	0...0,4 VDC to pin "ON" ref. pin "-OUT" or keeping pin "ON" open

DC/DC Converters

MDA500

Specifications* (cont.)

External factors	
Heat-emitting surface operating temperature*** index "m" index "i" storage temperature	–60...+125°C**** –40...+85°C**** –60...+125°C
Isolation voltage in./case, in./out., in./sync, index of nominal input voltage U _I out./case., out./sync isolation resistance @ 500 VDC	500 VDC 500 VDC 20 MOhm min
Environmental	designed to meet MIL-STD-810G
Thermal resistance case-ambient (case with flanges)	6,4°C/W
Typical MTBF	2000 kHrs
Cooling	conductive

It is important to note that the information herein is not full. More detailed information (specific requirements, basic connection circuits, rules of operations etc.) can be found on our web-site: eng.aedon.ru

* All specifications valid at normal climatic conditions (ambient temp. +15°C to +35°C; relative humidity 45% to 80%; air pressure $8,6 \cdot 10^4$ to $10,6 \cdot 10^4$ Pa), U_{in. nom.}, I_{out. nom.}, unless otherwise stated.

** For basic connection diagram only, more detailed information can be found on our web-site: eng.aedon.ru

*** Parameters are stated for the information purposes and could not be used at long term work, exceeding maximum output current, at work outside of a range of operating temperatures.

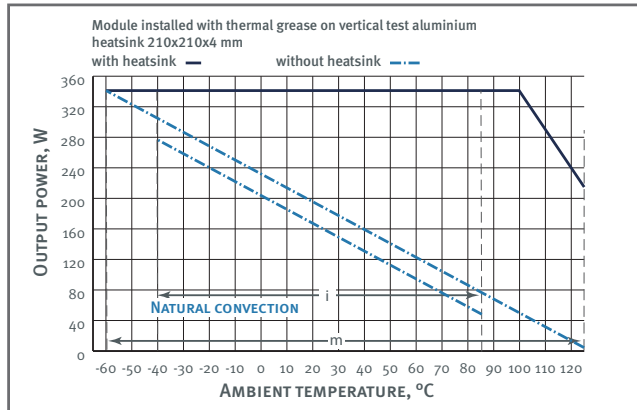
**** Thermal protection level between +118...+125°C.

DC/DC Converters

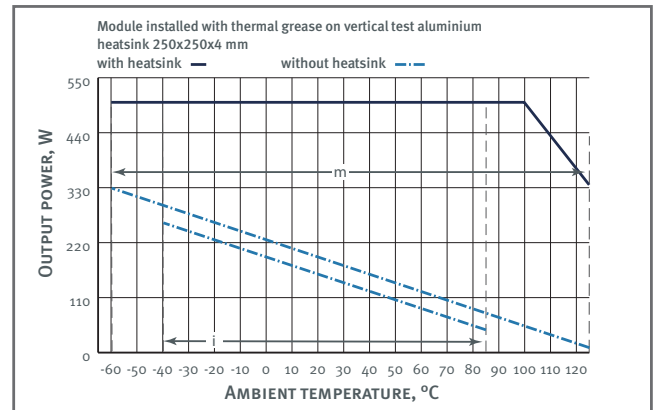
MDA500

Power derating vs ambient temperature

340 W



500 W



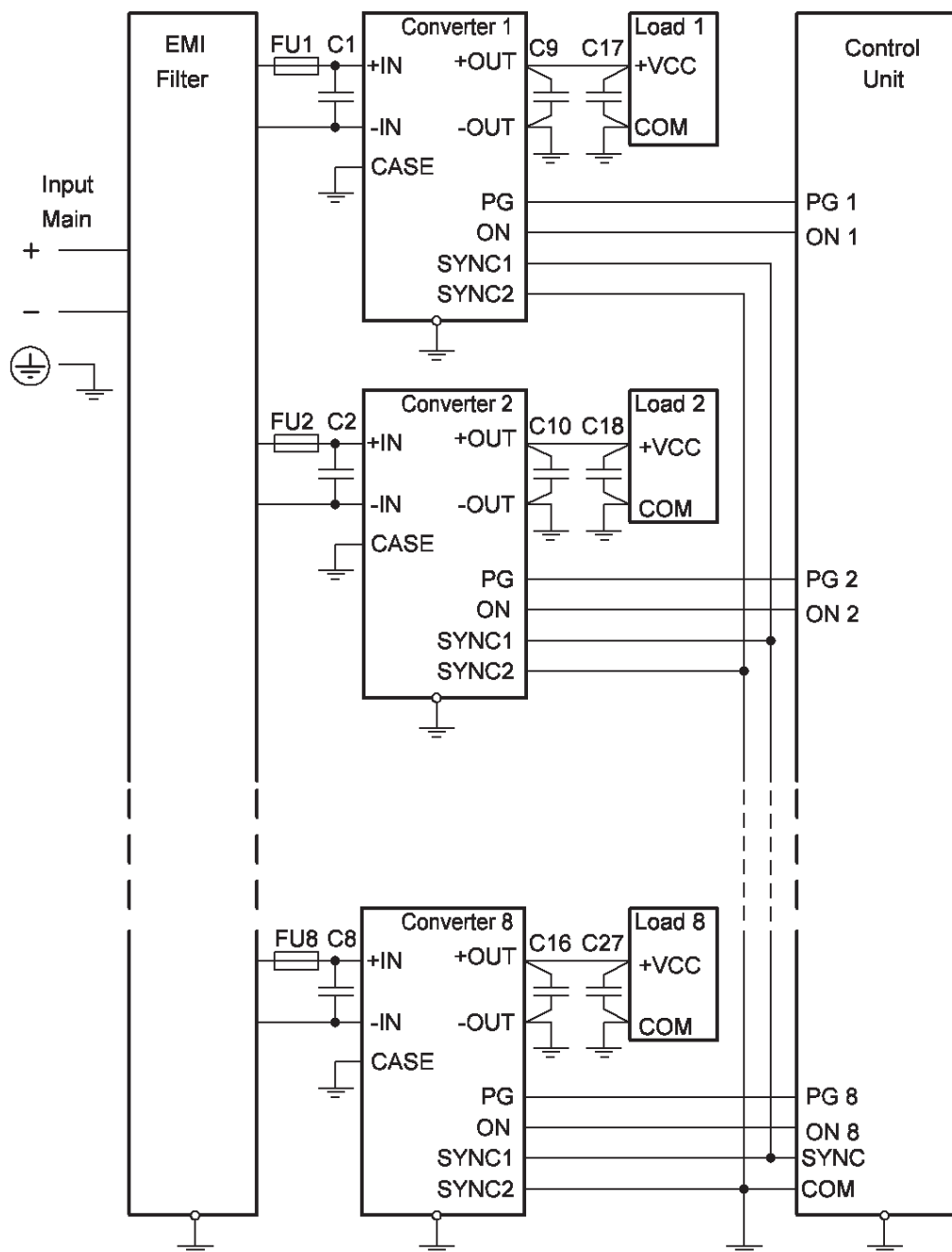
Decreasing parts of the curves correspond to the **maximum case temperature**. Output power must not exceed the values limited by curve for a given ambient temperature.

Modules can be used without the heatsink only on condition of installation with thermal grease on heat-distribution baseplate with length and width not less than case's and with thickness not less than 3 mm.

DC/DC Converters

MDA500

Examples of module's application



Example 1. Distributed power architecture.

