

DVC853

DC/DC converter

DC/DC converter for vehicles and other applications



- wide range input
- Galvanical isolated switching regulator
- Power range up to 966 W
- Short-term peak power of up to 2208 W
- High efficiency – up to – typ. 92%
- Short-circuit, no load and over temperature protection
- IP-protection class IP54
- Parallel connectable
- Particularly flat and compact design

On request: Changed output voltage and current

On request: Changed input voltage range

Abbildung ähnlich / device similar to figure



DVC853-derivate table

Type	Input voltage		Output voltage	Output current		Cat. No.
	Nom.	Tol.	Nom.	Continuous	Boost*	
DVC853-48/80-13,8	48 - 80 VDC	34 - 104 VDC	13,8 VDC	70 A	160 A	105149/0/000

*For max. 4s with subsequent recovery time of > 16s

DC/DC converter

DVC853

Alle Daten gemessen bei 48/80VDC, 70A / 80A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 48/80VDC, 70A / 80A and 25°C ambient, if not marked otherwise.
 Technische Änderungen und Irrtümer vorbehalten. | 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. | 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.

1 Input

Input voltage range	-	see DVC853-derivate table on page 1 (valid for continuous operation)
Max. current consumption	< 37 A < 75 A (Boost)	-
Input capacity	approx. 19 μ F	Attention: No inrush current limitation in the device. Provide a pre-charging section in the application, otherwise there is a risk of a over-voltage damage to the input of the DC/DC converter!
No-load current consumption	< 100 mA	@ U_{in} = 48 VDC

2 Output

Output voltage U_{nom}	-	see DVC853-derivate table on page 1 (valid for continuous operation)
Initial Accuracy	$\pm 1,0\% U_{nom}$	-
Max. continuous output current I_{nom}	70 A	DVC853-48/80-13,8
Max. shortterm output current I_{boost}	160 A	for $t_{boost} \leq 4$ s with subsequent recovery phase $t_{pause} \geq 16$ s
Max. continuous output power P_{nom}	≤ 966 W	DVC853-48/80-13,8
Max. shortterm output power P_{boost}	≤ 2208 W	for $t_{boost} \leq 4$ s with subsequent recovery phase $t_{pause} \geq 16$ s
Current limiting	< $I_{max} + 10\%$	Depending on the device status, I_{max} can correspond to the nominal current I_{nom} or the boost current I_{boost} . From $1.0 \times I_{max}$ U_{out} can drop
Load regulation static (0-100% P_{nom})	$\pm 0,85\% U_{nom}$	-
Recovery time	< 3ms	Duration from leaving the tolerance band until the permanently return to the tolerance band after a load step
Input regulation (min. - max U_{in})	$\pm 0,1\% U_{nom}$	-
Ripple & Noise	< 1,8% U_{nom}	measurement bandwidth 20 MHz

DC/DC converter

DVC853

Alle Daten gemessen bei 48/80VDC, 70A / 80A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 48/80VDC, 70A / 80A and 25°C ambient, if not marked otherwise.
 Technische Änderungen und Irrtümer vorbehalten. | 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. | 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 Enviroment

Working temperature (envrioment)	-40°C ... +75°C	-
Max. permissible temperature of the mounting surface	< +50°C	-
Overtemperature protection	+95°C	Automatic switch-off in case of overtemperature. On request: Automatic power derating in case of overtemperature.
Storage temperature	-40°C ... +85°C	-
Humidity	< 95%	-
Dewing	allowed	-
Shock test acc. to DIN EN 60068-2-27	-	half sinusoidal (Excitation) 250m/s ² (Peak acceleration) 6ms (Duration) 3.000 schocks to each axis (Quantity) ±X, ±Y, ±Z (Axis)
Vibration test acc. to DIN EN 60068-2-6	-	sinusoidal (Excitation) 30m/s ² (acceleration) 10 - 500Hz (frequenc, floating) 2h per axis (Duration), 1 Oct/min X, Y, Z (Axis)
Degree of protection acc. to EN60529	IP54	Limited by connection technology, version with increased degree of protection and other connection technology on request

4 General data

Insulation strenght	1 kVDC 1 kVDC	Input / Enclosure Input / Output
Max. efficiency	typ. 93%	-
Average efficiency	typ. 92% (48 VDC) typ. 90,5% (80 VDC)	Averaging of the efficiency values at 25%, 50%, 75% and 100% of the nominal output power.
Dimensions (LxWxH)	ca. (200 x 180 x 21,5) mm	without connections, see fig. 7.1
Enclosure	Aluminium	-
Weight	approx. 1,8 kg	-

DC/DC converter

DVC853

Alle Daten gemessen bei 48/80VDC, 70A / 80A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 48/80VDC, 70A / 80A and 25°C ambient, if not marked otherwise.
 Technische Änderungen und Irrtümer vorbehalten. | 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. | 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.

5 Standards

EMC (Electromagnetic Compatibility)

Title	Norm	Werte
Emitted interference	EN12895 EN61204-3	- according to 6.4.2, Table H.3, for residential, commercial and light industrial environments (Class B, cable length < 10 m, internal frequencies < 108 MHz)
Immunity	EN12895 EN61204-3	- according to 7.2.3: Immunity level for industrial environment (cable length < 10 m)

Electrical safety

Title	Standard	Data
Safety of industrial trucks - Electrical requirements	DIN EN 1175 (PRN2014)	-

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	-	6x Mounting holes (Ø6,5 mm) see fig. 7.1
Installation orientation	-	any
Connection input	+U _{in} (M8) / -U _{in} (M8)	Tightening torque: 9 Nm Thread depth: 8 mm Recommended cable cross section: 16 mm ²
Connenction input	+U _{out} (M8) / -U _{out} (M8)	Tightening torque: 9 Nm Thread depth: 8 mm Recommended cable cross section: 25 mm ²
Input fuse	-	No integrated input fuse. A fuse must be provided externally by the customer application.
Reverse polarity protection	-	No reverse polarity protection at the input or output of the device. If the polarity is reversed at the input, the input fuse to be connected in series is tripped.
Precharge section	-	Attention: No inrush current limitation in the device. Provide precharge section in the application.

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

DC/DC converter

DVC853

Alle Daten gemessen bei 48/80VDC, 70A / 80A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 48/80VDC, 70A / 80A and 25°C ambient, if not marked otherwise.
 Technische Änderungen und Irrtümer vorbehalten. | 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. | 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.

7 Dimensions

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

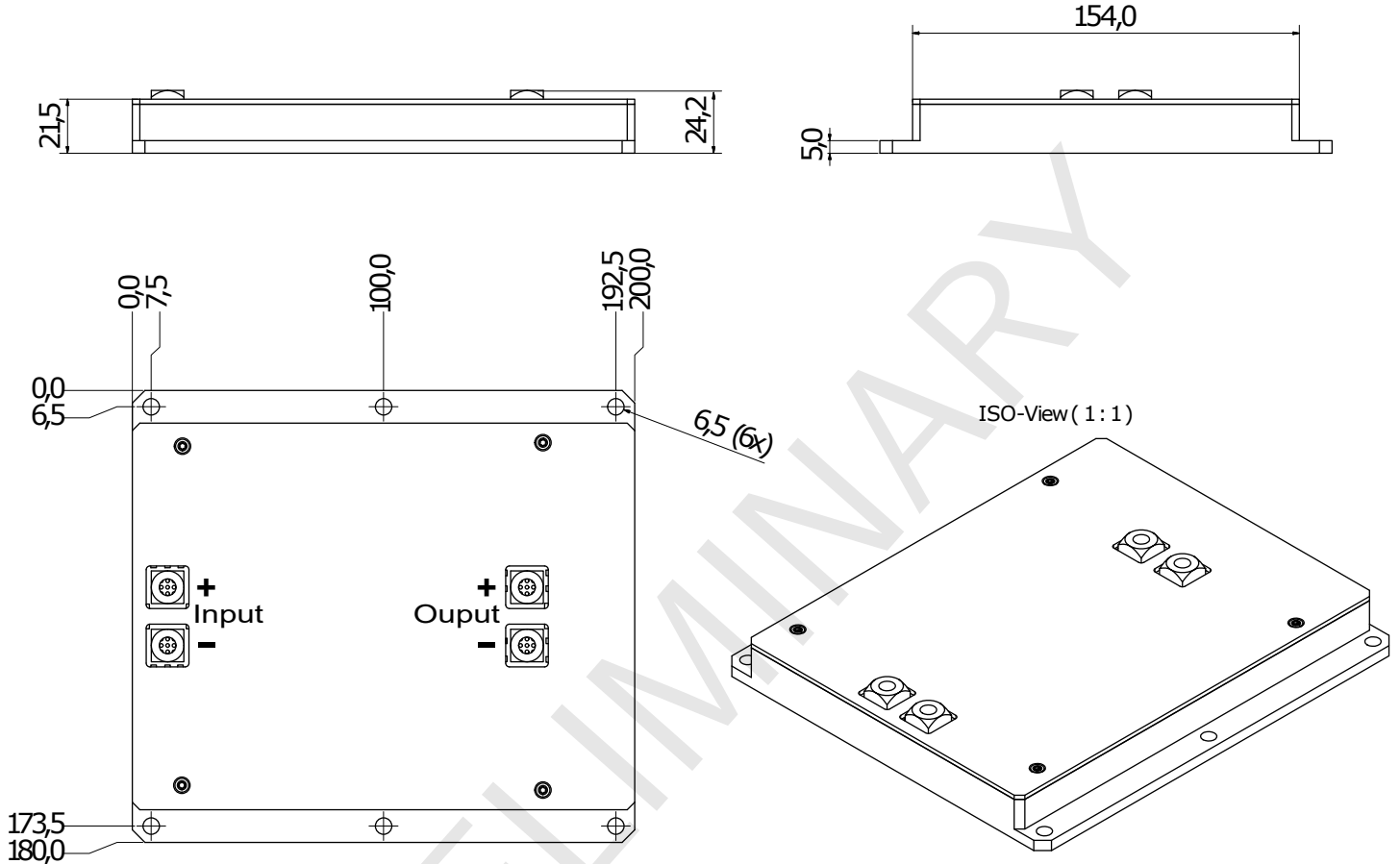


Figure 7.1: Dimensions

DC/DC converter

DVC853

Alle Daten gemessen bei 48/80VDC, 70A / 80A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 48/80VDC, 70A / 80A and 25°C ambient, if not marked otherwise.
 Technische Änderungen und Irrtümer vorbehalten. | 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. | 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.