

M7325 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- MINIATURE
- HIGH DENSITY
- SINGLE OUTPUT
- DC/DC CONVERTER
- UP TO 500W

<p>Applications</p> <p>Military (Airborne, ground-fix, shipboard), Ruggedized, Telecom, Industrial</p>					
<p>Special Features</p> <ul style="list-style-type: none"> • Miniature size • High efficiency • Wide input range • Very Low output impedance (Typical: 50 mΩ@ 28V output) • Input / Output isolation • Remote sense • More than 40db ripple reduction. • Parallel connection with current share • External On/Off Inhibit • <u>Fixed</u> switching frequency (250 kHz) • External synchronization capability • <u>EMI/RFI</u> filters included • Indefinite short circuit protection with auto-recovery • Over-voltage shutdown with auto-recovery • Over temperature shutdown with auto-recovery 					
<p>Electrical Specifications</p> <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 33%;"> <p><u>DC Input:</u> DC Input range: 18 to 48 V_{DC}, per MIL-STD-704E. No damage for: MIL-STD-1275A (100V for 50mSec) MIL-STD-704A (80V for 0.1 Sec)</p> <p><u>Line/Load regulation:</u> Less than 1% (no load to full load, -55°C to +85°C).</p> <p><u>Ripple and Noise:</u> Less than 50mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.</p> </td> <td style="vertical-align: top; width: 33%;"> <p><u>DC Output:</u> Output range – 3.3V to 50V Output power – 450W (peak 500W) Output current – max 21A.</p> <p><u>Efficiency:</u> 76-86% - Typical 85% (full load, room temperature)</p> <p><u>Load Transient Overshoot and undershoot</u> Output resistance at load change of 10%-100% is 20-50 mΩ (depending on output voltage). Output back to steady stated within 50-100µSec</p> </td> <td style="vertical-align: top; width: 33%;"> <p><u>Isolation:</u> 200V between Input and Output 200V between Input and Case 100V between Output and Case</p> <p><u>EMC:</u> Designed to meet MIL-STD-461F* CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103</p> <p><u>Ripple Reduction</u> More than 40db ripple reduction between input and output.</p> <p><u>Turn on Transient</u> No turn on transient.</p> </td> </tr> </table>			<p><u>DC Input:</u> DC Input range: 18 to 48 V_{DC}, per MIL-STD-704E. No damage for: MIL-STD-1275A (100V for 50mSec) MIL-STD-704A (80V for 0.1 Sec)</p> <p><u>Line/Load regulation:</u> Less than 1% (no load to full load, -55°C to +85°C).</p> <p><u>Ripple and Noise:</u> Less than 50mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.</p>	<p><u>DC Output:</u> Output range – 3.3V to 50V Output power – 450W (peak 500W) Output current – max 21A.</p> <p><u>Efficiency:</u> 76-86% - Typical 85% (full load, room temperature)</p> <p><u>Load Transient Overshoot and undershoot</u> Output resistance at load change of 10%-100% is 20-50 mΩ (depending on output voltage). Output back to steady stated within 50-100µSec</p>	<p><u>Isolation:</u> 200V between Input and Output 200V between Input and Case 100V between Output and Case</p> <p><u>EMC:</u> Designed to meet MIL-STD-461F* CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103</p> <p><u>Ripple Reduction</u> More than 40db ripple reduction between input and output.</p> <p><u>Turn on Transient</u> No turn on transient.</p>
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* EMC compliance achieved when tested with 5 µH LISNs, shielded harness and static resistive load.

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

Environmental

Design to Meet MIL-STD-810F

Temperature:

Operating: -55°C to +85°C
(base plate)

Storage: -55°C to +125°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°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

Pin Numbers	Pin Assignment
15,16,17,18, 33,34,35,36	+ VIN
11,12,13,14, 29,30,31,32	- VIN
9	Input SIG. RTN
8	INHIBIT IN
27	INHIBIT OUT
10	SYN. IN

Pin Numbers	Pin Assignment
1, 2, 3,4, 19,20,21	+ VOUT
5,6,7,22, 23,24,25	- VOUT
26	+ VOUT Sense
28	- VOUT Sense

* All output parallel pins should be connected together for best performance.

Functions and Signals**INHIBIT IN signal**

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

TTL “1” or OPEN – will turn on the power supply. (For normal operation leave the signal not connected.) TTL “0” – will turn off the power supply.

SYNC signal

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

The system frequency should be 250 kHz \pm 10 kHz.

When not connected, the power supply will work at ~250 kHz

INHIBIT OUT signal

Used when connecting two units or more in parallel. (Please consult factory)

The signal is to be connected to the INHIBIT IN signal of the slave unit (see diagram below). The signal synchronizes the shutdown and startup of the units.

Note: During parallel connection, output voltage may drop by 1-2%.

INPUT SIGNAL RTN

The INPUT SIGNAL RTN is referred to the input.

This is used as grounding for SYNC, INHIBIT IN and INHIBIT OUT signals.

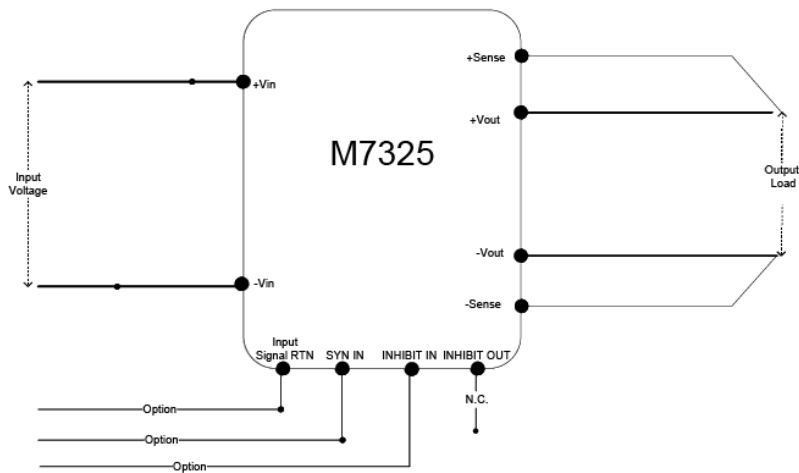
VOUT SENSE

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).

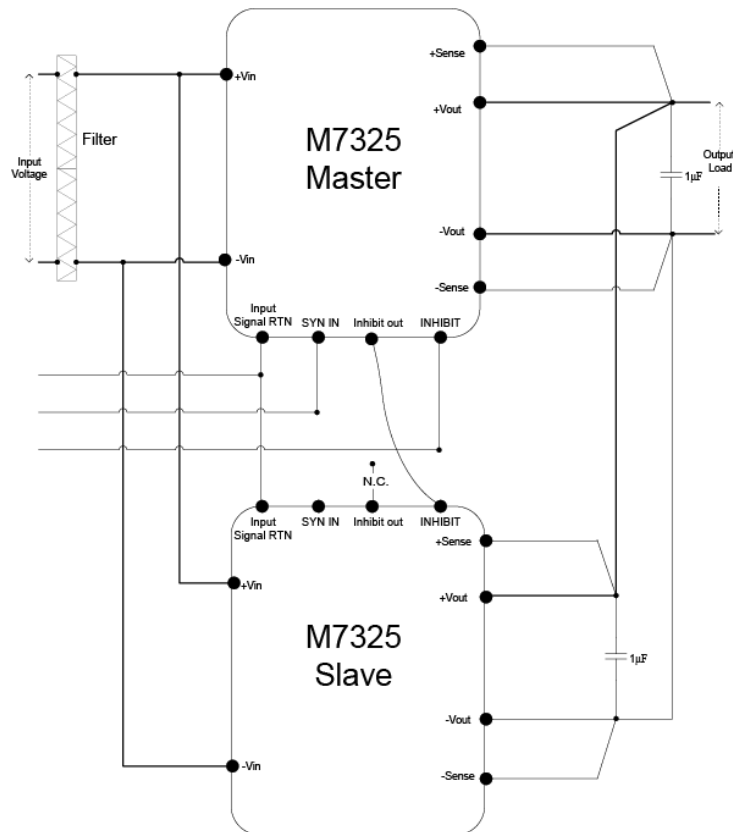
The use of remote sense has a limit of voltage dropout between converter’s output and load terminals of 2-10% of voltage output.

When not used connect +VOUT SENSE (Pin #26) to +VOUT (Pin #1, 2, 3,4, 19,20,21) and – VOUT SENSE (Pin #28) to –VOUT (Pin #5,6,7,22, 23,24,25)

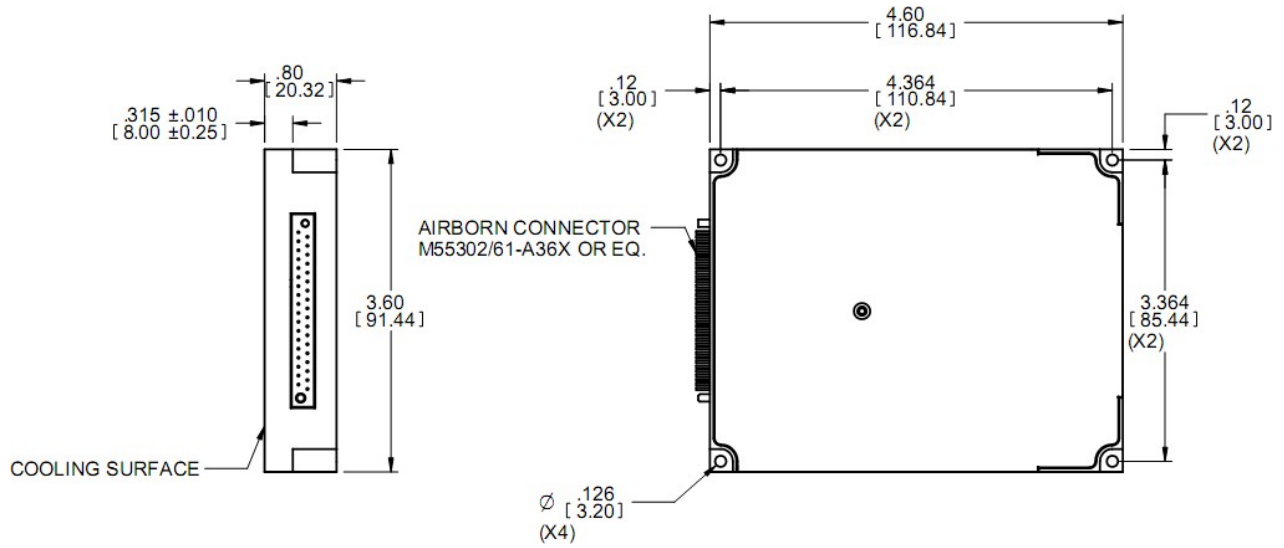
Typical connection



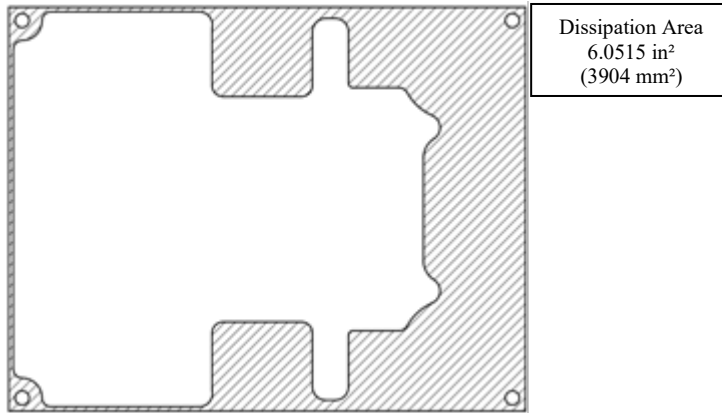
Parallel connection



Outline Drawing



Heat Dissipation Surface



Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
 .XX ± 0.01 IN
 .XXX ± 0.005 IN
3. Weight: Approx. 360g (12.7 oz)
4. Mounting holes can be modified – please consult factory.
5. Parasolid 3D module is available for download on site.

Note: Specifications are subject to change without prior notice by the manufacturer