

cPCI DC/DC Converter

100 Watt

100 PCB 110 Q05 E30

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

$V_{O1\ Nom} = 5.0\ V, I_{O1\ Nom} = 7\ A$ $V_{O2\ Nom} = 3.3\ V, I_{O2\ Nom} = 10\ A$

$V_{O3\ Nom} = 12\ V, I_{O3\ Nom} = 2\ A$ $V_{O4\ Nom} = -12\ V, I_{O4\ Nom} = -0.5\ A$

SYMBOL PARAMETER TEST CONDITIONS MIN TYP MAX UNIT

INPUT

| | | | | | | |
|----------------|-----------------------------------|--|--|-----|------------------------|----------------------------------|
| V_{In} | Input Voltage Range | Continuously $t \leq 0.1\ sec$ $t \leq 1.0\ sec$ | 50.4 43.2 137.5 | | 137.5 50.4 154 | V_{DC} V_{DC} V_{DC} |
| $V_{In\ low}$ | Switch ON Switch OFF | | 49 40 | | 50 43 | V_{DC} V_{DC} |
| $V_{In\ high}$ | Switch OFF Switch ON | | 155 154 | 156 | 160 | V_{DC} V_{DC} |
| I_{In} | Input Current | no load Nominal Loads Nominal Loads | $V_{In} = 154\ V_{DC}, \sum P_O = 0\ W$ $V_{In} = 110\ V_{DC}, \sum P_O = 100\ W$ $V_{In} = 43.2\ V_{DC}, \sum P_O = 100\ W$ | | 15 1.1 45 3.0 | mA A A |
| | Switch ON Input Current Integral | $V_{In} = 154\ V_{DC}$ | | | 10 | A^2s |
| | Input Fuse | Pico Fuse | | | | |
| C_{In} | Input Capacity Converter | | | | 20 | μF |
| | Maximum External Line Inductivity | | | | 50 | μH |
| | Input Reversal Protection | | | yes | | |

OUTPUT POWER

at $43.2\ V_{DC} \leq V_{In} \leq 154\ V_{DC}$

| | | | | | | |
|-----------------|---|---------------------------------------|--------------------------------|-------|-------|----------|
| $P_{O\ Nom}$ | Continuously | $\sum P_O$ | | 100 | | W |
| V_{O1} | Voltage Factory Adjust | | 4.95 | 5.00 | 5.05 | V_{DC} |
| ΔV_{O1} | Regulation Accuracy V_{O1} static (V_{in}, I_o, T_A, t) | $0\ W \leq P_{O1} \leq 35\ W$ | $\leq 2\ \% V_{O1\ Nom}$ | | | |
| V_{O2} | Voltage Factory Adjust | | 3.25 | 3.3 | 3.35 | 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) | $0\ W \leq P_{O3} \leq 24\ W$ | $\leq 2.5\ \% V_{O3\ Nom}$ | | | |
| 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) | $0\ W \leq P_{O4} \leq 6\ W$ | $\leq 3.0\ \% V_{O4\ Nom}$ | | | |
| $V_{O\ pp}$ | 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} | $0\ W \leq P_O \leq 98\ W$ | | 50 | 250 | ms |
| t_H | Hold Up Time (Input Voltage Interruption) | Class C2 EN 50155 | 30 | | | ms |
| I_{O1} | Output Current | V_{O1} : 5.1 V | | 7 | | A |
| I_{O2} | Output Current | V_{O2} : 3.3 V | | 10 | | A |
| I_{O3} | Output Current | V_{O3} : +12 V | | 2 | | A |
| I_{O4} | Output Current | V_{O4} : -12 V | | -0.5 | | 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) | LED green at front plate LED red at front plate | ON, when V_{in} o.k. ON, when V_{oi} not o.k. |
|-----|---|--|--|

CONTROL

| | | | | | | |
|---------|---|------------------------------|-----------------------------------|---------------------|----------------------|-----------------------|
| Enable | Converter ON: EN connected to Gnd Converter OFF: EN open | Potential ref. to output Gnd | | | | |
| Inhibit | Modular Power Operation | | INH# = EN# = Power status = | Low Low "OFF" | Low Open "OFF" | Open Low "ON" |
| | | | | | | Open Open "OFF" |

COMMON DATAS

| | | | | | | |
|--------|----------------------------------|---|----|--------------|--|-----|
| f | Switching Frequency | | | 130 | | kHz |
| η | Efficiency | $P_O \geq 0.7 \times P_{O\ Nom}$ | 87 | 90 | | % |
| | MTBF (SN 29500) | $V_{in} = 110\ V_{DC}, P_O = 105\ W, T_A = +40^\circ C$ | | 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 | 2.0 1.0 1.0 | | | mm mm mm |
| | Isolation Piece Test: Ramp Function: 2s – 3s – 2s Type Test: 1Min. | Primary Secondary Primary Chassis Secondary Chassis | | | 2'100 1'500 500 | V _{DC} V _{DC} V _{DC} |
| | Connector | Positronic Required femal plug: | | | PCIH47M400A1/AA PCIH47F300A1/AA | |
| | Protection Class, Protection Degree | | | | I, IP 20 | |
| | Dimensions incl. Front Plate | w x h x d (3RU / 8HP, 19" rack) | | | 40.3 x 132 x 210 | mm |
| | Weight | | | 650 | | 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 *) | 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 _{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 | |

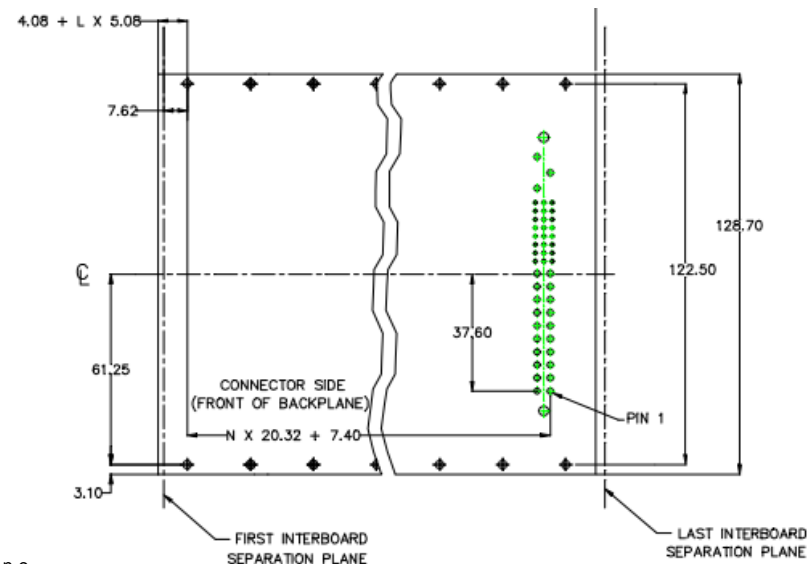
Technical data referenced at: - 40° C ≤ T_A ≤ + 70° C, 43.2.0 V_{DC} ≤ V_{in} ≤ 154.0 V_{DC}, if not otherwise specified.
 Temperature reference point: 10 cm below dc/dc converter unit. Please, consider free air convection is possible
 *) In closed housing, emission: radiated @ EN 50121-3-2, conducted @ EN 50121-3-2
 **) 1400 MHz – 2100MHz 10V/m 2100MHz – 2500MHz 5V/m 2000MHz – 2700MHz 1V/m

Pin assignment

| Pin | Signals Output |
|-----------------------------|--|
| 1-4 | V ₀₁ (+ 5V) |
| 5-12 | V ₀₁ and V ₀₂ Return |
| 13-18 | V ₀₂ (+ 3,3V) |
| 19 | V ₀₃ Return |
| 20 | V ₀₃ (+ 12V) |
| 21 | V ₀₄ (- 12V) |
| 22 | Signal Return |
| 23 | reserved |
| 24 | V ₀₄ Return |
| 26 | reserved |
| 27 | EN (Enable) |
| 29 | V ₀₁ Adjust |
| 30 | V ₀₁ Sense |
| 32 | V ₀₂ Adjust |
| 33 | V ₀₂ Sense |
| 34 | Sense Return |
| 36 | V ₀₃ Sense |
| 39 | INH (Inhibit) |
| 42 | FAL (Fail Signal) |
| Signals Input and PE | |
| 45 | PE (chassis ground) |
| 46 | + DC Input |
| 47 | - DC Input |

Pin 25,28,31,35,37,38,40,41,43,44 n.c.

Mechanical drawing backplane



Note, that the slot in the card guide and injector/ejector PCB mounting surface are shifted 2,54 mm to the right respect to the front panel keying and alignment pin.