maxpowerPRO

DC/DC Converter CPCI 250 W

13100 – 142

Input voltage range 36…75V DC
4 high current outputs

Approvals: cRUus / CE

- Fully compliant with PICMG Compact PCI specifications
- High density design in industry standard 3U x 8TE x 160mm cassette
- Highly efficient topology with synchronous rectifiers
- Remote sense, active current share for 3 outputs
- Compact PCI compatible signalling
- Included Or-ing FETs / Diode for true redundant operation

Important Note

Please read this operating instructions carefully before applying power. The warranty is subject to correct input voltages being applied. Repairs or modifications made by anyone other than SCHROFF will invalidate the warranty. This documentation has been complied with the utmost care. We cannot however guarantee its correctness in every respect.

Selection Chart

Output 1		Output 2		Output 3		Output 4		Input Voltage	Rated Power	Type
$U_{o\,nom}$ [V DC]	$I_{o\,max}$ [A]	$U_{o\,nom}$ [V DC]	$I_{o\,max}$ [A]	$U_{o\,nom}$ [V DC]	$I_{o\,max}$ [A]	$U_{o\,nom}$ [V DC]	$I_{o\,max}$ [A]	U_i [V DC]	$P_{o\,nom}$ [W]	
5.0	40	3.3	40	12	5.5	-12	2	36…75	250	CPD250-4530S182

Purpose / Description

The CPD250 series consists of highly efficient DC/DC converter with 4 output voltages, which can be used in a wide range of applications in the Telecom-, Industry- and Infrastructure-Market. The product is fully compliant with the PICMG Compact PCI specification and offers high currents on the 3.3V and 5V outputs.

Input

Nominal input voltage	$U_{i\ nom}$	48 V DC
Input voltage	with full output power	36...75 V DC
Nominal input current	with full output power, U_i=48 V DC	6.5 A
Max. Input current	with full output power, U_i=36 V DC	9.5 A
Inrush current limitation	by thermistor and electronic switch, U_i=75 V DC	<12 A
Efficiency	$U_{i\ nom}$, $P_{o\ nom}$	> 80%

Output

Maximum output currents	$U_{i\ min}$...$U_{i\ max}$ (V_{o1}, V_{o2}, V_{o3}, V_{o4})	40 / 40 / 5,5 / 2 A
Output voltage setting accuracy	$U_{i\ nom}$, 50 % $I_{o\ nom}$, T_c = 25°C	±1% $U_{o\ nom}$
Static line and load regulation	$U_{i\ min}$...$U_{i\ max}$, $I_{o\ nom}$ / $U_{i\ nom}$, 5...100 % $I_{o\ max}$ for V1, V2, V3 (flat load characteristic) for V4 (droop load characteristic)	 ±2 % ±4 %
Minimum load	No minimum load requirements on V1, V2, V3 For V4	 $I_{o3} > 0.75 \cdot I_{o4}$
Hold-up time	at full load, starting at U_i = 48 V DC	>4 ms
Start-up time	$U_{i\ nom}$, $I_{o\ nom}$	<150 ms
Output voltage ripple and noise	$U_{i\ nom}$, $I_{o\ nom}$, 20 MHz BW, C_{ext} = 22uF/20V + 100nF/50V	<2%

Protection

Input fuses	not user accessible	12.5 AT
Input transient protection	varistor	
Output	no-load, overload and short circuit proof	
Overvoltage protection	latch style	120… 130% $V_{o\ nom}$
Overload protection	self recovery	105…130% $I_{o\ nom}$
Overtemperature	automatic output power derating at Tc = 90°C	

Control

Current share	3 sharing buses for V1, V2, V3; up to 6 units Droop load characteristic for V4
Remote sense	available on V1, V2 and V3
Enable	Contact closure to GND extern to start up unit
Inhibit	TTL compatible signal, inhibited at GND or TTL “0”
Power Fail (Fail#)	Indicates pre-diode voltage of any outputs < 90 % and/or an input voltage failure (Ui < 36 V DC)
Temperature warning (DEG#)	Indicates temperature within 20 °C of thermal power derating
Status indication	LEDs: Input OK (green), Output failure (red)

Safety and EMC

Approvals	EN 60950 (TÜV), UL 1950, cUL 1950	
Protection degree		IP 20
Electric strength test voltage	class I, I/case	1.44 kV DC
Electric strength test voltage	class I, I/O	2.12 kV DC

Electric strength test voltage	class I, O/case	0.7 kV DC
Electrostatic discharge	IEC/EN 61000-4-2, level 4 (contact/air)	8/15 kV, criterion B
Electromagnetic field	IEC/EN 61000-4-3, level 3	10 V/m, criterion A
Electr. fast transients/burst	IEC/EN 61000-4-4, level 3 (direct/capacitive)	1/2 kV, criterion B
Surge	IEC/EN 61000-4-5, level 3 (L/L, L/C)	1/2 kV, criterion B
Immunity to cond. disturbances	IEC/EN 61000-4-6, level 2	3V, criterion B
Electromagnetic emissions	CISPR 22/EN 55022, conducted / radiated	class A / A

Environmental specifications

Operating temperature	$U_{i\ nom}$, $I_{o\ nom}$, cooling by forced air flow with 400 LFM derating from 50 to 70 °C of 2.5% per °C	0...50 °C
Storage temperature	non operational	-40...85 °C
Relative humidity	non condensing	5…95 %
Shock	IEC/EN 60068-2-27, 11 ms	max. 20 g_n
Random vibration	10 Hz to 2k Hz, 3 axes	6 $g_{n\ rms}$
MTBF	MIL-HDBK-217F Notice 2, G_B, 40°C	288.000 h

Mechanical Data

Mechanical data (H, W, D)	3U, HP, 160mm

Pin allocation

Connector: Positronic (PCIH47M400A1)

Pin[1]	[2]	Signal Name	Description	Pin[1]	[2]	Signal Name	Description
1-4	M	V1	V1 Output	32	M	nc	Not connected
5-12	M	RTN	V1 and V2 Return	33	M	V2SENSE	V2 Remote Sense
13-18	M	V2	V2 Output	34	M	S RTN	Sense Return
19	M	RTN	V3 Return	35	M	V1SHARE	V1 Current Share
20	M	V3	V3 Output	36	M	V3SENSE	V3 Remote Sense
21	M	V4	V4 Output	37	M	IPMB_SCL[3]	Bus Clock
22	M	RTN	Signal Return	38	M	DEG#	Degrade Signal
23	M	Reserved	Reserved	39	M	INH#	Inhibit
24	M	RTN	V4 Return	40	M	IPMB_SDA[3]	Bus Data
25	M	GA0[3]	Geographic Address Bit 0	41	M	V2SHARE	V2 Current Share
26	M	Reserved	Reserved	42	M	FAL#	Fail Signal
27	S	EN#	Enable	43	M	IPMB_PWR[3]	Bus Power
28	M	GA1[3]	Geographic Address Bit 1	44	M	V3SHARE	V3 Current Share
29	M	nc	Not connected	45	L	CGND	Chassis Ground
30	M	V1SENSE	V1 Remote Sense	46	M	CAN	+ DC Input
31	M	GA2[3]	Geographic Address Bit 2	47	M	ACL	– DC Input

[1] Pin number illustrated are of the female backplane connector
[2] L=first mate, M=second mate, S=last mate
[3] I^2C Option

Accessories

Mating connector / intermediate plate 3 U (optional) **Order No.: 23098 – 105**

Caution & Notes

CAUTION

These component level power supplies are intended exclusively for installation within other equipment by an industrial assembly operation or by professional installers. These are Class I power supplies; the ground pin of input connector J1 must be properly connected to earth ground in end use. Component power supplies are to be installed in end-use equipment according to the requirements of the safety standard used for that equipment. These power supplies are not designed to be operated outside of an enclosure which provides a means of mechanical, electrical, and fire protection. To maintain SELV requirements, the outputs should not be connected together in any manner which causes the total output voltage to exceed 60 VDC.

PROTECTIVE EARTHING

The Power Supply must be properly grounded to mains protective earthing termination at end use.

FUSING

In case of failure, the Power Supply must be returned to a Schroff Authorized Service Center. There are no user-serviceable parts in the Power Supply.

LIMITED WARRANTY

Schroff warrants each power supply of its manufacture for a period of two (2) years from the date of original shipment. This warranty applies to defects in materials and workmanship that result in non-performance to published specifications.

Schroff assumes no liabilities for consequential damages of any kind through the use or misuse of its products by any user. No other obligations are expressed or implied.

Please note that the specifications, terms, and conditions stated are subject to change without notice.

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