

M4063 SERIES

VITA 62 compliant 3U VPX

MINIATURE, HIGH DENSITY,

SEVEN OUTPUTS

DC/DC Converters

(up to 330W)



Applications

Military (Airborne, ground-fix, shipboard), Ruggedized, Telecom, Industrial

Special Features

- VITA 62
- High efficiency
- Wide input range
- Input / Output isolation
- Remote sense
- Holdup capability
- External On/Off Inhibit
- External On/Off enable
- Fixed switching frequency (250 KHz)
- External synchronization capability
- EMI/RFI filters included
- I2C communication
- Parallel Connection of outputs (optional)
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery
- Reverse battery protection

Electrical Specifications

DC Input:

DC Input range: 18 to 48VDC,
(up to 80V) per MIL-STD-704E.
No damage for:
MIL-STD-1275A (100V for 50mSec)
MIL-STD-704A (80V for 0.1 Sec)

Line/Load regulation:

Less than 1% (no load to full load, -55°C to +85°C).

Ripple and Noise:

Less than 50mVp-p, typical (max. 1%) without external capacitance.
When connected to system capacitance ripple drops significantly.

DC Output:

Output #VS1: 12V/15A – with sense
Output #VS2: 3.3V/12A – with sense
Output #VS3: 5V/30A – with sense
+12V_Aux: +12V/1.5A
- 12V_Aux: - 12V/1.5A
3.3V_Aux: 3.3V/5A
VBAT: 3.3V/100mA

* Outputs VS1 and 12V_Aux can provide 200W max together, VS3 and VS2 and 3.3V_Aux can provide 180W max together.

Load Transient Overshoot and undershoot

Output resistance at load change of 50%-100% is 30-120 mΩ (depending on output voltage). Output back to steady stated within 300-500μSec

Isolation:

200V between Input and Output
200V between Input and Case
100V between Output and Case

EMI/RFI:

Includes EMI/RFI filters

Efficiency :

80% - Typical (full load, room temperature)

I2C

I2C communication for voltages and temperature (GAX, SCL, SDA)

Protections *

Input

- **Inrush Current Limiter** – peak value of $5 \times I_{in}$ for less than $50\mu\text{Sec}$.
- **Under voltage protection** – Unit protects itself (no damage) below $16.5V_{DC}$
- **Over voltage protection** – unit protects itself (no damage) above $52V_{DC}$

Output

- **Passive tranzorb on outputs** – 20% above nominal voltage.
- **Current limiting** – Continuous protection (10-30% above maximum current) for unlimited time (Hiccup).

General

- **Over temperature protection:** Shutdown temperature of $+105^{\circ}\text{C}$ ($\pm 5^{\circ}\text{C}$) Automatic recovery at temperature lower than $+85^{\circ}\text{C}$ ($\pm 5^{\circ}\text{C}$)

(* Thresholds and protections can be modified / removed – please consult factory).

Environmental

Design to Meet MIL-STD-810F

Temperature:

Operating: -55°C to $+85^{\circ}\text{C}$
(unit edge) – consult factory
Storage: -55°C to $+125^{\circ}\text{C}$

Humidity:

Method 507.4 - Up to 95%.

Altitude:

Method 500.4, Procedure I & II, 40,000 ft. and 70,000 ft. Operational

Vibration and Shock:

Shock - Saw-tooth, 20g peak, 11mS.
Vibration - Figure 514.5C-17. General minimum integrity exposure. (1 hour per axis.)

Salt Fog:

Method 509-4

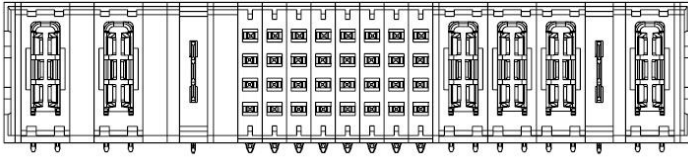
Reliability

150,000 hours, calculated per MIL-STD-217F at $+85^{\circ}\text{C}$ base plate, Ground fixed.

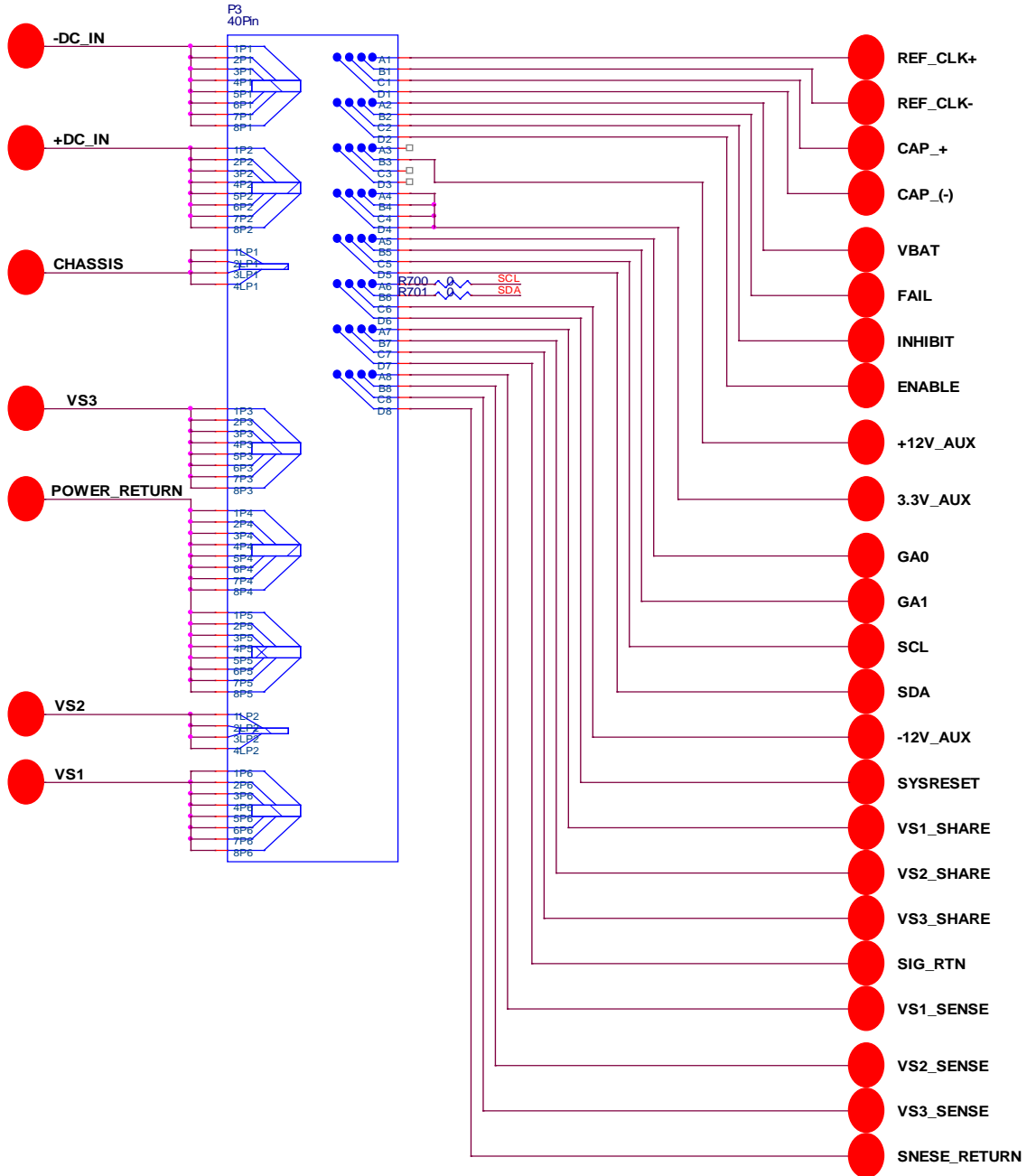
Environmental Stress Screening (ESS)

Including random vibration and thermal cycles is also available. **Please consult factory for details.**

Pin Assignment



| PART NUMBER | ROWS | POWER | | | SIGNAL | | | | | | | | POWER | | | | | |
|----------------------------|------|-------|----|-----|--------|----|----|----|----|----|----|----|-------|----|----|-----|----|--|
| | | P1 | P2 | LPI | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | P3 | P4 | P5 | LP2 | P6 | |
| 6450849-7 | D | | | | Z5 | Z5 | Z5 | Z5 | Z5 | Z5 | Z5 | Z5 | | | | | | |
| | C | TT | TT | LT | Y5 | Y5 | Y5 | Y5 | Y5 | Y5 | Y5 | Y5 | TT | TT | TT | LT | TT | |
| | B | | | | R5 | R5 | R5 | R5 | R5 | R5 | R5 | R5 | | | | | | |
| | A | | | | O5 | O5 | O5 | O5 | O5 | O5 | O5 | O5 | O1 | | | | | |
| 2ACP+1LP+32S+3HDP+1LP+1HDP | | | | | | | | | | | | | | | | | | |



Functions and Signals - According to VITA 62

INHIBIT signal

The INHIBIT signal is used to turn the power supply ON and OFF.

SYNC signal

The SYNC IN signal is used to allow the power supply frequency to sync with the system frequency.

Fail signal

Outputs good signal.

Enable signal

The Enable signal is used to turn the outputs ON and OFF.

VOUT SENSE

The SENSE is used to achieve accurate load regulations at load terminals (this is done by connecting the pins directly to the load's terminals).

The use of remote sense has a limit of voltage dropout between converter's output and load terminals of 2 to 10% of voltage output.

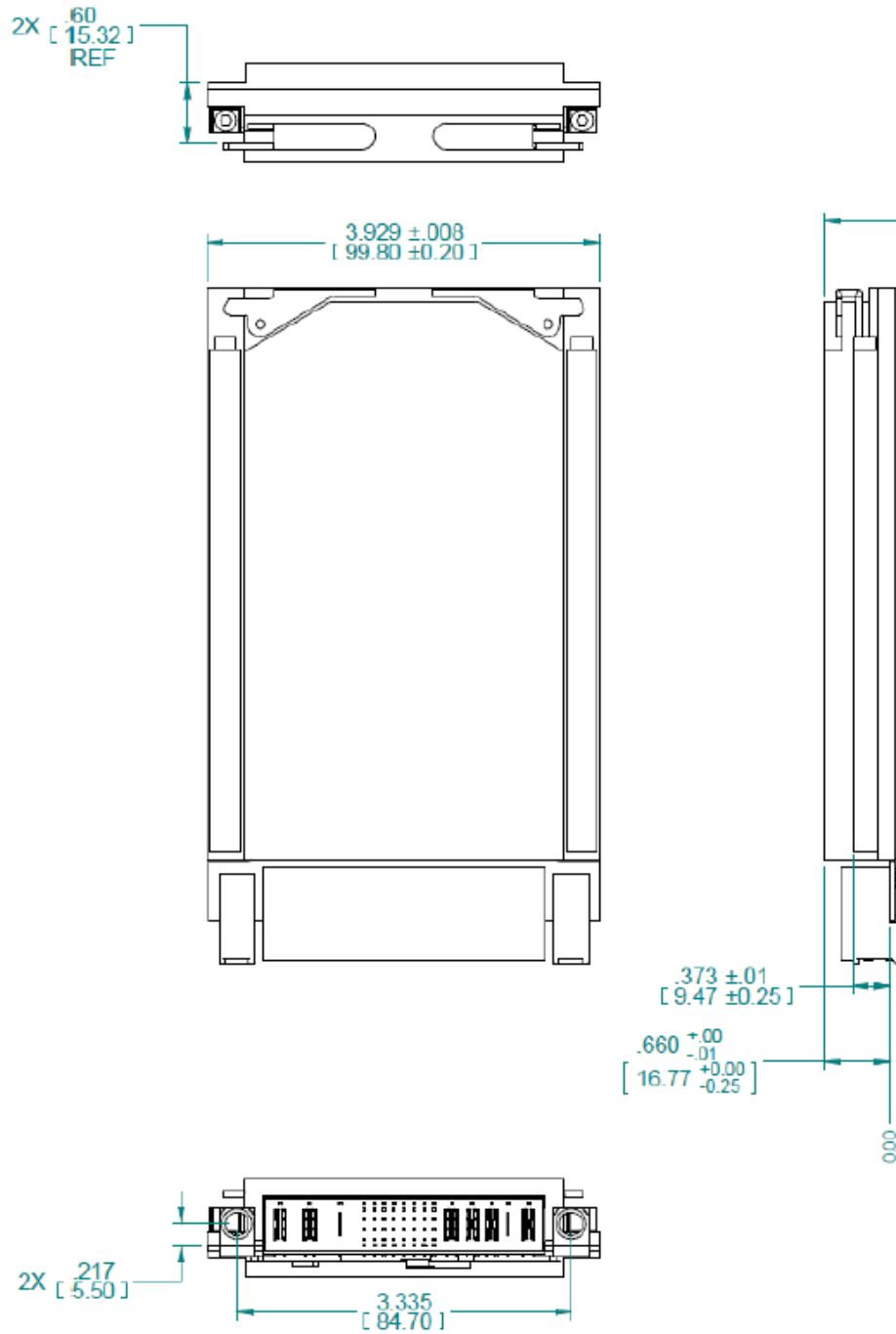
SYSRESET

Define by customer.

Load Share

Used for paralleling of several M4063 units (optional).

Outline Drawing



* Specifications are subject to change without prior notice by the manufacturer.

Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
 .XX ±0.01 IN
 .XXX ±0.005 IN
3. Weight: Approx. 690gr (24.34Oz)