

# M8253 SERIES

## DC/DC POWER SUPPLY



### PRODUCT HIGHLIGHTS

- MINIATURE
- HIGH DENSITY
- DUAL OUTPUT
- DC/DC CONVERTER
- UP TO 200W

### Applications

Military, Ruggedized, Telecom, Industrial Power Supply

### Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Fixed switching frequency (250 kHz)
- External synchronization capability
- TTL logic enable
- EMI filters included
- Non-latching protections:
  - Overload/short-circuit
  - Input under/over lockout
  - Over temperature

### Environmental Conditions

Meets or exceeds MIL-STD-810D

#### Temperature:

Operating:  $-55\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$  (baseplate)

Storage:  $-55\text{ }^{\circ}\text{C}$  to  $+125\text{ }^{\circ}\text{C}$

### Reliability

At least 150,000 hours  
calculated IAW MIL-HDBK-217F  
at  $+85\text{ }^{\circ}\text{C}$  baseplate, ground fix conditions.

### Electrical Specifications

#### DC INPUT

Normal voltage range: 18 to 48 V<sub>DC</sub>

#### Abnormal transient protection:

No damage (may shut down and restart)  
IAW MIL-STD-1275A (100 V / 50 ms) and  
MIL-STD-704A (80 V for 0.1 s)

Efficiency: up to 87%

EMC: Designed to meet\* MIL-STD-461F  
CE101, CE102, CS101, CS114, CS115,  
CS116, RE101, RE102, RS101, RS103

#### Isolation:

Input to Output: 200 V<sub>DC</sub>

Input to Case: 200 V<sub>DC</sub>

#### DC OUTPUT (floating)

Voltage regulation: Up to  $\pm 1\%$  (no load to full  
load,  $-55\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$ )

Ripple and Noise: 50 mV<sub>p-p</sub>, typical (max. 1%)

#### Current limiting:

Continuous protection for unlimited time

#### Over voltage protection:

Secondary active protection and passive transorb  
on outputs.

#### Over temperature protection:

Shutdown if baseplate temperature exceeds  
 $+105\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ . Automatic recovery upon  
cooldown to below  $+95\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$

#### Isolation:

Output to Case: 100 V<sub>DC</sub>

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\* Compliance achieved with 5 $\mu$ H LISN, shielded harness and static resistive load.

**Pin Assignment**

**Option A:**

**Connector type:** M55302/61-A36 or eq.

**Mating connector type:**

- M55302/65-36S (removable crimp pins, turning jacket)
  - M55302/65-36H (removable crimp pins, hex turning jacket)
- (other possibilities exist)

Pin No.	Function
9, 10, 27, 28	INPUT
11, 12, 29, 30	INPUT RTN
8	SIGNAL RTN *
6	SYNC
7	INHIBIT
13, 14, 15, 16, 33	OUT1
17, 18, 34, 35, 36	OUT 1 RTN
32	OUT 1 SENSE
31	OUT 1 SENSE RTN
1, 2, 19, 20, 21	OUT 2
3, 4, 5, 22, 23	OUT 2 RTN
25	OUT 2 SENSE
24	OUT 2 SENSE RTN
26	CHASSIS

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\* INHIBIT and the SYNC signals are referenced to SIGNAL RTN.

**Option B:**

**Connector type:** M55302/61-A36 or eq.

**Mating connector type:**

- M55302/65-36S (removable crimp pins, turning jacket)
- M55302/65-36H (removable crimp pins, hex turning jacket)

(other possibilities exist)

Pin No.	Function
7, 8, 25, 26	VIN (+)
9, 10, 27, 28	VIN RTN (-)
12, 13, 14, 15, 30, 31, 32	OUTPUT 1 (+)
16, 17, 18, 33, 34, 35, 36,	OUTPUT 1 RTN (-)
11	OUTPUT 1 SENSE (+)
29	OUTPUT 1 SENSE RTN (-)
1,2, 19	OUTPUT 2 (+)
3,20,21	OUTPUT 2 RTN (-)
23	SENSE OUTPUT 2 (+)
22	SENSE OUTPUT 2 RTN (-)
4	SYNC
5	INHIBIT
6	SIGNAL RTN
24	CHASSIS

### ***Functions and Signals***

#### **INHIBIT 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 signal is used to allow the power supply frequency to sync with the system frequency.

The system frequency can be 250 kHz  $\pm$  10 kHz.

When not connected, the power supply will work at internal frequency, close to 250 kHz  $\pm$  10 kHz.

#### **SIGNAL RTN**

The ***SIGNAL RTN*** is used as grounding for ***SYNC*** and ***INHIBIT*** signals.

This is referenced to the ***INPUT RTN*** pin.

#### **SENSE #**

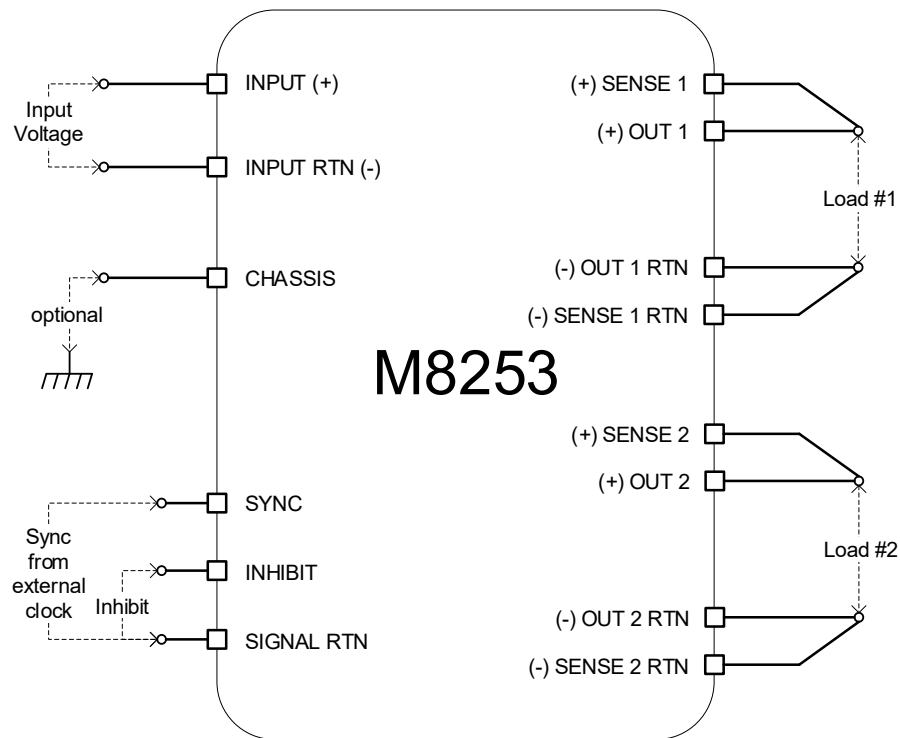
The ***SENSE #*** is used to achieve accurate load regulation at the load terminals. This is done by connecting these pins directly to their respective load terminals. The use of remote sense has a limit of voltage dropout between converter’s output and load terminals of 4%-8% from voltage output.

When not used connect ***SENSE #*** to ***OUT #*** and ***SENSE # RTN*** to ***OUT # RTN*** for each of the outputs.

#### **CHASSIS**

This chassis pin allows connection of the unit chassis to system chassis.

*Typical Connection Diagram*



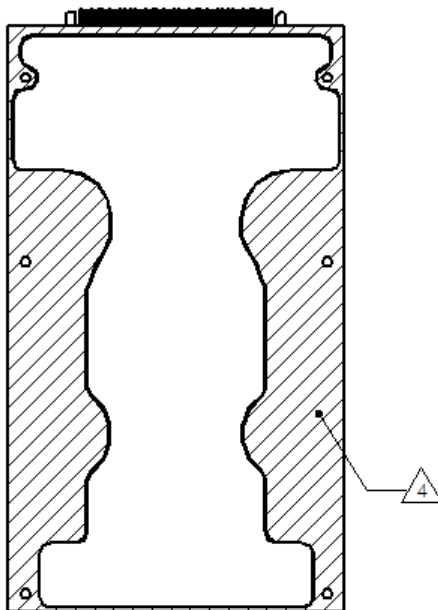
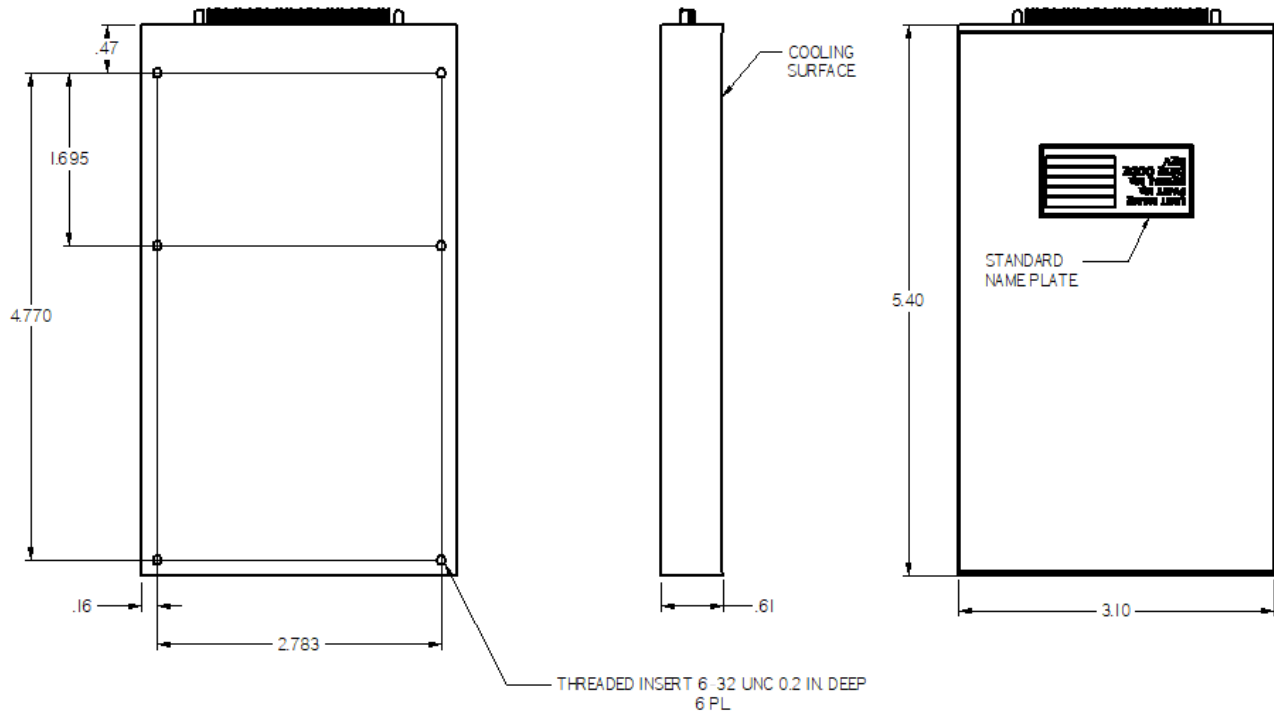
**M8253 Standard configuration table:**

Part number	Input	Outputs		Output Power
	Voltage range	Output #1	Output #2	
M8253-100	18 to 48 VDC	2.5V/25A	3.3V/10A	95.5W
M8253-101	18 to 48 VDC	3.3V/25A	5V/10A	132.5W
M8253-102	18 to 48 VDC	5V/10A	12V/12A	194W
M8253-103	18 to 48 VDC	28V/5A	5V/12A	200W
M8253-104	18 to 48 VDC	28V/5A	12V/5A	200W
M8253-105	18 to 48 VDC	48V/3A	5V/10A	194W

Other options available – consult factory

## M8253 Series– DC/DC Power Supply

### Outline Drawing



**BOTTOM VIEW**

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

#### Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
  - .XX ± .02 in
  - .XXX ± .01 in
3. Weight: Approx. 10.23 ± 0.35 oz (290 ± 10 g)