

DR25N/DR100N DR125N/DR150N Switching regulator for vehicle applications



Abbildung ähnlich / device similar to figure



DR25N/DR100N
DR125N/DR150N-derivate table

Type	Input voltage [VDC]		Output voltage [VDC]		Output current [A]	Cat. No.
	Nom.	Tol. *	Nom.	Max.		
DR25N-12	24 - 96	18 - 120	12	2		106062
DR25N-12/FE	24 - 96	18 - 120	12	2		106073/20
DR100N-12	24 - 48	18 - 72	12	8		106065
DR100N-12/FE	24 - 48	18 - 72	12	8		106071
DR100N-12,6/FE	24 - 48	18 - 72	12,6	8		106077
DR100N-13,8	24 - 48	18 - 72	13,8	7		106058/1
DR125N-12	48 - 80	38 - 96 (116)**	12	5		106059
DR125N-24	48 - 80	38 - 96 (116)**	24	5		106060
DR150N-24	48 - 80	38 - 96 (116)**	24	6,5		106063

*The lower input voltage tolerance value is only valid for regular operation and not for the start of operation.

**The upper tolerance value of the input voltage (116 VDC) applies only temporarily (e.g., during the charging phase of traction batteries) and should not be considered the continuous operating voltage—a value of (96 VDC) applies for continuous operation.

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1 Input

Input voltage (Nom.)	see DR25N/DR100N DR125N/DR150N-derivate table	Class A*
Input voltage range (Tol.)	see DR25N/DR100N DR125N/DR150N-derivate table	Class B*
Inpput filter	< 400 V / 20 µs	In case of overload, the upstream input fuse trips.
no load input current	15 - 26 mA	-

* Evaluation criteria for the operation behavior

The following evaluation criteria describe the functional state of the DC/DC converter as a function of the operation input voltage.

Class A	Unrestricted operation range	The DC/DC converter operates as designed in compliance with the tolerances specified in the data sheet.
Class B	Lower and upper restricted operation range	One or more functions may go beyond the specified tolerance. After returning to the unrestricted operation range, the DC/DC converter operates again as designed.
Class C	Undervoltage and overvoltage range	One or more functions do not work as intended. After returning to the unrestricted operation range, the DC/DC converter operates again as designed.

2 Output

Output voltage (Nom.)	U_{nom}	See DR25N/DR100N DR125N/DR150N-derivate table
Over voltage protection		Transient suppressor diode
Current limiting	approx. $1,1 \times I_{nom}$	Hick-Up
Load regulation static (0-100%)	$\pm 0,5\%$	-
Load step response (10-90%)	< 2%	-
Line regulation ($\pm 10\%$)	$\pm 0,5\%$	-
Switching frequency	approx. 60 kHz	-
Ripple (20 MHz)	< 100 mVpp	-
Noise (20 MHz)	< 200 mVpp	-

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3 Enviroment

Operating temperature	-35°C ... +80°C	Measured at temperature reference point (see figure 7.1)
Storage temperature	-45°C ... +85°C	-
Cooling	Contact cooling via mounting surface	An effective thermal connection between the mounting surface and the heat sink of the application is a requirement for safe and long-term operation.
Overtemperature protection	-	Automatic shutdown in case of overtemperature, self reset after cool down
Humidity	95 %	-
Dewing	allowed	-
Degree of protection acc. to DIN EN 60529	IP67	Without connector

4 General data

Insulation strenght	1 kV _{DC}	Input / output and enclosure
Efficiency	≤ 95 %	-
Short-circuit strength	permanently short-circuit proof	The output is protected in the event of a short circuit; the device automatically resumes operation after the fault has been cleared.
Dimensions (LxWxH)	130 x 80 x 37 mm (without connector)	Standard version see fig. 7.1 FE-Version see fig. 7.2
Enclosure	Aluminium	-
Gewicht	approx.. 500 g	-

5 Standards

EMC (Electromagnetic Compatibility)

Title	Standard	Data
Emitted interference	EN 61204-3	According to 6.4.2, Table H.3, for residential, commercial and light industrial environments (Class B, cable length < 3 m)
Immunity	EN 61204-3	According to 7.2.3: Immunity level for industrial environment (Cable length < 3 m)

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Electrical safety

Title	Standard	Data
Low-voltage switch mode power supplies - Safety requirements	EN 61204-7	-

6 Installation and safety instructions

In addition to the general installation and safety instructions for DC/DC converters, the following values and supplements apply:

Mounting points	Ø6,8 mm	2x Mounting holes See fig. 7.1 and fig.7.2
Installation orientation	-	Any
Cooling	Contact cooling	For safe operating, a good thermal connection between mounting surface and the heat sink (application) have to be provided.
Connection input / output	AMP MATE-N-LOCK	Male socket 4-pole Pin assignment see fig. 7.1 and fig.7.2
Input fuse	-	No integrated input fuse. An external fuse must be connected in series and must be dimensioned according to the application.
Inrush current limitation	-	Attention: No inrush current limitation in the device. Provide a precharging section in the application, otherwise there is a risk of a overvoltage damage to the input of the DC/DC converter.
Reverse polarity protection	-	No reverse polarity protection integrated at the input or output of the device. Reverse polarity protection is ensured exclusively by the plug connector. If the polarity is reversed at the input, then the input fuse to be connected in series will trip.

The general installation and safety instructions for DC/DC converters can be found at: www.deutronic.com

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7 Dimensions

All dimensions are given in millimetres and have a general tolerance according to DIN ISO 2768 - m.

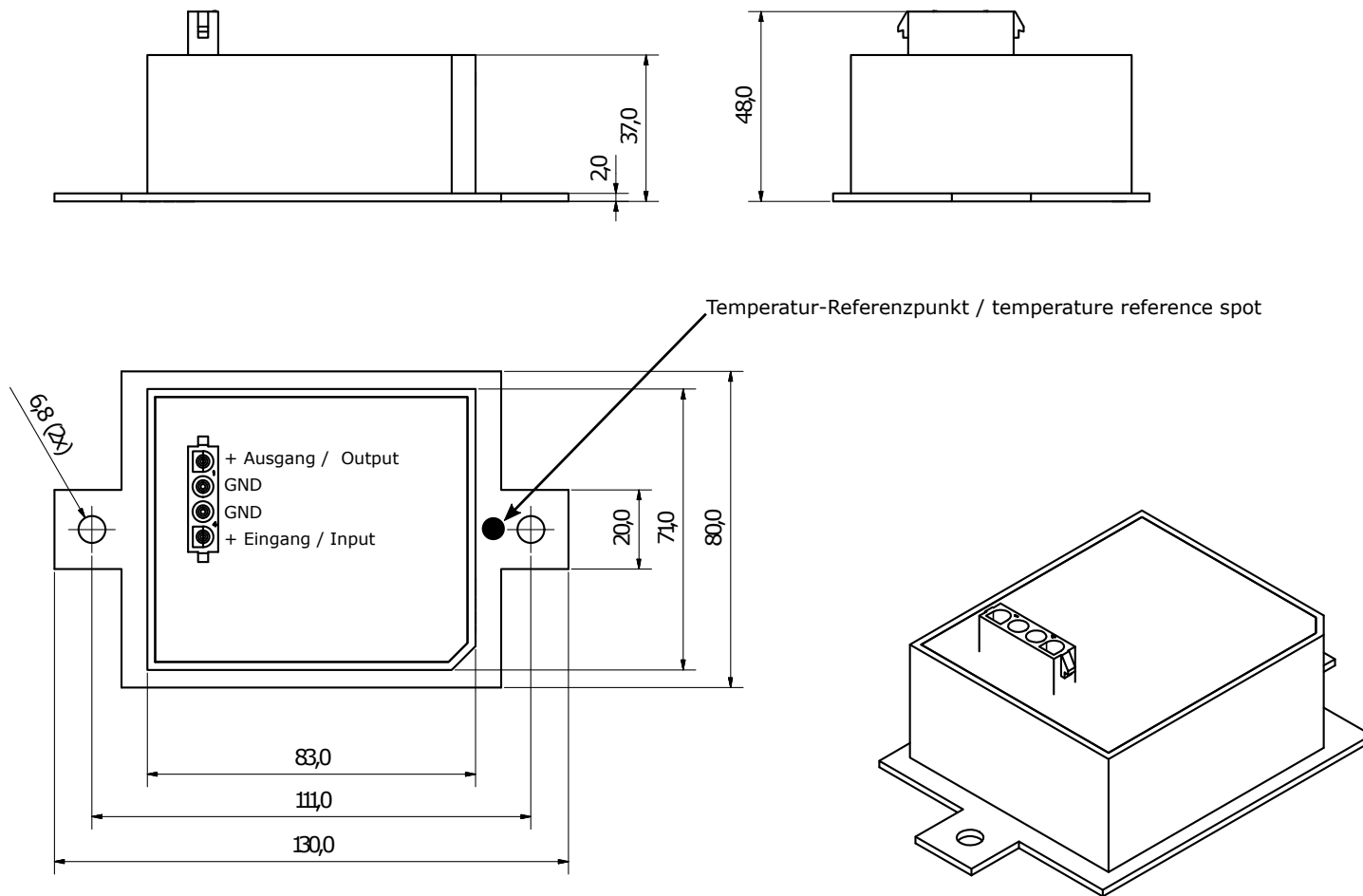


Figure 7.1: Standard-version (connector vertical)

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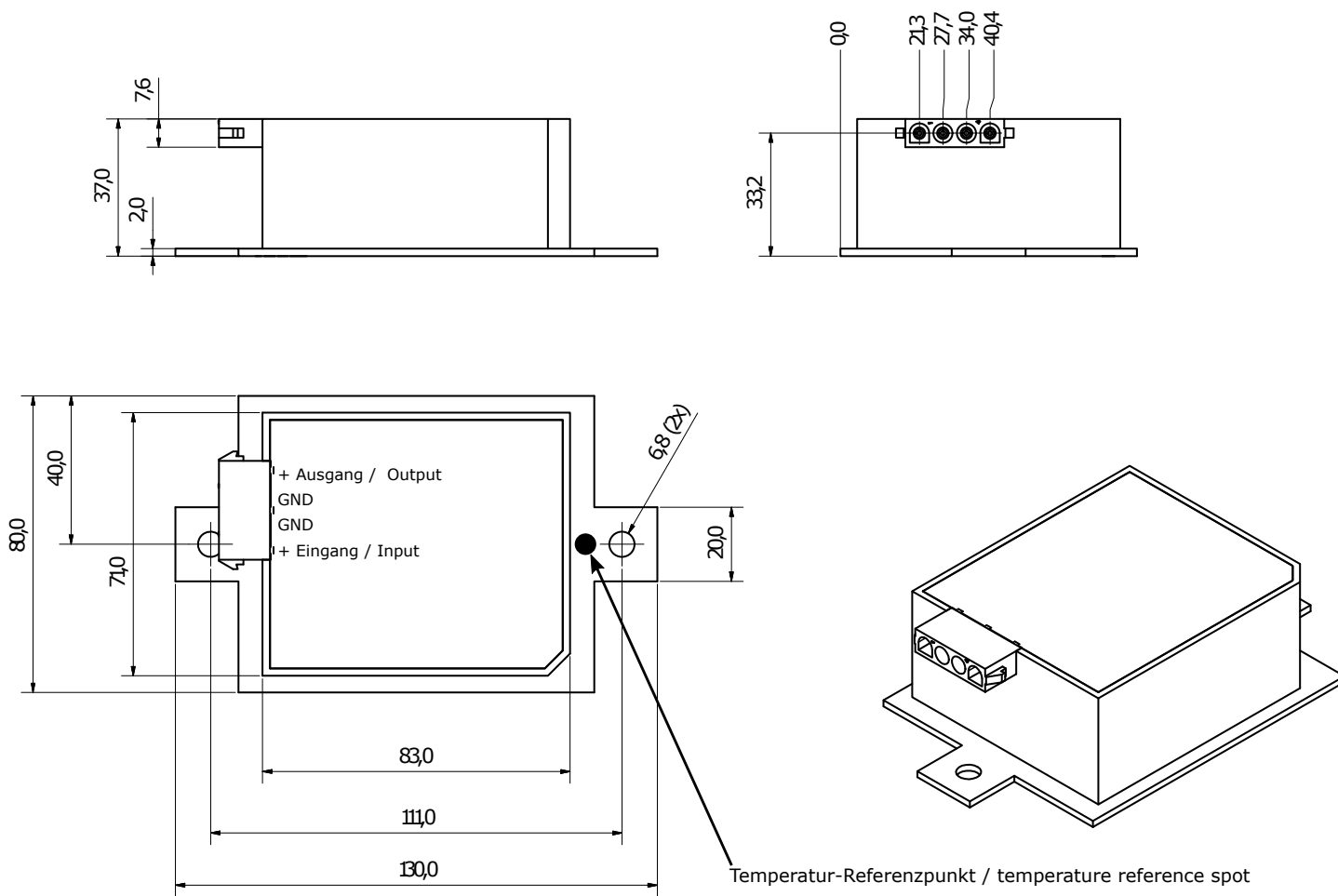


Figure 7.2: FE-version (connector horizontal)

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