

TECHNICAL DATASHEET

ELECTRICAL SPECIFICATIONS

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Print Date 29.12.2025 11:38

DC-Converter 331-24-SD

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

All parameters defined on Ta=25°C, IoNom = 2.0 ADC and UiNom = 24VDC

ABSOLUTE MAXIMUM RATINGS

parameter	unit	typ
Input peak voltage	VDC	40.00
Feedback protection against overvoltage on the output	VDC	30

THERMAL CHARACTERISTICS

parameter	min to max	typ
Ambient temperature range	-40°C / +85°C	
Storage temperature (device not in operation)	-10°C / +65°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		IoNom	-0.2 to 2.8

SPECIALS

parameter	unit	fulfilled	conditions	typ
Switching frequency	kHz			225
Efficiency at light loads	%		0.25IoNom	91.00
Efficiency at medium loads	%		0.5IoNom	92.00
Efficiency at full loads	%		IoNom	91.00
MTTF	h		SN29500 @ 70°	1 500 000
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			500
Insulation strength primary to case	VDC			500

COMPLIANCE

parameter	fulfilled	notes
61000-6-4 (EMC – Emission standard for industrial environment)	✓	
55022<A	✓	

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DEMKE
ELECTRONIC

Demke Electronic GmbH
Tonhallestrasse 37
9500 Wil - Switzerland

phone +41 71 511 34 00
e-mail sales@demke-electronic.com

web www.demke-electronic.com

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INPUT

parameter	unit	conditions	min	typ	max
Input voltage range	VDC	IoNom	9	24	36
No load input current	mA	UiNom		25	
Max. input current	A	UiNom		6	
Input start up voltage	VDC	UiNom		8.9	
Undervoltage lockout	VDC	UiNom		8.6	
Input quiescent current in shutdown mode	mA	UiNom		0.70	
Input current overshoot during soft start ramp up	%	IoNom		15	
Generated AC-ripple on the supply (BW=20MHz)	mVp-p	UiNom/IoNom		40	
Generated HF-noise on the supply (BW=20MHz)	mVp-p	UiNom/IoNom		20	

OUTPUT

parameter	unit	conditions	min	typ	max
Output voltage	VDC	IoNom		24.0	
No Load output voltage increase	%	UiNom		3	
Minimum required load to obtain the specified output voltage	%	UiNom		2	
Generated AC-ripple on the output (BW=20MHz)	mVp-p	UiNom/IoNom		20	
Generated HF-noise on the output (BW=20MHz)	mVp-p	UiNom/IoNom		50	
Output voltage accuracy	%	IoNom		+/-2.00%	
Output voltage overshoot at initial switch-on	%	IoNom		overdamped	
Rated output power	W			50	

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	

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MECHANICAL

parameter	unit	
Overall dimensions	mm	51x51x10
Weight	g	60

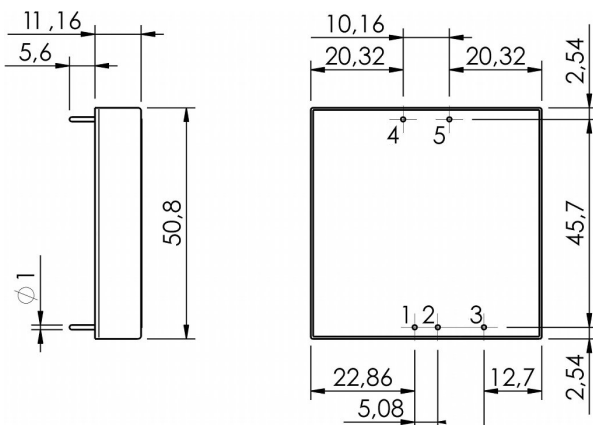
Pin No.	Function	Electrical Determination
1	Vi+	Input voltage positive
2	Vi-	Input voltage negative
3	SD	Shut down
4	Vo+	Output voltage positive
5	Vo-	Output voltage negative

Mechanical dimensions and Pin configuration

All dimensions in mm

Connector type: THT

Case: 2"x2"



An additional frame with a height of 1 mm can be attached to seal the housing with the potting.

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Demke Electronic GmbH
Tonhallestrasse 37
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phone +41 71 511 34 00
e-mail sales@demke-electronic.com

web www.demke-electronic.com