

## 331-24-SD

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

All parameters defined on  $T_a=25^{\circ}\text{C}$ ,  $I_{oNom} = 2,0\text{ ADC}$  and  $U_{iNom} = 24\text{VDC}$

### 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	$-40^{\circ}\text{C} / +85^{\circ}\text{C}$	
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			225
Efficiency at light loads	%		$0.25I_{oNom}$	91.00
Efficiency at medium loads	%		$0.5I_{oNom}$	92.00
Efficiency at full loads	%		$I_{oNom}$	91.00
MTTF	h		SN29500 @ $70^{\circ}$	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 only
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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### 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...UiMax		0.10	
Static load regulation	%	IoMin...IoMax/UiNom		0.8	
Maximum admissible capacitive load	uF	IoNom		infinite	

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### MECHANICAL

parameter	unit	
Overall dimensions	mm	51x51x10
Weight	g	60

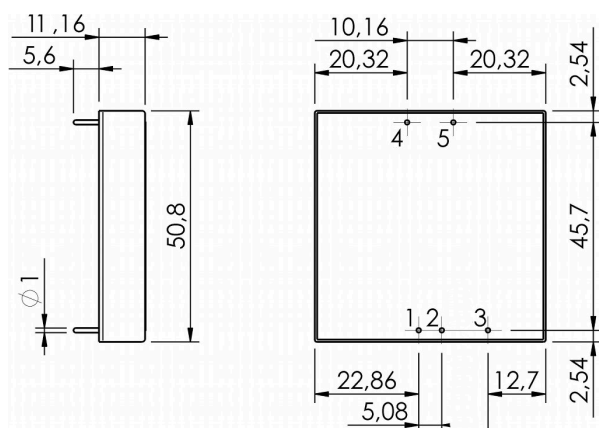
Pin No.	Function	Electrical Determination
1	Vi+	Input voltage positive
2	Vi-	Input voltage negative
3	SD	Shut down
4	Vo+	Output voltage positive
5	Vo-	Output voltage negative

### 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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