

258E-24

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

All parameters defined on $T_a=25^{\circ}\text{C}$, $I_{oNom} = 13,0\text{ ADC}$ and $U_{iNom} = 48\text{VDC}$

ABSOLUTE MAXIMUM RATINGS

parameter	unit	typ
Input peak voltage	VDC	60.00
Feedback protection against overvoltage on the output	VDC	45
Output overvoltage protection	VDC	28.0

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

SPECIALS

parameter	unit	fulfilled	conditions	typ
Switching frequency	kHz			105
Efficiency at light loads	%		$0.25I_{oNom}$	96.00
Efficiency at medium loads	%		$0.5I_{oNom}$	96.00
Efficiency at full loads	%		I_{oNom}	95.00
For active loads or parallel connection		✓		
Drives high capacitive loads		✓		
CC/CV battery load characteristic		✓		
Insulation strength primary to case	VDC			1500

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	✓	

All technical and general information is provided in all conscience. However, completeness and accuracy cannot be guaranteed. Demke recommends to fully test the product in its determined application. Due to permanent improvements to our products, we reserve the right to change specifications at any time and without prior notification and without obligation to update products already supplied. This is a component for professional equipment manufacturers. Read the safety and installation instruction for proper use. Safety aspect and EMC-aspect must be considered in the end application.

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INPUT

parameter	unit	conditions	min	typ	max
Input voltage range	VDC	IoNom	15	48	58
No load input current	mA	UiNom		45	
Max. input current	A	UiNom		22	
Input start up voltage	VDC	UiNom		14.5	
Undervoltage lockout	VDC	UiNom		13.0	
Input quiescent current in shutdown mode	mA	UiNom		0.30	
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		100	

OUTPUT

parameter	unit	conditions	min	typ	max
Output voltage	VDC	IoNom		24.0	
Minimum required load to obtain the specified output voltage	%	UiNom		0	
Generated AC-ripple on the output [BW=20MHz]	mVp-p	UiNom/IoNom		25	
Generated HF-noise on the output [BW=20MHz]	mVp-p	UiNom/IoNom		140	
Output voltage accuracy	%	IoNom		+/-2,00%	
Output voltage overshoot at initial switch-on	%	IoNom		overdamped	
Rated output power	W			300	

CONTROL

parameter	unit	conditions	min	typ	max
Static line regulation	%	IoNom/UiMin...UiMax		0.10	
Static load regulation	%	IoMin...IoMax/UiNom		0.2	
Dynamic load change adjusting time	ms	LoadChange 10...90%		0.50	
Dynamic load change deviation to nominal output voltage	V	LoadChange 10...90%		1.00	
Maximum admissible capacitive load	uF	IoNom		infinite	
Initial switch on time	ms	IoNom		50	
Softstart ramp up time	ms	IoNom		15	

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