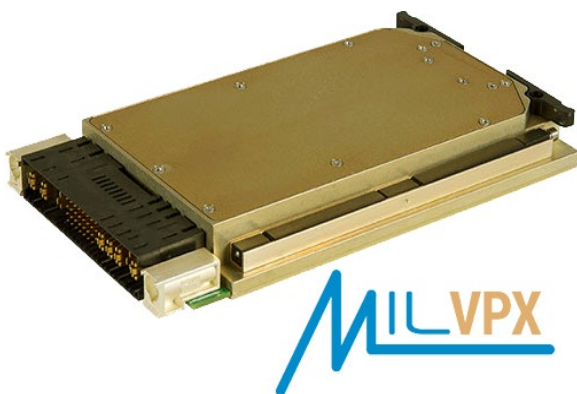


M4064 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- VITA 62 COMPLIANT
- 3U FORM FACTOR
- HIGH DENSITY
- 7 OUTPUTS
- DC/DC CONVERTER
- UP TO 350W



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Electrical Specifications

DC Input

18 to 48 V_{DC}

MIL-STD-1275A (100V for 50msec no damage)

MIL-STD-704A (80V for 0.1 sec no damage)

Can be configured for continuous work during 100V surge, 12V surges IAW MIL-STD-1275E

Line/Load regulation

See Table 3

Ripple and Noise

Typically less than 50mV_{p-p} (max.1%p). Measured across a 0.1µF capacitor and 10µF capacitor on load at Input Voltage of 18V-36V, all Temperature Range.

DC Output

Output	Voltage	Current	Max Output Power
VS1	12V	17A	204W
VS2	3.3V	20A	66W
VS3	5V	30A	150W
12V_Aux	12V	1.5A	18W
-12V_Aux	-12V	1.5A	18W
3.3V_Aux	3.3V	5A	18W
VBAT	3V	0.4A	1.32W

Total output power up to 350W

Efficiency

Up to 85 %

Load Transient Overshoot and Undershoot

Output dynamic response of less than 5% at load Step of 30%-90%. Output returns to regulation in less than 1mSec

Isolation

Over 20 MΩ at test voltage: 200V between Input and Output 200V between Input and Case 100V between Output and Case

EMC

Complies with MIL-STD-461F (5µH LISN): CE101, CE102, CS101, CS114, CS115, CS11

Communication

I2C protocol available for Voltages and temperature (GAX, SCL, SDA)

Environmental

Design to Meet MIL-STD-810G

Temperature

Operating: -55°C to +85°C at unit edge
Storage: -55°C to +125°C

Altitude

Method 500.5, Procedure I & II
Storage/Air Transport: 40 kft
Operation/Air carriage: 70 kft

Salt Fog:

Method 509.5

Fungus

Does not support fungus growth, in accordance with the guidelines of MIL-STD-454, Requirement 4.

Humidity

Method 507.5, Up to 95% RH

Shock

Method 516.6
40g, 11msec saw-tooth (all directions)

Vibration

Shock: Saw-tooth, 20g peak, 11mS.
Vibration: Figure 514.6E-1. General minimum integrity exposure. (1 hour per axis.)

Note: **Environmental Stress Screening (ESS)** Including random vibration and thermal cycles is also available. Please consult factory for details.

Protections*

Input

- **Inrush Current Limiter**
Peak value of $5 \times I_{IN}$ for initial inrush currents lasting more than 50µSec.
- **Under voltage protection**
Unit protects itself (no damage) below 16.5V_{DC}.
- **Over voltage protection**
Unit protects itself (no damage) .up to 100V

Output

- **Passive transorb on outputs**
Zener selected at $20\% \pm 5\%$ above nominal voltage, is placed across the output for passive voltage limit.
- **Current limiting**
Continuous protection (10-30% above maximum current (for unlimited time) Hiccup).

General

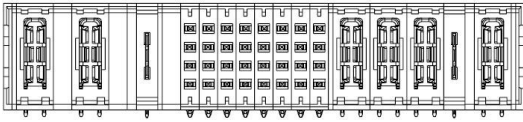
- **Over temperature protection**
Shutdown at +105°C. Auto recovery at +85°C

Note*: Thresholds and protections can be modified/removed (please consult factory)

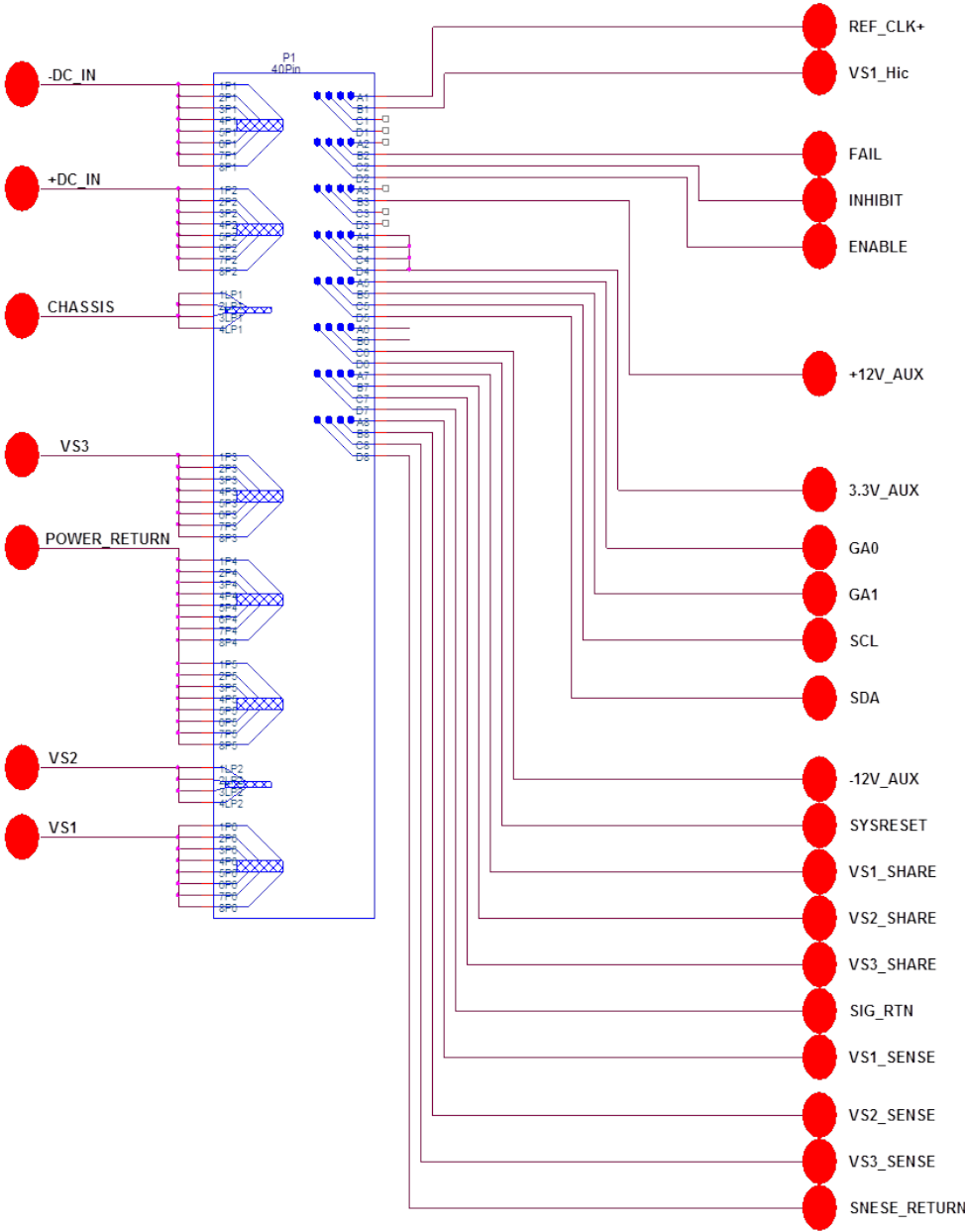
(ESS) Environmental Stress Screening

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	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	O1					
2ACP+1LP+32S+3HDP+1LP+1HDP																	



Pin Number	Pin Name
1P1 to 8P1	DC_IN-
1P2 to 8P2	DC_IN+
1LP1 to 4LP1	CHASSIS
1P3 to 8P3	VS3
1P4 to 8P4	POWER_RETURN
1P5 to 8P5	POWER_RETURN
1LP2 to 4LP2	VS2
1P6 to 8P6	VS1
A8	VS1_SENSE
B8	VS2_SENSE
C8	VS3_SENSE
D8	SENSE_RETURN
A7	VS1_SHARE
B7	VS2_SHARE
C7	VS3_SHARE
D7	SIG_RTN
A6	N.C
B6	N.C
C6	12V_AUX-
D6	*SYSRESET
A5	*GA0
B5	*GA1
C5	SCL
D5	SDA
A4	3.3V_AUX+
B4	3.3V_AUX+
C4	3.3V_AUX+
D4	3.3V_AUX+
A3	N.C
B3	12V_AUX+
C3	N.C
D3	N.C
A2	N.C
B2	*FAIL
C2	*INHIBIT
D2	*ENABLE
A1	+REF_CLK
B1	VS1_Hic
C1	N.C
D1	N.C

Table 1 – Functions and Signals (in accordance with VITA 62)

.Signal No	Signal Name	Type	Description
1	*FAIL	Output	Indicates to other modules in the system that a failure has occurred in one of the outputs. Please refer to Fig2 This signal is referenced to SIGNAL RTN .
2	*SYSRESET	Output	Indicates to other modules in the system that all outputs are within their working level. Please refer to Fig2 This signal is referenced to SIGNAL RTN .
3	*INHIBIT	Input	Controls power supply outputs. This signal in conjunction with INHIBIT controls the outputs. Please refer to Table 2 & Fig1 This signal is referenced to SIGNAL RTN .
4	*ENABLE	Input	Controls power supply outputs. This signal in conjunction with INHIBIT controls the outputs. Please refer to Table 2 & Fig1 This signal is referenced to SIGNAL RTN .
5	GA0*, GA1	Input	Not applicable in this model
6	SCL, SDA	Bidirectional	I2C bus Clock and Data respectively. Through this bus the voltage and temperature readouts can be shared. This signal is referenced to SIGNAL RTN .
7	REF_CLK	Input	The REF_CLK signal is used to allow the power supply frequency to sync with the system frequency. This signal is referenced to SIGNAL RTN .
8	VOUT SENSE	Input	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).
9	LOAD SHARE	Bidirectional	Not applicable in this model
10	SIGNAL RTN	Gnd	Signal ground for all signal. Internally tied to output Power ground

Table 2 – Inhibit / Enable Truth Table

*INHIBIT	Low	Low	High	High
*ENABLE	Low	High	Low	High
VS1 ,VS2,VS3,±12VAux	OFF	OFF	ON	OFF
3.3V_AUX	ON	OFF	ON	OFF

Figure 1

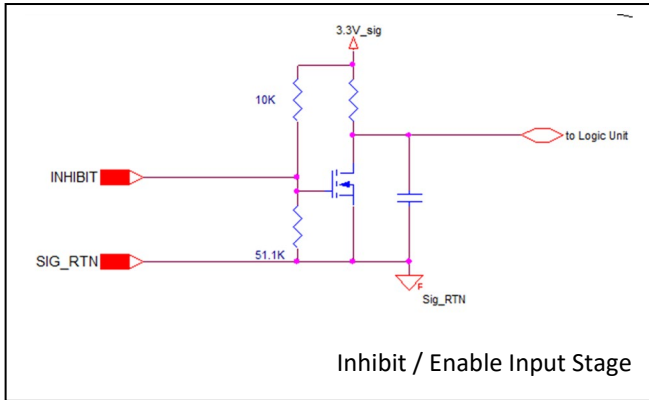
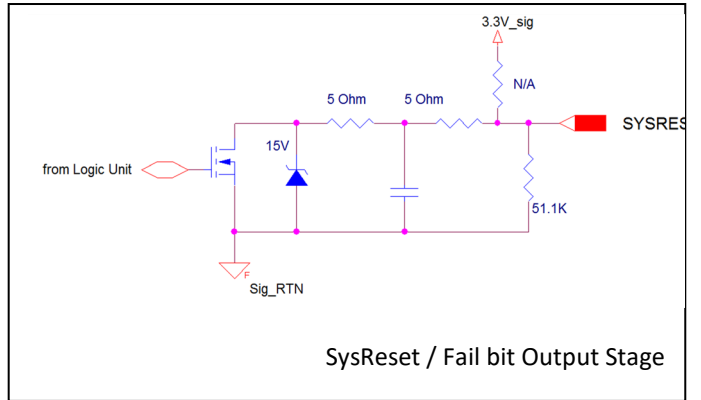


Figure 2



Outputs Voltage Regulation

The M4064 contains accurate internal sense lines to keep output voltage at less than 4% regulation for all Line/ Load and temperature range.

Output	12V/25A	5V/30A	3.3V/20A	3.3VAux/5A	12VAux/1A	(-)12VAux/1A
Voltage Range	11.85 ÷ 12.15	5.1 ÷ 4.9	3.42 ÷ 3.28	3.4 ÷ 3.2	VS1 ÷ VS1-0.2V	(-)11.85 ÷ (-)12.15

Table 3: Outputs voltage regulation. VIN 18V ÷ 48V, Temperature -55C ÷ 85C

Sense Lines are provided for VS1, VS2 and VS3 output to compensate line voltage drop. Sense Lines proper connection is shown in Figure 1.

Each VSx output has its own Sense Lines, additional common Sense RTN Line is provided for all VSx Outputs (Vita 62 Standard).

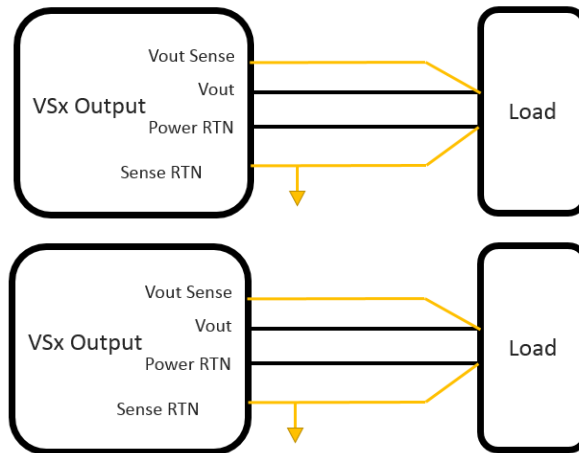
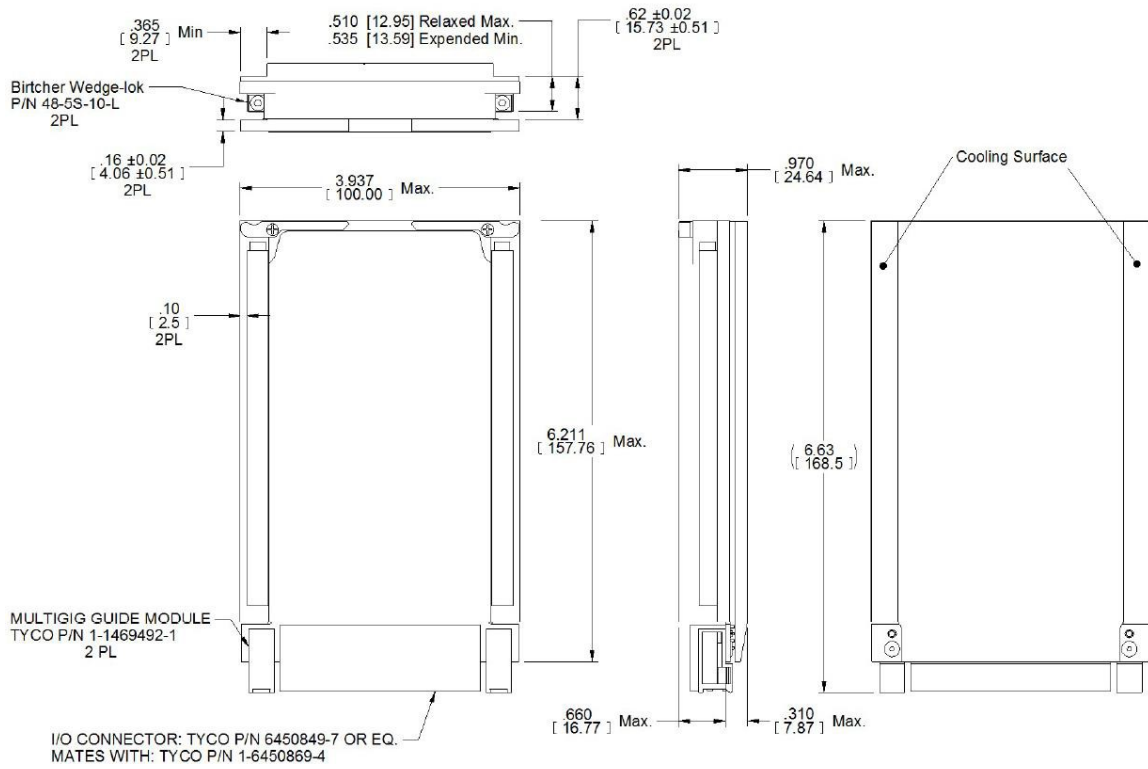


Figure 3:M4064 Sense line connection

Outline Drawing



Notes

1. Dimensions are in Inches [mm]
2. :Tolerance is
 XX. \pm IN 0.01
 XXX. \pm IN 0.005
3. (Weight: Approx. 690gr)24.34Oz
4. 3D model available

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