

DR160

Switching regulator

for vehicle applications



Abbildung ähnlich / device similar to figure



DR160-derivate table

Type	Input voltage [VDC]		Output voltage [VDC]		Output current [A]	Cat. No.
	Nom.	Tol.	Nom.	Max.		
DR160-24-12	80	64 - 96	12 / 24	3 / 5,2		104970

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1 Input

Input voltage (Nom.)	see DR160-derivate table	Class A*
Input voltage range (Tol.)	see DR160-derivate table	Class B*
Input filter	< 400 V / 20 µsec	In case of overload, the upstream input fuse trips.
No-load current consumption	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 DR160-derivate table
Over voltage protection	-	Transient suppressor diode
Current limiting	approx. $1,1 \times I_{nom}$	Hick-Up
Output accuracy	U1: $\pm 5 \%$ U2: 23 - 25,5 V	No minimal load
Load regulation stat. (0-100%)	1,0 %	-
Load regulation dyn. (10-90%)	3,0 %	-
Line regulation ($\pm 10\%$)	0,5 %	Recovery time 1 ms
Clock frequency	approx. 45 kHz	-
Ripple (20 MHz)	< 100 mVpp	-
Noise (20 MHz)	< 200 mVpp	-

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Technische Änderungen und Irrtümer vorbehalten. I Technical modifications and mistakes reserved.

Mit den Angaben im Katalog und in den Datenblättern werden Produkte beschrieben, nicht Eigenschaften zugesichert. Belastung mit „Grenzwerten“ (einfache Kombination) ist zulässig ohne bleibende Schäden der Produkte. Betrieb der Geräte mit Grenzwertbelastung für längere Zeit kann die Zuverlässigkeit beeinträchtigen. Grenzwerttoleranzen unterliegen üblichen Schwankungen. I Products are described by information contained in catalogs and data-sheets. It is not be considered as assured qualities. Stresses listed under „Maximum Rating“ (one at a time) may be applied to devices without resulting in permanent damage. The operation of the equipment for extended periods may affect device reliability. Limiting value tolerance are subject to usual fluctuation margins.

3 Environment

Operating temperature	- 25 °C ... + 70 °C	-
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 strength	1 kV _{DC}	Input / Enclosure
Max. efficiency	92 %	-
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)	120 x 90 x 43 mm	See fig. 8.1
Enclosure	Aluminium	-
Weight	approx. 800 g	-
Status display	LED	-

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

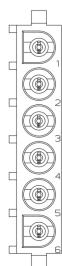
In addition to the general installation and safety instructions for DC/DC converters, the following values and supplements apply:

Mounting points	Ø6,8 mm	2x Mounting holes See fig. 8.1
Mounting position	-	Any
Cooling	-	A sufficient cooling must be ensured externally in the customer application via the mounting surface.
Connection input/output	MATE-N-LOK 641831-1	See fig. 7, different cable/connector customers request
Input fuse	T10A/250V	No integrated input fuse. A fuse must be provided externally by the customer 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 an 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

7 Connections

Input/Output



MATE-N-LOK 641831-1

PIN 1:	+ U_{in}
PIN 2:	GND
PIN 3:	GND
PIN 4:	GND
PIN 5:	+24 V U_{out}
PIN 6:	+12 V U_{out}

Figure 7.1: Pin assignment

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8 Dimensions

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

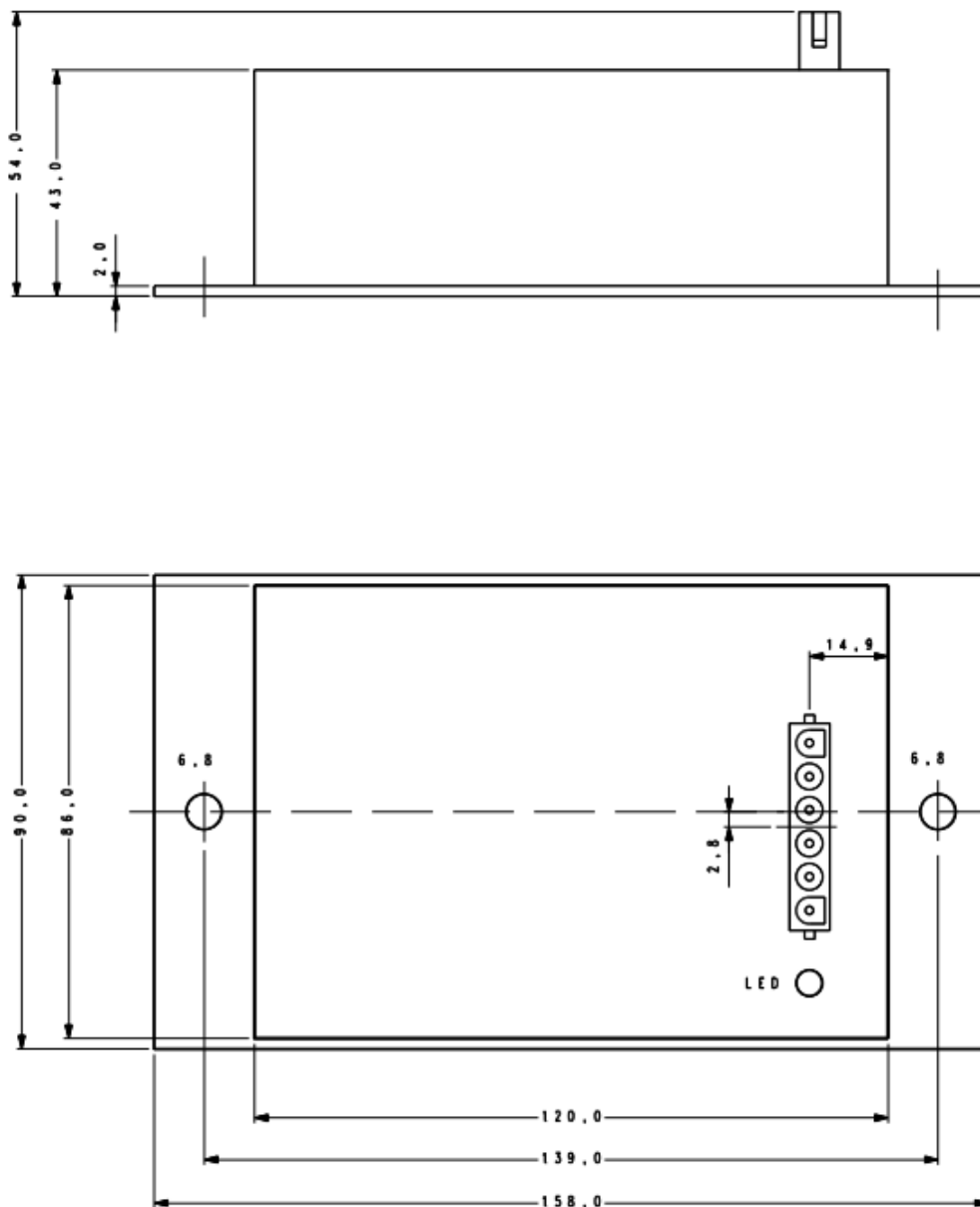


Figure 8.1: Dimensions

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