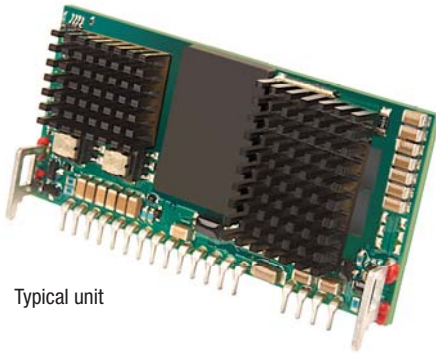


11-13.2Vin, 54.2V/4.44A Single Output, High Efficiency SIP Converter



Typical unit

FEATURES

- 240 Watts total output power
- 94% Ultra-high efficiency @ full load, 100LFM
- 12V Input (11-13.2V range)
- 54.2V/4.44A Output for PoE+ (Power-over-Ethernet)
- Input Over/Under Voltage Shutdown
- 320kHz fixed switching frequency
- Fully isolated, 2250V (BASIC)
- Low 500mVp-p ripple/noise max value.
- PGOOD signal
- Stable no-load operation
- Thermal shutdown
- Fully I/O protected
- UL 1950/IEC/EN60950 certification
- Output over voltage latch

ORDERING GUIDE SUMMARY					
Model	Vout Range	Iout Range	Vin Range	Ripple/Noise	Efficiency
SPC-54/4.4-L12PG-C	54.2V	0-4.44A	11-13.2V	500mVp-p (max)	94%
INPUT CHARACTERISTICS					
Parameter	Typ. @ 25°C, full load		Notes		
Voltage Range	11-13.2 Volts		12V nominal		
Current, full power	24.5 Amps		Vin = 11V		
Turn On/Start-up Threshold	10.3-11 Volts		Vin increasing		
Undervoltage Shutdown	9-9.9 Volts		Vin decreasing		
No Load Current	300mA		Vin = 12V		
OUTPUT CHARACTERISTICS					
Parameter	Typ. @ 25°C, full load		Notes		
Voltage	54.2 Volts		±1%		
Current	0 to 4.44 Amps		No minimum load		
Power Output	240 Watts				
Ripple & Noise	500mVp-p		20MHz bandwidth, 100µF output capacitance		
Line and Load Regulation	±1%/±1%				
Overcurrent Protection	5.33 Amps		With hiccup auto-restart		
Overtemperature Protection	130 °C				
Efficiency (minimum)	92.8%		80% load, Vin nom.		
Efficiency (typical)	94%				
GENERAL SPECIFICATIONS					
Parameter	Typ. @ 25°C, full load		Notes		
Dynamic Load Response	500µsec		50-75-50% step to 1% of Vout		
Operating Ambient Temperature	-40 to +80°C				
Safety Features	UL 1950, IEC/EN60950				
PHYSICAL SPECIFICATIONS					
Parameter	Inches		Millimeters		
Dimensions	2.60 x 0.69 x 1.25		66.0 x 17.5 x 31.75		

PERFORMANCE SPECIFICATIONS AND ORDERING GUIDE

Model ①	Output						Input				Efficiency 80% load, Vin nom.		Package (Pinout)
	Vout (Volts)	Iout (Amps, Max.)	Power (Watts)	R/N (mV pk-pk) Max.	Regulation (Max.)		Vin Nom. (Volts)	Range (Volts)	In, no load (mA)	Vin @ min, full load (Amps)	% Min.	% Typ.	
					Line	Load							
SPC-54/4.4-L12PG-C	54.2	4.44	240	500	±1%	±1%	12	11-13.2	300	24.5	92.8	94	See mechanical drawing



FUNCTIONAL SPECIFICATIONS ① ②

ABSOLUTE MAXIMUM RATINGS	Conditions	Minimum	Typical/Nominal	Maximum	Units
Input Voltage, Continuous	Full power operation	0		13.2	Vdc
Isolation Voltage	Input to output tested 100 mS			2250	Vdc
Input Reverse Polarity	None, install external fuse		None		Vdc
On/Off Remote Control	Power on or off, referred to -Vin	0		5	Vdc
Output Power		0		240	W
Output Current	Current-limited, no damage, short-circuit protected	0		4.44	A
Storage Temperature Range	Vin = Zero (no power)	-55		125	°C
Absolute maximums are stress ratings. Exposure of devices to greater than any of these conditions may adversely affect long-term reliability. Proper operation under conditions other than those listed in the Performance/Functional Specifications Table is not implied nor recommended.					
INPUT					
Operating voltage range		11	12	13.2	Vdc
Input Voltage Slew Rate				1	V/μs
Turn On/Start-up threshold	Rising input voltage	10.3		11	Vdc
Turn Off/Undervoltage lockout	Falling input voltage	9.2		9.9	Vdc
Hysteresis			1	4	Vdc
Overvoltage Shutdown		13.8		14.8	Vdc
Reverse Polarity Protection	None, install external fuse		None		Vdc
Internal Filter Type			Pi		
Input current					
Full Load Conditions	Vin = nominal			22.5	A
Low Line	Vin = minimum			24.5	A
Inrush Transient					
Peak Current				30	A
I ² t				0.1	A ² /sec
No Load Input Current	Iout = minimum, unit = ON		300	500	mA
Shut-Down Mode Input Current			10		mA
Reflected (back) ripple current	The external input capacitance shall be the max capacitance			0.1	Arms
Back Ripple Current	no filtering			2	Arms
Input Capacitance ③		250		750	μF
GENERAL and SAFETY					
Efficiency (Ta = 25°C, 100 LFM, airflow across long axis, Vin = 12V)	80% of Irated ≤ Iout ≤ 100% of Irated	92.8	94		%
	50% of Irated ≤ Iout < 80% of Irated	91.8	93.5		%
	20% of Irated	86.8	88.5		%
Efficiency (Ta = 80°C, 250 LFM, airflow across long axis, Vin = 12V)	80% of Irated ≤ Iout ≤ 100% of Irated	92.8	94		%
	50% of Irated ≤ Iout < 80% of Irated	91.8	93.5		%
	20% of Irated	86.8	88.5		%
Isolation					
Isolation Voltage	Input to output, continuous	2250			Vdc
Insulation Safety Rating			basic		
Isolation Resistance			10		MΩ
Isolation Capacitance			3300		pF
Safety	Certified to UL-60950-1, CSA-C22.2 No.60950-1, IEC/EN60950-1, 2nd edition		Yes		
Calculated MTBF	Per Telcordia SR332, issue 1 class 3, ground fixed, Tambient = +25°C	1			Hours x 10 ⁶
Service Life at 40°C ambient temperature with 80% load		10			years
ESD					
Human Body Model (HBM)			± 2000		V
Charged Device Model (CDM)			± 500		V
Machine Model (MM)			± 200		V