

# PCI AC/DC Converter

## 100 Watt

### 100 PCB 240 M05 E10

$V_{IN\ Nom} = 240\ V_{AC}$

$V_{O\ Nom} = 5.0\ V, I_{O\ Nom} = 20\ A$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>INPUT</b>						
$V_{IN}$	Input Voltage Range	Continuously	84	240	264	$V_{AC}$
$V_{IN\ low}$	Switch ON		70	79	84	$V_{AC}$
	Switch OFF		60	68	84	$V_{AC}$
$V_{IN\ high}$	Switch OFF		n/a			
$\lambda$	Power Factor	$V_{IN} = 240\ V_{AC}, P_O = 100\ W$	0.97	0.98		
f	Input Line frequency		47	50	63	Hz
$I_{IN}$	Input Current	No Load	$V_{IN} = 264\ V_{AC}, P_O = 0\ W$	16	20	mA
		Nominal Loads	$V_{IN} = 240\ V_{AC}, P_O = 100\ W$	0.5	0.6	A
		Nominal Loads	$V_{IN} = 110\ V_{AC}, P_O = 100\ W$	1.0	1.2	A
	Switch ON Input Current Integral	$V_{IN} = 264\ V_{AC}$			10	A <sup>2</sup> s
	Input Fuse		4 AT (Slow Blow)			
$C_{IN}$	Input Capacity Converter				95	$\mu F$

### OUTPUT POWER

$84\ V_{AC} \leq V_{IN} \leq 264\ V_{AC}$

$P_{O\ Nom}$	Continuously	$P_O$		100		W
$P_{O\ peak}$	Short Time Overload Capability	$t < 30\ sec$		110		W
$V_O$	Voltage Factory Adjust	(adjust up to 5.5V on request)	5.0	5.05	5.1	$V_{DC}$
$\Delta V_O$	Regulation Accuracy $V_O$ Static ( $V_{IN}, I_O, T_A, t$ )	$0\ W \leq P_O \leq 100\ W$	$\leq 1\% V_{O\ Nom}$			
$V_{O\ pp}$	Ripple & Noise acc. to $V_{O\ Nom}$	$V_O$ : Nominal Loads BW 20 MHz		2.0	3.0	%
$t_R$	Rise Time $V_O$	$0\ W \leq P_O \leq 100\ W$		5	15	ms
$t_H$	Hold Up Time (Input Voltage Interruption)		20	35		ms
$I_O$	Output Current	$V_O: 5.0\ V - 5.5\ V$		20.0		A
$I_{OCL}$	Threshold Output Current Limit $I_O$		$120\% \times I_{O\ Nom}$			
$I_{OSC}$	Output Short Circuit Protection	Converter shuts down when $I_O > 130\% \times I_{O\ Nom}$ and tries to restart				

### Signaling

LED	$V_{IN}, V_{OUT}$	1. LED Green at Front (PWR) 2. LED Green at Front (OK) 3. LED Red at Front (ER)	ON, when $V_{IN}$ o.k. ON, when $V_{OUT}$ o.k. ON, when $V_{OUT\ fail}$
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### COMMON DATAS

f1	Switching Frequency	PFC Converter	35	60	500	kHz
f2		DC/DC Converter	60	130	280	kHz
$\eta$	Efficiency	$P_O = P_{O\ Nom}$	88	89		%
	MTBF (SN 29500)	$V_{IN} = 240\ V_{AC}, P_O = 100\ W, T_A = +40^\circ C$		320 000		h
	No Load & Short Circuit Approved		Continuously			

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>SAFETY / DIMENSIONS</b>						
	Creepage, Clearance @ OV2 Pollution Degree PD2 PCB FR4, V <sub>0</sub> , T <sub>G</sub> = + 140°C	Primary   Secondary Primary   PE (Chassis) Secondary   PE (Chassis)	4.0 2.0 2.0			mm mm mm
	Isolation Routine Test: Ramp Function: 2s – 3s – 2s Type Test: 60s	Primary   Secondary Primary   PE (Chassis) Secondary   PE (Chassis)			3500 2100 1500	V <sub>DC</sub> V <sub>DC</sub> V <sub>DC</sub>
	Connector	Amphenol FCI	H029.15.23.668 A (H15 – DIN 41612)			
	Protection Class, Protection Degree		I, IP 20			
	Dimensions incl. Front Plate	w x h x d (3U / 4HP, 19" Rack)	30.1 x 128.4 x 234.5			mm
	Weight			800		g

<b>AMBIENT CONDITIONS</b>						
T <sub>A</sub>	Operating Temperature Range	Continuously 10 Minutes	- 40 0		+ 60 + 70	°C °C
T <sub>St</sub>	Storage Temperature Range		- 40		+ 70	°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 <sup>2</sup> , 30 ms			

<b>EMC</b>			
	Radiation *)	Line & Radiated	EN 61000 – 6 – 4 A
	Immunity *)	ESD EN 61000 - 4 - 2	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 <sub>rms</sub> , R <sub>i</sub> = 150 Ω Performance Criteria - A -

<b>STANDARDS</b>						
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<sub>A</sub> ≤ + 70° C, 84 V<sub>AC</sub> ≤ V<sub>IN</sub> ≤ 264 V<sub>AC</sub>, if not otherwise specified.

Temperature reference point: 10 cm below dc/dc converter unit. Free air convection must be ensured.

\*) 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

### Pin assignment

Pin	Output Signals
4	V <sub>o</sub> (+ 5V)
6	V <sub>o</sub> (+ 5V)
8	V <sub>o</sub> (+ 5V)
12	V <sub>o</sub> (+ 5V)
10	V <sub>o</sub> Return
14	V <sub>o</sub> Return
16	V <sub>o</sub> Return
18	V <sub>o</sub> Return
Input Signals and PE	
24	+ AC Input (L)
28	- AC Input (N)
32	PE (Chassis Ground)

Pin 20,22,26,30: n/c