

# TECHNICAL DATASHEET

ELECTRICAL SPECIFICATIONS

Item No. 739.001 / Page 1 / 3

Print Date 03.03.2025 10:09

## DC-Converter 739-113-SD

500 Watt, isolated, single output buck-boost converter with internal decoupling diode

All parameters defined on  $T_a=25^{\circ}\text{C}$ ,  $I_{oNom} = 4.5 \text{ ADC}$  and  $U_{iNom} = 24\text{VDC}$

### ABSOLUTE MAXIMUM RATINGS

parameter	unit	typ
Input peak voltage	VDC	38.00

### THERMAL CHARACTERISTICS

parameter	min to max	typ
Ambient temperature range	$-40^{\circ}\text{C} / +85^{\circ}\text{C}$	
Max. case temperature for thermal shut down [ $^{\circ}\text{C}$ ]		$+90^{\circ}\text{C}$
Storage temperature (device not in operation)	$-10^{\circ}\text{C} / +65^{\circ}\text{C}$	
Relative maximum humidity under storage		75% RH
Storage under worst conditions [in days]		25

### COMMUNICATION INTERFACE

parameter	unit	fulfilled	conditions	min to max
Option shut down (left open for operation)		✓		
Shutdown voltage for transformer	VDC		$I_{oNom}$	-0.2 to 2.8

### SPECIALS

parameter	unit	fulfilled	conditions	typ
Switching frequency	kHz			120
Efficiency at light loads	%		$0.25I_{oNom}$	94.00
Efficiency at medium loads	%		$0.5I_{oNom}$	92.00
Efficiency at full loads	%		$I_{oNom}$	88.00
For active loads or parallel connection		✓		
Drives high capacitive loads		✓		
CC/CV battery load characteristic		✓		
Coupling capacitance input to output	nF			transformer winding onl
Insulation strength primary to secondary	VDC			2100
Insulation strength primary to case	VDC			2100

### COMPLIANCE

parameter	fulfilled	notes
61000-6-2 (EMC-Immunity standard for industrial environment)	✓	
61000-4-2 (immunity against ESD-electrostatic discharge)	✓	
61000-4-3 (immunity High frequency electromagnetic fields)	✓	
61000-4-4 (immunity against burst – electrical fast transients)	✓	
61000-4-5 (immunity against surge - high energy surges)	✓	
61000-4-6 (immunity against induced, conducted disturbances)	✓	
61000-6-4 (EMC – Emission standard for industrial environment)	✓	
55022<A	✓	

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### INPUT

parameter	unit	conditions	min	typ	max
Input voltage range	VDC	IoNom	22	24	36
No load input current	mA	UiNom		190	
Max. input current	A	UiNom		41	
Input start up voltage	VDC	UiNom		11.0	
Undervoltage lockout	VDC	UiNom		9.0	
Input quiescent current in shutdown mode	mA	UiNom		3.00	
Input current overshoot during soft start ramp up	%	IoNom		10	
Input capacitor load peak current at initial switch on	A	UiNom		10	
Generated AC-ripple on the supply (BW=20MHz)	mVp-p	UiNom/loNom		50	
Generated HF-noise on the supply (BW=20MHz)	mVp-p	UiNom/loNom		30	

### OUTPUT

parameter	unit	conditions	min	typ	max
Output voltage	VDC	IoNom		113.0	
No Load output voltage increase	%	UiNom		4	
Minimum required load to obtain the specified output voltage	%	UiNom		5	
Generated AC-ripple on the output (BW=20MHz)	mVp-p	UiNom/loNom		15	
Generated HF-noise on the output (BW=20MHz)	mVp-p	UiNom/loNom		20	
Output voltage accuracy	%	IoNom		+/-2.50%	
Output voltage overshoot at initial switch-on	%	IoNom		overdamped	
Rated output power	W			500	

### CONTROL

parameter	unit	conditions	min	typ	max
Static line regulation	%	IoNom/UiMin...UiMa		0.10	
Static load regulation	%	IoMin...IoMax/UiNo		0.8	
Maximum admissible capacitive load	uF	IoNom		infinite	
Initial switch on time	ms	IoNom		300	
Softstart ramp up time	ms	IoNom		30	
Restart time after undervoltage lockout	ms	IoNom		270	

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### MECHANICAL

parameter	unit	
Overall dimensions	mm	130x130x28
Weight	g	900

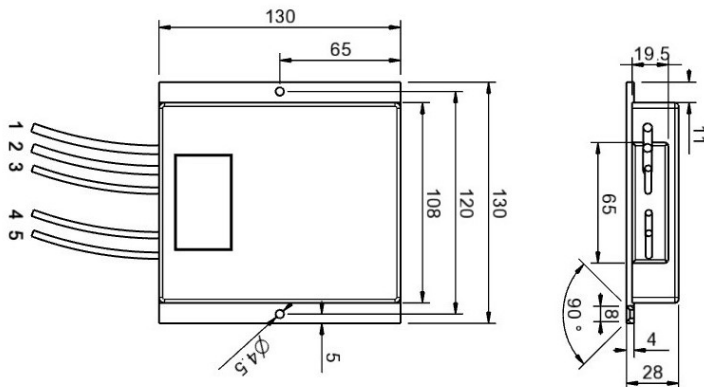
Pin No.	Function	Electrical Determination	Colour	Cross-	Cable length
1	Vi+	Input voltage positive	red	6 mm <sup>2</sup>	300 mm
2	Vi-	Input voltage negative	black	6 mm <sup>2</sup>	300 mm
3	SD	Shut down	blue	2.5 mm <sup>2</sup>	300 mm
4	Vo-	Output voltage negative	black	2.5 mm <sup>2</sup>	300 mm
5	Vo+	Output voltage positive	red	2.5 mm <sup>2</sup>	300 mm

### Mechanical dimensions and Pin configuration

All dimensions in mm

Connector type: cable

Case: FMC 130x130x28



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