

PS SERIES PSMDU48P100D-X DC TO DC POWER SUPPLY



Description

The PSMDU48P100D-X is a series of mechanically robust, baseplate cooled, high performance, power supplies, designed for Ground Mobile (MIL-STD-1275), Airborne (MIL-STD-704) and other Hi-Reliability applications. The PSMDU48P100D-X converts 28VDC to a well-regulated, filtered and protected DC Output 200W. The product meet MIL-STD requirements (specified herein)

PSMDU48P100D-X Standard configuration table:

Part number	Input	Outputs		Output Power
	Voltage range	Output #1	Output #2	
PSMDU48P100D-0	10 to 48 VDC	28V/6A	5V/3A	183W
PSMDU48P100D-1	10 to 48 VDC	24V/7A	15V/1.5A	190.5W
PSMDU48P100D-2	10 to 48 VDC	6V/16A	12V/2A	120W

Other options available – consult factory

Markets & Applications



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



Telecom, Industrial Power Supply

THE MAIN FEATURES OF THE PSMDU48P100D-X ARE:

- DC/DC Dual output power supply up to 200W
- Standard input version: 9 to 48 VDC
- Extended input option:
- Can be configure as charger
- Can be configure to meet MIL-STD-1275E
- Complies with MIL-STD-461F
- Output #1 12V to 48V @ Max 150W
- Output #2 3.3V to 12V @ Max 40W
- High efficiency
- Full galvanic isolation between Input, Chassis and Outputs.
- Inrush Current Limiter
- External Inhibit (On/Off)
- Fixed switching freq. (250 kHz)
- EMI filters included
- Remote sense compensation for Auxiliary output
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery
- High density
- Conduction cooled via the baseplate
- J-STD-001B and IPC-610A Class-3 workmanship
- Conformal Coating per MIL-I-46058C and IPC-CC-830

SPECIFICATIONS:

DC Input	<i>Voltage and Frequency</i>	10 to 36 VDC 9 to 48 VDC
	<i>Isolation*</i>	Input to Output: 200 VDC Input to Case: 200 VDC
	<i>Reverse Polarity Protections</i>	Protection for unlimited time
DC Output	<i>Rating</i>	See table on page 10
	<i>Voltage Regulation</i>	±1% or better (no load to full load, low line to high line, -46 °C to +85 °C).
	<i>Ripple & Noise</i>	Max. 1% of output voltage without external capacitance. When connected to system capacitance ripple drops significantly.
	<i>Isolation</i>	Output to Case: 200 VDC
	<i>Current Limit & Overload</i>	Continuous protection (10-30% above maximum current) for unlimited time (Hiccup).
	<i>Efficiency</i>	Minimum 80%-85%
	<i>Overvoltage Protection</i>	Output Active Over-Voltage Protection: The power supply shall protect the outputs from overvoltage greater than 110% of the specified output voltage.
	<i>Over Temp. Protection</i>	Output shuts down if base plate temperature exceeds +105°C ± 5°C. Automatic recovery when baseplate temperature returns to below +95°C ± 5°C.

SPECIFICATIONS (CONT.):

Control & Indication	<i>INHIBIT* Input</i>	The INHIBIT signal is used to turn the power supply ON and OFF. To turn the power supply OFF, apply a TTL “0” signal or SHORT to SIGNAL RTN . To turn the power supply ON, apply a TTL “1” signal or leave this pin OPEN. If not used (always ON), leave this pin OPEN. This signal is referenced to SIGNAL RTN .
	<i>VOUT SENSE</i>	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 up to 0.25V. When not used connect SENSE to OUT and SENSE RTN to OUT RTN .
Environment Designed to meet MIL- STD-810H	<i>Temperature</i>	Operating: -46 °C to +85 °C (at baseplate) Storage: -46 °C to +105 °C
	<i>Humidity</i>	Method 514.8 , 516.8 Procedure I & VI Up to 95%-100%
	<i>Salt-fog</i>	Method 509.4
	<i>Altitude</i>	Method 514.8 & 516.8 Procedures I & VI Up to 10,000 ft. AGL
	<i>Mechanical Shock</i>	Functional Shock IAW MIL-STD-810H, Method 516.8, Procedure-I, SRS Curve for Functional Test for Ground Equipment (40g peak, 45hz crossover frequency).
	<i>Vibration</i>	Functional Vibration IAW MIL-STD-810H, Method 514.8, Procedure-I, Cat 4, Composite Wheeled Vehicle Unknown Orientations (Figure 514.8C-6 / Table 514.8C-VIII).
	<i>Fungus</i>	Method 509.5 Does not support fungus growth, in accordance with the guidelines of MIL-STD-454, Requirement 4.
EMI	<i>MIL-STD-461F</i>	Meets* MIL-STD-461F CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103 *EMC Compliance achieved with 5µH LISN, shielded harness and static resistive load.

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Reliability	150,000 hours, calculated per MIL-HDBK-217F Notice 2 at +85 °C baseplate, Ground Fix conditions.
Cooling Requirements	The M8254 is a baseplate cooled unit. The base of the M8254 should be thermally attached to a suitable heatsink that maintains it below +85 °C.
Form factor	3.091" wide, 1" high and 5.512" deep. For detailed dimensions and tolerances see Drawing: M8254001
Weight	0.503 gram
Connectors	See Page 7

PIN ASSIGNMENT:

Connector type: DD44M4000C or eq.

Mates with: M24308/2-13F or eq.

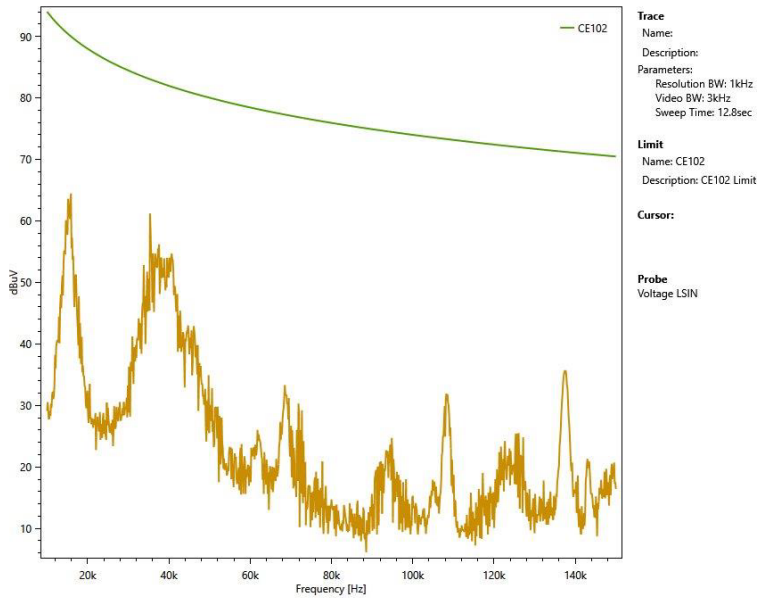
Function	Pin No.
VIN	12,13,14,27,28,29,42,43
VIN RTN	9,10,11,25,26,39,40,41
OUT 1	1,2,16,17,31,32
OUT 1 RTN	3,4,18,19,33,34
+SENSE 1	36
-SENSE 1	35
OUT 2	5,6,20,21
OUT 2 RTN	7,8,22,23
+SENSE 2	38
-SENSE 2	24
INHIBIT	44
SYN	30
SIGNAL RTN	15
CHASSIS (Not Used)	37

Note: All pins with identical function/designation should be connected together for optimal performance.

TEST RESULT

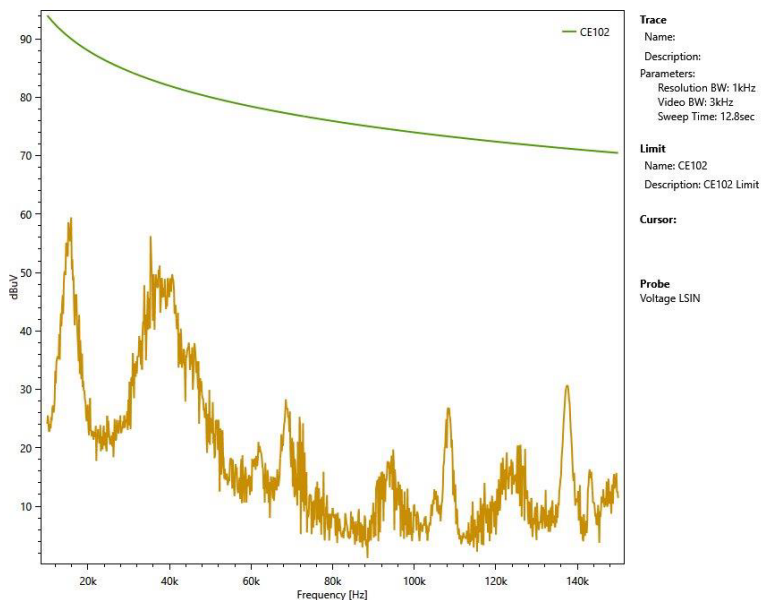
CE102 MIL-STD-461F Conducted Emission, 10 kHz -150 kHz

Line (nominal input voltage, full load)



CE102 MIL-STD-461F Conducted Emission, 10 kHz -150 kHz

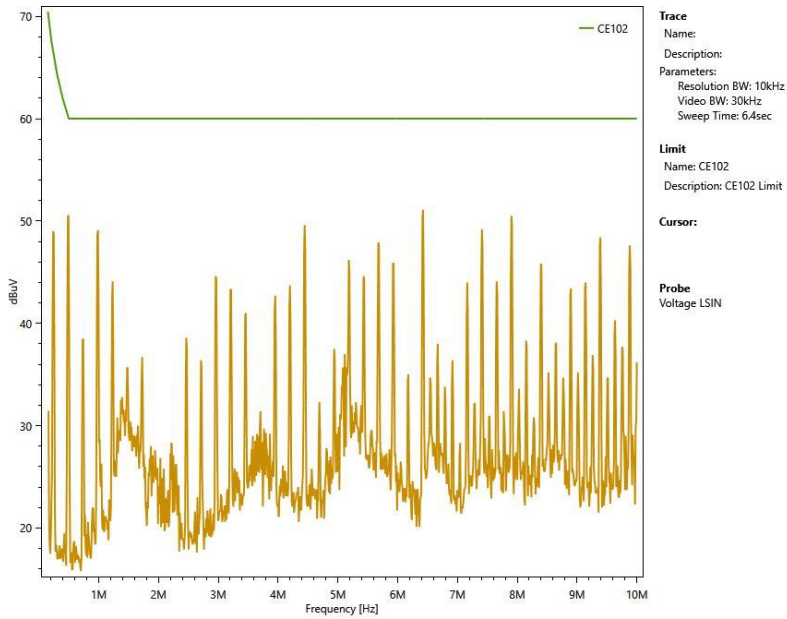
Return (nominal input voltage, full load)



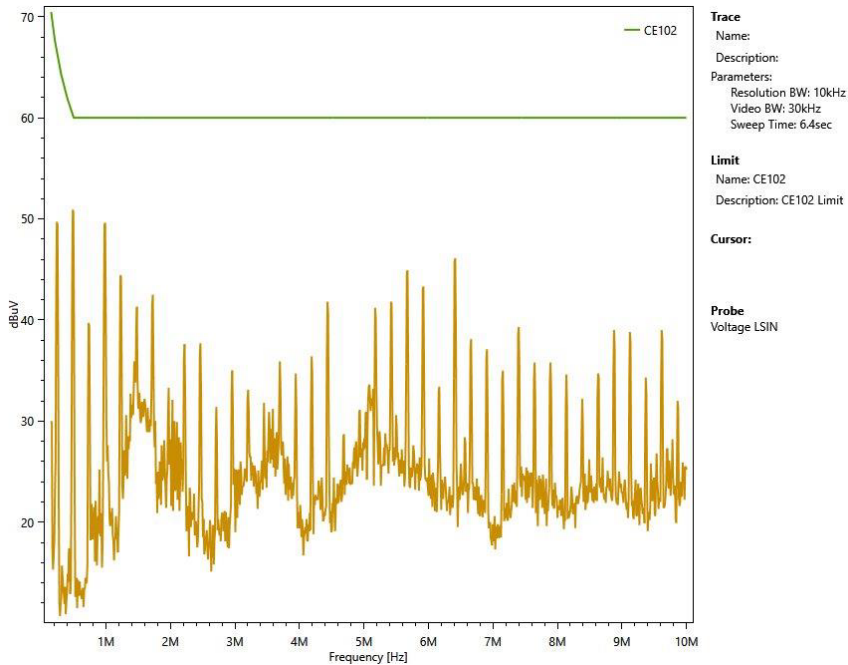
CE102 MIL-STD-461F Conducted Emission, 150 kHz -10 MHz

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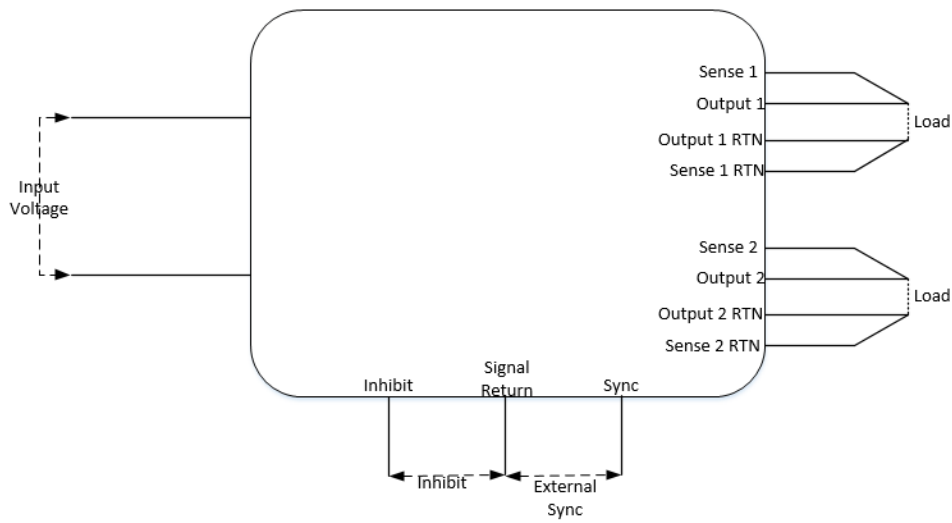
Return (nominal input voltage, full load)



CE102 MIL-STD-461F Conducted Emission, 150 kHz - 10 MHz
Line (nominal input voltage, full load)



TYPICAL CONNECTION DIAGRAM



Outputs Range

Output #	Voltage Range	Current Range	Output Regulation	Power Range
1	3.3 to 48 V _{DC}	0-18A	±%1	0 to 150 W
2	3.3 to 48 V _{DC}	0-12A	±%1	0 to 30 W
Total				0 to 180 W

