

cPCI DC/DC Converter

125 Watt

125 PCB 110 Q05 E10

$V_{In\ Nom} = 110\ V_{DC}$

$V_{O1\ Nom} = 5.1\ V, I_{O1\ Nom} = 10\ A$ $V_{O2\ Nom} = 3.3\ V, I_{O2\ Nom} = 10\ A$
 $V_{O3\ Nom} = 12\ V, I_{O3\ Nom} = 1.7\ A$ $V_{O4\ Nom} = -12\ V, I_{O4\ Nom} = -1.7\ A$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
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INPUT

V_{In}	Input Voltage Range	Continuously $t \leq 0.1\ sec$ $t \leq 1.0\ sec$	77.0 66.0 137.5		137.5 77.0 154	V_{DC} V_{DC} V_{DC}
$V_{In\ low}$	Switch ON Switch OFF		66.0 60.0		70.0 65.0	V_{DC} V_{DC}
$V_{In\ high}$	Switch OFF Switch ON		155.0	156.0		V_{DC} V_{DC}
I_{In}	Input Current	no load Nominal Loads Nominal Loads	$V_{In} = 154\ V_{DC}, \sum P_O = 0\ W$ $V_{In} = 110\ V_{DC}, \sum P_O = 125\ W$ $V_{In} = 66\ V_{DC}, \sum P_O = 125\ W$		50 1.2 2.5	mA A A
	Switch ON Input Current Integral	$V_{In} = 154\ V_{DC}$			10	A ² s
	Input Fuse	Pico Fuse		10 A		
C_{In}	Input Capacity Converter				30	μF
	Maximum External Line Inductivity				50	μH
	Input Reversal Protection	no				

OUTPUT POWER

$66.0\ V_{DC} \leq V_{In} \leq 154.0\ V_{DC}$

$P_{O\ Nom}$	Continuously	$\sum P_O$		125		W
V_{O1}	Voltage Factory Adjust		5.05	5.10	5.15	V_{DC}
ΔV_{O1}	Regulation Accuracy V_{O1} static (V_{in}, I_o, T_A, t)	$0\ W \leq P_{O1} \leq 50\ W$	$\leq 2\ \% V_{O1\ Nom}$			
V_{O2}	Voltage Factory Adjust		3.2	3.3	3.4	V_{DC}
ΔV_{O2}	Regulation Accuracy V_{O2} static (V_{in}, I_o, T_A, t)	$0\ W \leq P_{O2} \leq 33\ W$	$\leq 2\ \% V_{O2\ Nom}$			
V_{O3}	Voltage Factory Adjust		11.9	12.0	12.1	V_{DC}
ΔV_{O3}	Regulation Accuracy V_{O3} static (V_{in}, I_o, T_A, t)	$0\ W \leq P_{O3} \leq 20\ W$	$\leq 2.5\ \% V_{O3\ Nom}$			
V_{O4}	Voltage Factory Adjust		-11.9	-12.0	-12.1	V_{DC}
ΔV_{O4}	Regulation Accuracy V_{O4} static (V_{in}, I_o, T_A, t)	$0\ W \leq P_{O4} \leq 20\ W$	$\leq 3.0\ \% V_{O4\ Nom}$			
$V_{O\ pp}$	Ripple & Noise in acc. to $V_{o, nom}$	V_{O1-O4} : Nominal Loads BW 20 MHz			1.5	%
t_{On}	Set Up Time V_{O1-O4}	$0\ W \leq P_O \leq 125\ W$		50	250	ms
t_H	Hold Up Time (Input Voltage Interruption)	Class S2 EN 50155	10			ms
I_{O1}	Output Current	V_{O1} : 5.1 V		10.0		A
I_{O2}	Output Current	V_{O2} : 3.3 V		10.0		A
I_{O3}	Output Current	V_{O3} : +12 V		1.7		A
I_{O4}	Output Current	V_{O4} : -12 V		-1.7		A
	Threshold Output Current Limit $I_{O1/O2/O3/O4}$		110 % x $I_{O1/O2/O3/O4\ Nom}$			
I_{OSC}	Output Short Circuit Current		120 % x $I_{O1/O2/O3/O4\ Nom}$			

Signaling

LED	V_{in}, V_{O1-4} (V_{oi} = summary signalling)	LEDs yellow at front plate	ON, when V_{in} and V_o o.k.	
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CONTROL

Enable	Converter ON: EN connected to Gnd Converter OFF: EN open	Potential ref. to output Gnd			V_{DC}
Inhibit	Converter OFF: INH connected to Gnd	Potential ref. to output Gnd			V_{DC}

COMMON DATAS

f	Switching Frequency			200		kHz
η	Efficiency	$P_O \geq 0.7 \times P_{O\ Nom}$	87	90		%
	MTBF (SN 29500)	$V_{In} = 110\ V_{DC}, P_O = 125\ W, T_A = +40^\circ C$		450 000		h
	No load & Short Circuit Approved			continuously		

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SAFETY / DIMENSIONS						
	Creepage, Clearance OV2 Port 10 Pollution Degree PD2 PCB FR4, V ₀ , T _G = + 140°C	Primary Secondary Primary Chassis Secondary Chassis	4.0 3.0 1.0			mm mm mm
	Isolation Piece Test: Ramp Function: 2s – 3s – 2s Type Test: 1Min.	Primary Secondary Primary Chassis Secondary Chassis			3'000 2'100 750	V _{DC} V _{DC} V _{DC}
	Connector	DIN M24/8	HARTING			
	Protection Class, Protection Degree		I, IP 20			
	Dimensions incl. Front Plate	B x H x D 3HE / 8TE 19" Rack	40.3 x 128.4 x 166.5			mm
	Fixing					
	Weight			825		g

AMBIENT CONDITIONS

T _A	Operating Temperature Range	Continuously 10 Minutes @ EN 50155	- 40 + 70		+ 70 + 85	°C °C
T _{St}	Storage Temperature Range		- 40		+ 85	°C
	Cooling		Free Convection			
	Humidity		75% averaged per year, 95% 30 days			
	Vibration / Shock	IEC 61373, IEC 68-2-27, BN 411002 Kat. I 3 Shocks each Axis	50 m / s ² , 30 ms			

EMC

	Radiation *) Immunity *)	Line & Radiated ESD EN 61000 - 4 - 2	EN 61000 – 6 – 4 - A 6 kV / 8 kV Performance Criteria - A -			
		High Frequency Field EN 61000 - 4 - 3	20 V / m 80 MHz ... 2,5 GHz - Performance Criteria - A -			*)
		Burst EN 61000 - 4 - 4	Level 4 asym., sym. Performance Criteria - A -			
		Surge EN 61000 - 4 - 5	2 kV asym. / 1 kV sym. Performance Criteria - A -			
		HF – Injection EN 61000 - 4 - 6	10 V _{eff} , R _i = 150 Ω Performance Criteria - A -			

STANDARDS

Applied Standards:	SN 29500	VDE 0106-1	EN 50124 - 1: 1996	EN 61000 - 4 - 2...6	EN 50529
	IEC/EN 60255-5	IEC/EN 60255-6	EN 50125 - 1	EN 60068 - 2 - 6, 2...32	IEC/EN60707
	IEC 60255-11	IEC 61373: 1999	EN 60721 - 3 - 5	IEC 60068-2-1 / 2 / 14	IEC 61373

Technical data referenced at: - 40° C ≤ T_A ≤ + 70° C, 66.0 V_{DC} ≤ V_{in} ≤ 154.0 V_{DC}, if not otherwise specified.

Temperature reference point: 10 cm below dc/dc converter unit. Please, consider free air convection is possible

*) In closed housing, emission: radiated @ EN 50121-3-2, conducted @ EN 50121-3-2

**) 1400 MHz – 2100MHz 10V/m 2100MHz – 2500MHz 5V/m 2000MHz – 2700MHz 1V/m

Pinning

Pin	Function	Pin	Function
A13	n.c.	B17	V _{o2} + 3.3V
A14	INH	B18	V _{o2} + 3.3V
A15	n.c.	B19	V _{o3} + 12V
A16	- Sense	B20	V _{o4} - 12V
A17	+ Sense V _{o1}	B22	V _{o1} + 5V
A18	+ Sense V _{o2}	B25	Gnd Ground
A19	V _{o3}	B28	+ V _{in} Input +
A20	V _{o4}	B31	- V _{in} Input -
B2	n.c.	C13	EN ENABLE Signal (Converter ON)
B5	n.c.	C14	t.b.d.
B8	n.c.	C15	FAI Failure Signal Input
B11	⊕	C16	V _{o2} + 3.3V
B13	V _{o2}	C17	V _{o2} + 3.3V
B14	V _{o2}	C18	V _{o2} + 3.3V
B15	V _{o2}	C19	V _{o3} + 12V
B16	V _{o2}	C20	V _{o4} - 12V