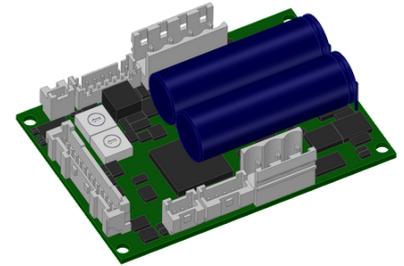


# Servo amplifier mcDSA-F32-Lp

Article number: 1514227

Certification:  \*



Picture similar

## Technical data

Supply voltages	
Electronic supply voltage $U_e^{*2}$	18..30 V
Electronic current consumption @ $U_e=24V^{*3}$	typ. 65 mA
Power supply voltage $U_p^{*4}$	9..60 V
Output current	
Max. output current	60 A
Continuous output current (certified UL) <sup>*5</sup> @ $U_p \leq 24V$ @ $U_p \leq 60V$	17.5 A 13.4 A
Continuous output current (certified CE) <sup>*6</sup> @ $U_p \leq 24V$ @ $U_p \leq 60V$	19 A 15 A
Continuous output current (not certified) <sup>*7</sup> @ $U_p \leq 24V$ @ $U_p \leq 48V$	20 A 17 A
PWM	
PWM frequency	32 kHz
Commutation type	Field Oriented Control
Mechanical	
Size LxWxH	70 x 50 x 19 mm
Weight	50 g
Environment	
Protection class	IP00
Installation requirements **	IP54
Ambient temperature (operation) (certified UL)	-40..50 °C
Ambient temperature (operation) (certified CE/not certified)	-40..70 °C
Ambient temperature (storage)	-40..85 °C
Rel. humidity (non-condensing)	5..90 %
CAN bus	
Protocol	DS301
Device profile	DS402
Max. baudrate	1 Mbit/s
CAN specification	2.0B
Galvanically isolated	no
RS485	
Type	2-Wire EIA-485
Signals	DATA,/DATA,CLK,/CLK

Functional safety	
Safety function refer safety manual	Safe Torque Off (STO)
Safety Integrity Level (SIL)	up to SIL 3
Performance Level (PL)	up to PL e
Sensor supply (Hall)	
Output voltage	5 V
Max. output current	0.05 A
Sensor supply (Encoder/SSI)	
Output voltage	5 V
Max. output current	0.2 A
Sensor supply (HiPerface)	
Output voltage	10 V
Max. output current	0.25 A
Encoder	
Type	sin / cos
Signals	+Sin,-Sin,+Cos,-Cos
Resolution	13 bit per sine period
Input voltage	1 V peak-peak, differential
Signal type	sine/cosine, analog, differential
Hall sensors	
Signals	H1,H2,H3
Max. frequency (per channel)	10 kHz
Input voltage	0..5 V
Signal type	open collector, single ended
Digital inputs	
Number - digital inputs	6 (Din0..5)
Low voltage	0..5 V
High voltage	8..30 V
STO channels (ST0-A..B)	
Low voltage	0..5 V
High voltage	8..30 V
Digital outputs	
Number	3 (Dout0..2)
Continuous output current (certified UL/CE)	1 A
Continuous output current (not certified)	1.5 A
Load Dout0..1	resistive, low inductive
Load Dout2	resistive, inductive
Output voltage	Electronic supply voltage $U_e$
Signal type	positive switching
Analog inputs	
Number	2 (Ain0..1)
Signal type - Ain	0..10 V, 12 Bit, single ended

\*1 The certified performance data must be observed (see UL Instruction Note and Safety Manual (CE))

\*2 No reverse polarity protection, the destruction limit is at overvoltage of  $\geq 33V$  or short-term peak voltage of  $37V < 1s$

\*3 power amplifier switched off, 5V output (sensor supply) is free, STO active

\*4 No reverse polarity protection, the destruction limit is at overvoltage of  $\geq 70V$

\*5 connector cable with max. possible cable cross-section, PWM frequency 32 kHz (SVPWM), ambient temperature 50 °C, I/O's and 5V output active, RMS current: 17.5 A  $\rightarrow$  12.5 Aeff, 13.4 A  $\rightarrow$  9.5 Aeff

\*6 connector cable with max. possible cable cross-section, PWM frequency 32 kHz (SVPWM), ambient temperature 40 °C, I/O's and 5V output active, RMS current: 19 A  $\rightarrow$  13.4 Aeff, 15 A  $\rightarrow$  10.6 Aeff

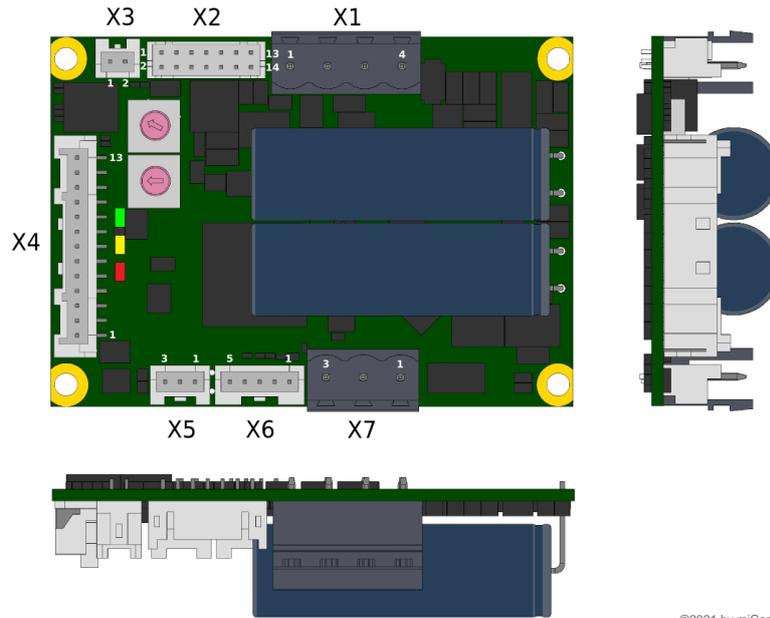
\*7 connector cable with max. possible cable cross-section, PWM frequency 32 kHz (SVPWM), ambient temperature 40 °C, I/O's and 5V output free, RMS current: 20 A  $\rightarrow$  14.1 Aeff, 17 A  $\rightarrow$  12.0 Aeff

no guarantee, since value is determined empirical, please consider the application notes to determine the continuous current

\*8 or equivalent protection class (see Safety Manual (CE))

Additional technical data are available in mcManual.

## Scheme



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## Terminal assignment

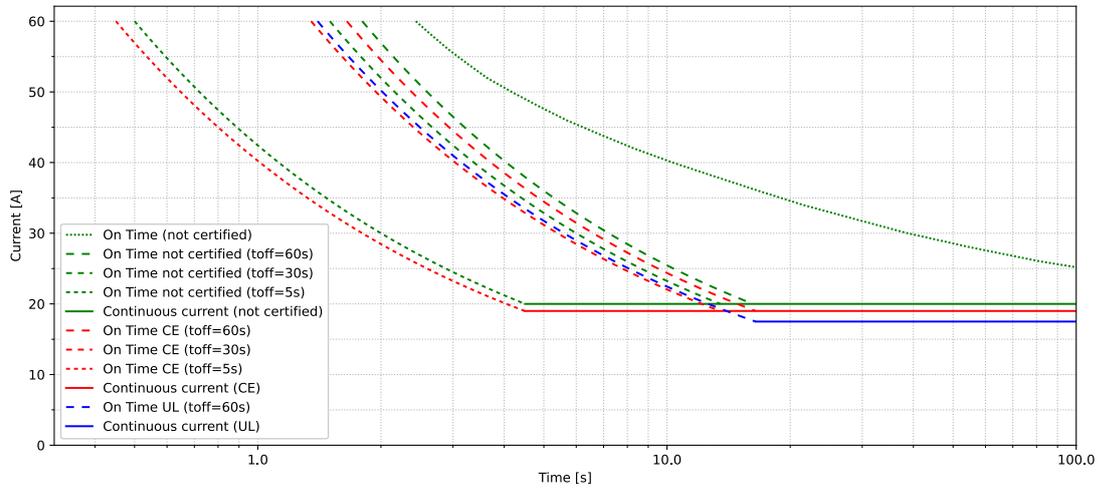
X1 Supply		
1	GND	Ground for electronic supply voltage
2	+Ue24V	Electronic supply voltage
3	GND	Ground for power supply voltage
4	+Up	Power supply voltage
X2 Encoder		
1	CLK	SSI clk
2	/CLK	/SSI clk
3	DATA	SSI data
4	/DATA	/SSI data
5	+U10V	10V output voltage for sensor supply Sensors: Hiperface
6	GND	Ground for sensor supply Notice: don't connect with system GND
7	+SIN	Encoder, plus sine signal
8	-SIN	Encoder, minus sine signal
9	+COS	Encoder, plus cosine signal
10	-COS	Encoder, minus cosine signal
11	res.	Reserved
12	res.	Reserved
13	+U5V	5V output voltage for sensor supply Sensors: encoder, SSI
14	GND	Ground for sensor supply Notice: don't connect with system GND
X3 PT1000		
1	PT_A	PT_A
2	PT_B	PT_B
X4 I/O's		
1	STO-B	STO channel B
2	Din0	Digital input 0
3	Din1	Digital input 1
4	Din2	Digital input 2
5	Din3	Digital input 3
6	Din4	Digital input 4
7	Din5	Digital input 5
8	STO-A	STO channel A
9	Ain0	Analog input 0
10	Ain1	Analog input 1
11	Dout0	Digital output 0
12	Dout1	Digital output 1
13	Dout2	Digital output 2

X5 CAN bus		
1	CAN Hi	CAN High
2	CAN Lo	CAN Low
3	CAN GND	CAN Ground
X6 Hall encoder		
1	H1	Hall sensor 1
2	H2	Hall sensor 2
3	H3	Hall sensor 3
4	+U5V	5V output voltage for sensor supply Sensors: hall
5	GND	Ground for sensor supply Notice: don't connect with system GND
X7 Motor		
1	Ma	Motor phase A
2	Mb	Motor phase B
3	Mc	Motor phase C

Diagrams

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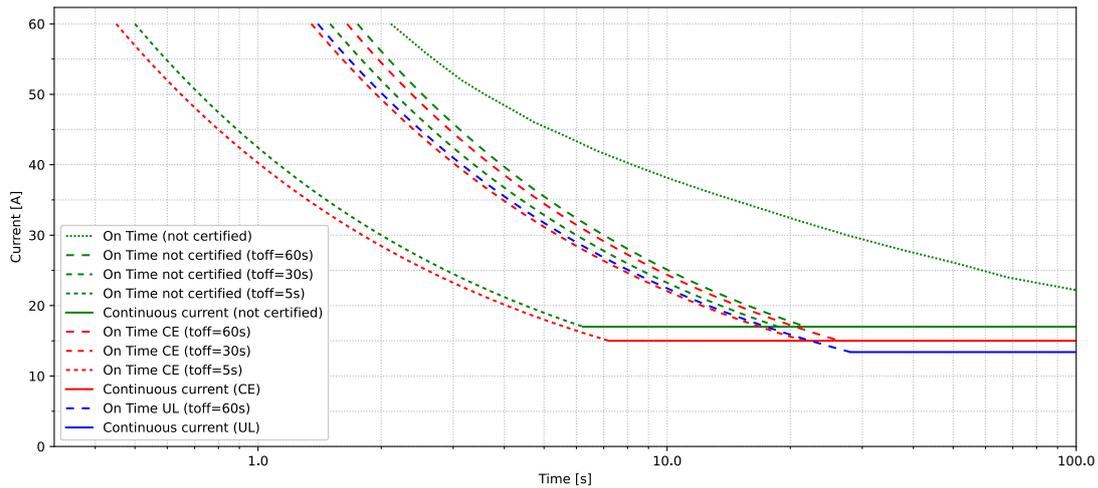


ambient temperature 40°C  
 power supply voltage Up 24V  
 PWM frequency 32kHz  
 PWM mode asymmetric  
 inductance per motor phase 150µH  
 continuous current 20A

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ambient temperature 40°C  
 power supply voltage Up 60V  
 PWM frequency 32kHz  
 PWM mode asymmetric  
 inductance per motor phase 150µH  
 continuous current 17A

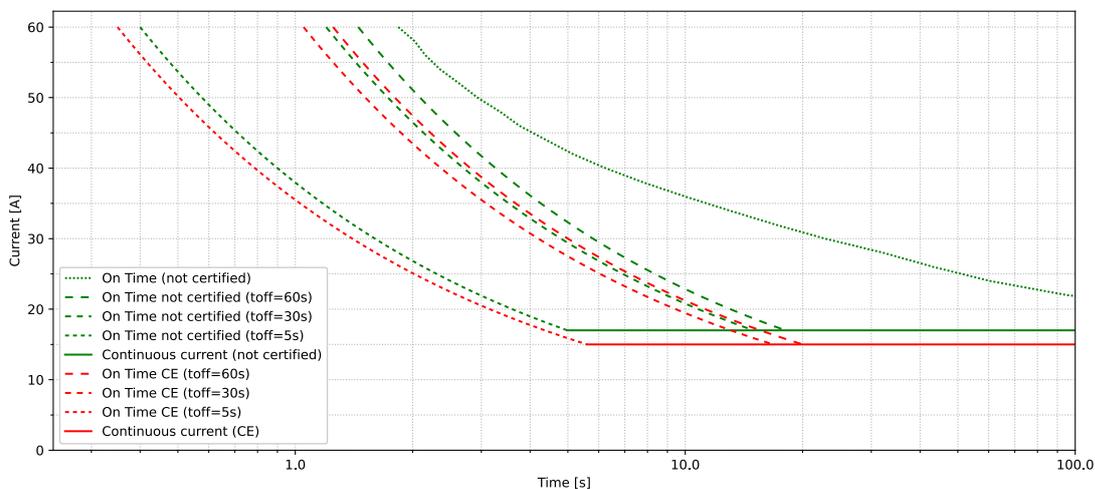
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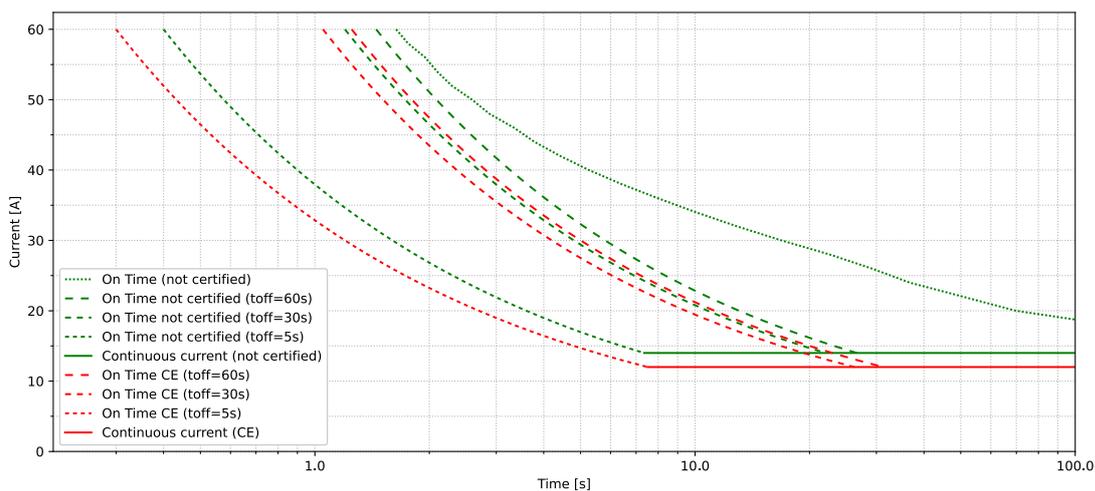


ambient temperature 55°C  
 power supply voltage Up 24V  
 PWM frequency 32kHz  
 PWM mode asymmetric  
 inductance per motor phase 150µH  
 continuous current 17A

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ambient temperature 55°C  
 power supply voltage Up 60V  
 PWM frequency 32kHz  
 PWM mode asymmetric  
 inductance per motor phase 150µH  
 continuous current 14A

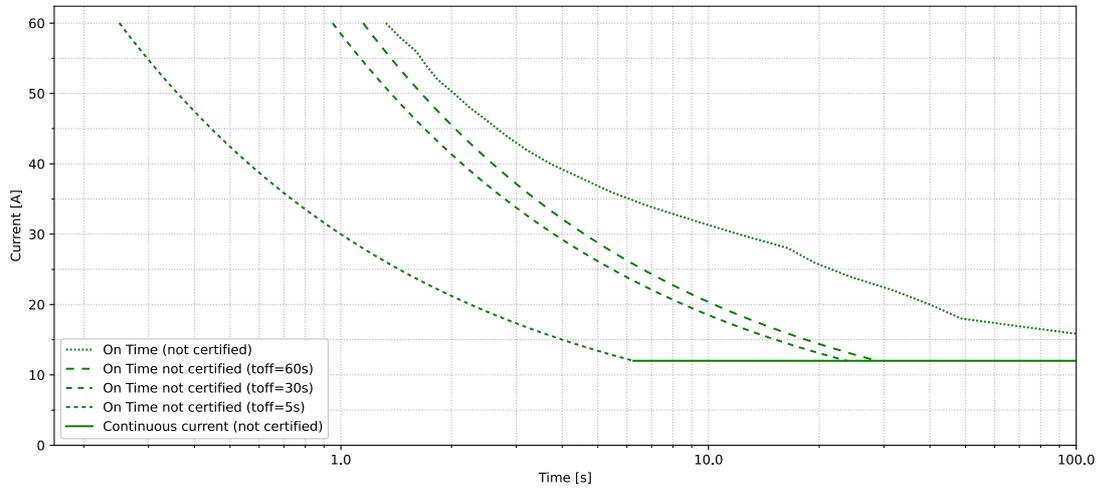
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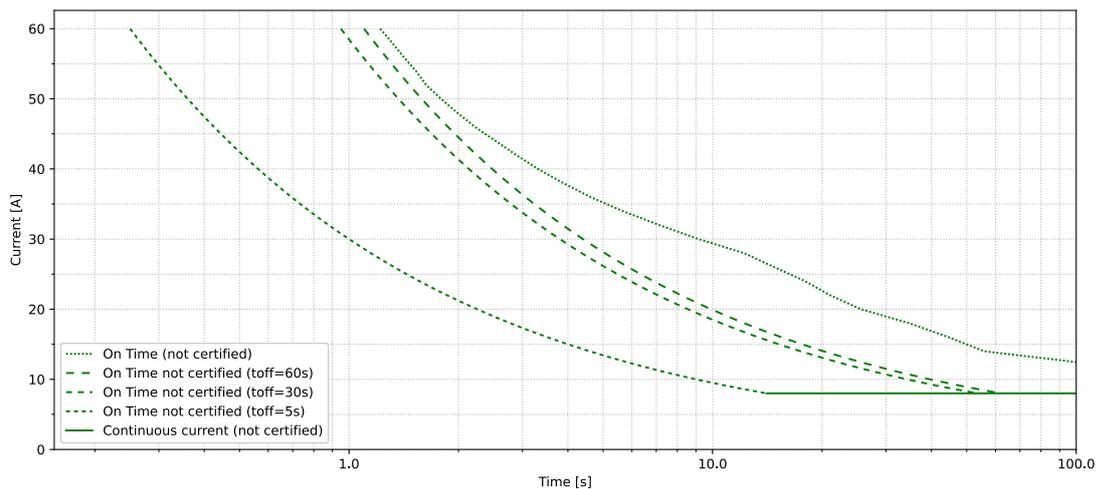


ambient temperature 70°C  
 power supply voltage Up 24V  
 PWM frequency 32kHz  
 PWM mode asymmetric  
 inductance per motor phase 150µH  
 continuous current 12A

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ambient temperature 70°C  
 power supply voltage Up 60V  
 PWM frequency 32kHz  
 PWM mode asymmetric  
 inductance per motor phase 150µH  
 continuous current 8A

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