

Master-25X.xx

400 Watt, non isolated, single output buck-boost converter

All parameters defined on $T_a=25^{\circ}\text{C}$, $I_{oNom} = 8,0\text{ ADC}$ and $U_{iNom} = 48\text{VDC}$

ABSOLUTE MAXIMUM RATINGS

parameter	unit	typ
Input peak voltage	VDC	85.00

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	min to max
Option shut down [left open for operation]		✓	

SPECIALS

parameter	unit	fulfilled	conditions	typ
Switching frequency	kHz			110
Efficiency at light loads	%		$0.25I_{oNom}$	98.00
Efficiency at medium loads	%		$0.5I_{oNom}$	98.00
Efficiency at full loads	%		I_{oNom}	97.00
MTTF	h		SN29500 @ 70°	123 456
For active loads or parallel connection		✓		
Drives high capacitive loads		✓		
CC/CV battery load characteristic		✓		

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	✓	
50155	✓	

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INPUT

parameter	unit	conditions	min	typ	max
Input voltage range	VDC	IoNom	18	48	75
No load input current	mA	UiNom		25	
Max. input current	A	UiNom		25	
Input start up voltage	VDC	UiNom		17.5	
Undervoltage lockout	VDC	UiNom		16.5	
Input quiescent current in shutdown mode	mA	UiNom		2.00	
Input current overshoot during soft start ramp up	%	IoNom		50	
Generated AC-ripple on the supply [BW=20MHz]	mVp-p	UiNom/IoNom		20	
Generated HF-noise on the supply [BW=20MHz]	mVp-p	UiNom/IoNom		30	
Typical input noise slew rate [BW=500MHz]	mVp-p	UiNom/IoNom		20	
Reflected input ripple current	mA _{p-p}	UiNom/IoNom		20	

OUTPUT

parameter	unit	conditions	min	typ	max
Output voltage	VDC	IoNom		48.0	
Minimum required load to obtain the specified output voltage	%	UiNom		0	
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		30	
Typical output noise slew rate [BW=500MHz]	mVp-p	UiNom/IoNom		20	
Output voltage accuracy	%	IoNom		+/-2,00%	
Output voltage overshoot at initial switch-on	%	IoNom		overdamped	
Rated output power	W			400	

CONTROL

parameter	unit	conditions	min	typ	max
Static line regulation	%	IoNom/UiMin...UiMax		0.20	
Static load regulation	%	IoMin...IoMax/UiNom		0.3	
Dynamic load change adjusting time	ms	LoadChange 10...90%		0.30	
Dynamic load change deviation to nominal output voltage	V	LoadChange 10...90%		0.80	
Maximum admissible capacitive load	uF	IoNom		infinite	
Initial switch on time	ms	IoNom		50	
Softstart ramp up time	ms	IoNom		30	
Restart time after undervoltage lockout	ms	IoNom		50	

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MECHANICAL

parameter	unit	
Overall dimensions	mm	90x90x26
Weight	g	335

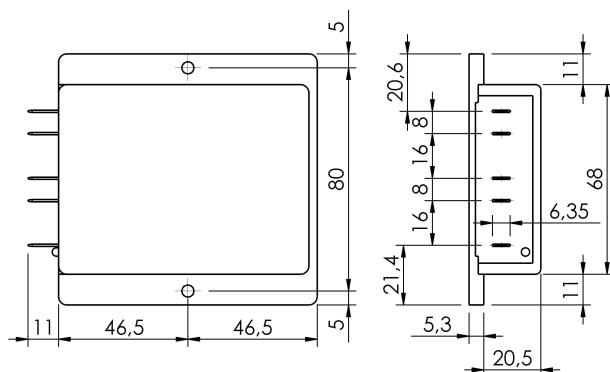
Pin No.	Function	Electrical Determination
1	SD	Shut down
2	Vi+	Input voltage positive
3	Vi-	Input voltage negative
4	Vo-	Output voltage negative
5	Vo+	Output voltage positive

Mechanical dimensions and Pin configuration

All dimensions in mm

Connector type: Flat pin plug 6.3mm

Case: FMC 90x90x26



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