

# M4064 SERIES

**VITA 62 compliant 3U VPX**  
**Miniature, High-Density,**  
**7 Output, DC/DC Converters**  
(up to 350W)



## Applications

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

## Special Features

- VITA 62 compliant
- High efficiency
- Wide input range
- Input / Output isolation
- Remote sense
- Holdup capability NOT supported
- External On/Off Inhibit
- External On/Off enable
- Fixed switching frequency (250 kHz)
- External synchronization capability
- EMI filters included
- I<sup>2</sup>C 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 48 V<sub>dc</sub>, (up to 80V) per MIL-STD-704E.  
MIL-STD-1275A (100V for 50mSec – no damage)  
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 up to 17A – with sense  
12V\_Aux: 12V up to 1.5A  
Output #VS2: 3.3V up to 20A – with sense  
Output #VS3: 5V up to 30A – with sense  
3.3V\_Aux : 3.3V up to 5A  
-12V\_Aux: -12V up to 1.5A  
Vbat: 3.3V/400mA

### 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 300-500° Sec

### Isolation:

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

### EMC:

Complies with MIL-STD-461E (5μH LISN): CE101, CE102

### Efficiency :

85% - Typical (full load, room temperature)

### I<sup>2</sup>C

I<sup>2</sup>C 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)

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

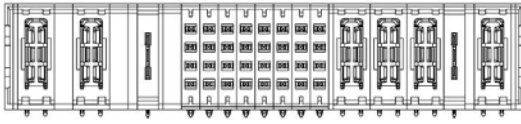
#### **Reliability**

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

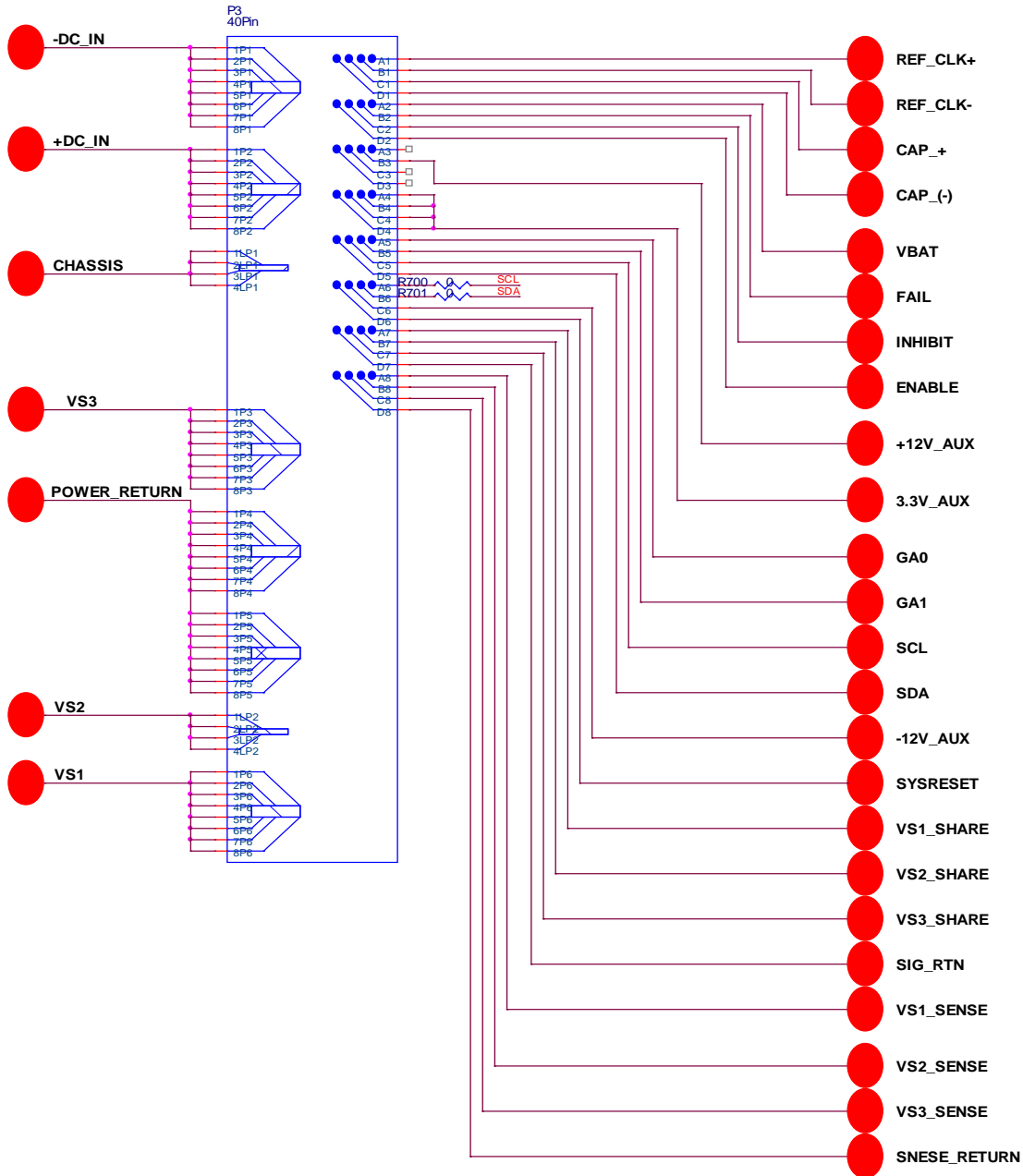
### **Environmental Stress Screening (ESS)**

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

**Pin Assignment**



PART NUMBER	ROWS	POWER			SIGNAL								POWER				
		P1	P2	LP1	1	2	3	4	5	6	7	8	P3	P4	P5	LP2	P6
6450849-7	D				Z5	Z5	Z5	Z5	Z5	Z5	Z5						
	C	TT	TT	LT	Y5	Y5	Y5	Y5	Y5	Y5	Y5						
	B				R5	R5	R5	R5	R5	R5	R5	TT	TT	TT	LT	TT	
	A				O5	O5	O5	O5	O5	O5	O1						
2ACP+1LP+3Z5+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 2-10% of voltage output.

**SYSRESET**

Customer Define – consult factory.

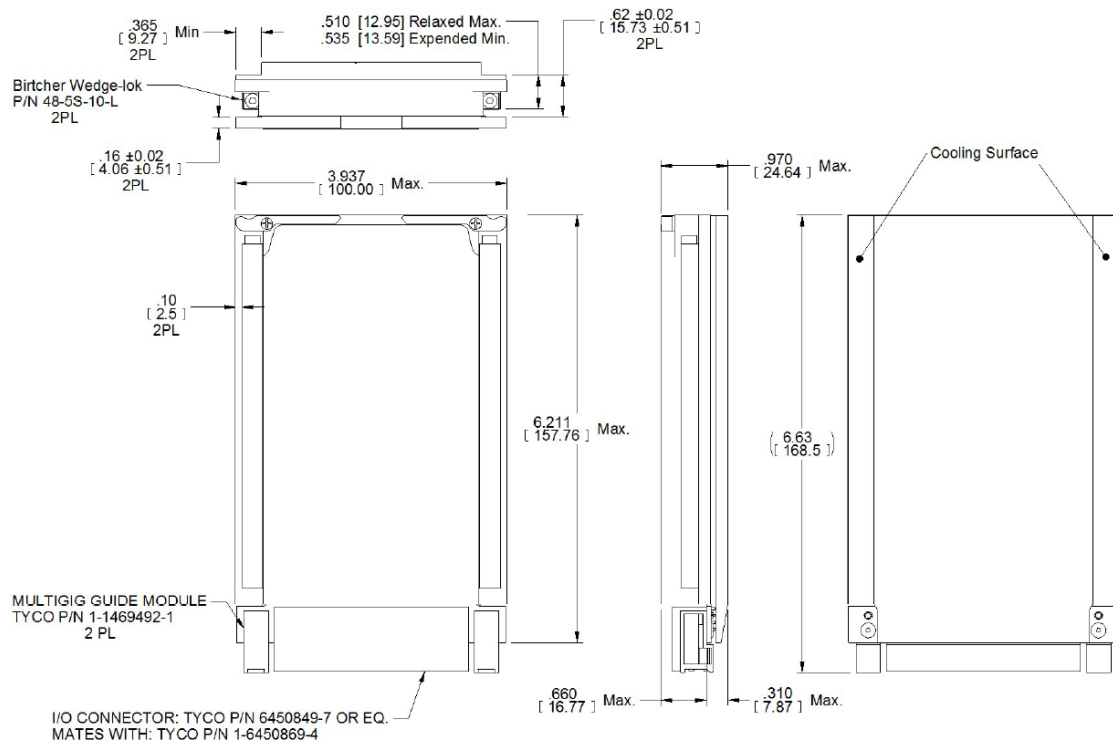
**Load Share**

Used for parallel several M4064 units (optional).

**Weight:**

Weight: Approx. 690 gr(24.34) Oz

**Outline Drawing**



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