M8254 SERIES

A DUAL-OUTPUT, 200W DC TO DC POWER SUPPLY

The M8254 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 M8254 converts 28VDC to a well-regulated, filtered and protected DC Output 200W.
The product meet MIL-STD requirements (specified herein)

M8254 Standard configuration table:

Part number	Input	Outputs		Output Power
	Voltage range	Output #1	Output #2	
M8254-100	10 to 48 VDC	28V/6A	5V/3A	183W
M8254-101	10 to 48 VDC	24V/7A	15V/1.5A	190.5W
M8254-102	10 to 48 VDC	6V/16A	12V/2A	120W

Other options available – consult factory

THE MAIN FEATURES OF THE M8254 ARE:

- DC/DC Dual output power supply
- When the minimum input voltage is 9V the output power is up to 180W
- When the minimum input voltage is 12V the output power is up to 200W
- Standard input version: 9 to 48 VDC
- Can be configured as charger
- Can be configured to meet MIL-STD-1275E
- Can be configured to meet MIL-STD-704F
- Complies with MIL-STD-461F
- Output #1 3.3V to 48V @ Max 160W
- Output #2 3.3V to 48V @ Max 40W
- High efficiency
- Full galvanic isolation between Input, Chassis and Outputs.
- External Inhibit (On/Off)
- Fixed switching freq. (250 kHz)
- EMI filters included
- Remote sense compensation
- 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	***Voltage and Frequency***	10 to 36 VDC 9 to 48 VDC For MIL-STD-1275E or MIL-STD-704F input – **please consult factory**
	Isolation*	Input to Output: 200 VDC Input to Case: 200 VDC
	Reverse Polarity Protections	Protection for unlimited time
DC Output	***Rating***	See table on page 10
	Voltage Regulation	±1% or better (no load to full load, low line to high line, –46 °C to +85 °C).
	Ripple & Noise	Max. 1% of output voltage without external capacitance. When connected to system capacitance ripple drops significantly.
	Isolation	Output to Case: 200 VDC
	Current Limit & Overload	Continuous protection (10-30% above maximum current) for unlimited time (Hiccup).
	Efficiency	Minimum 80%-85%
	Overvoltage Protection	**OutputActive Over-Voltage Protection:** The power supply shall protect the outputs from overvoltage greater than 110% of the specified outputvoltage.
	Over Temp. Protection	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	***INHIBIT* Input**	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**.
	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 up to 0.25V. When not used connect **SENSE** to **OUT** and **SENSE RTN** to **OUT RTN**.
Environment Designed to meet MIL-STD-810H	***Temperature***	Operating: –46 °C to +85 °C (at baseplate) Storage: –46 °C to +105 °C
	Humidity	Method 514.8 , 516.8 Procedure I & VI Up to 95%-100%
	Salt-fog	Method 509.4
	Altitude	Method 514.8 & 516.8 Procedures I – up to 70,000 ft. (non-operational) Procedure II – up to 70,000 ft. (operational)
	Mechanical Shock	Functional Shock IAW MIL-STD-810H, Method 516.8, Procedure-I, SRS Curve for Functional Test for Ground Equipment (40g peak, 45hz crossover frequency).
	Vibration	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).
	Fungus	Method 509.5 Does not support fungus growth, in accordance with the guidelines of MIL-STD-454, Requirement 4.
EMI	***MIL-STD-461F***	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.

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	500gram Typical
Connectors	See Page 7

PIN ASSIGNMENT:

Connector type: DD44M4000C or eq.

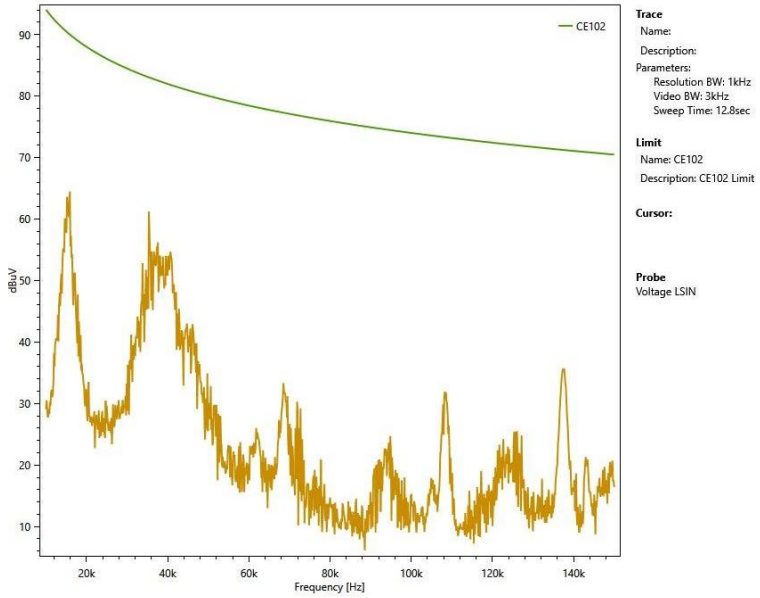
Mates with: M24308/2-13F or eq.

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

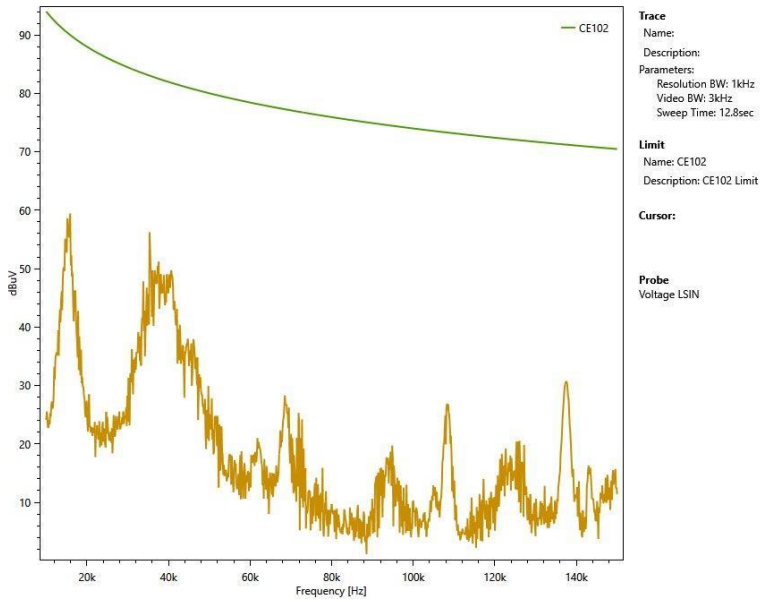
Note: All pins with identical function/designation should be connected together for optimal performance.

TEST RESULT

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

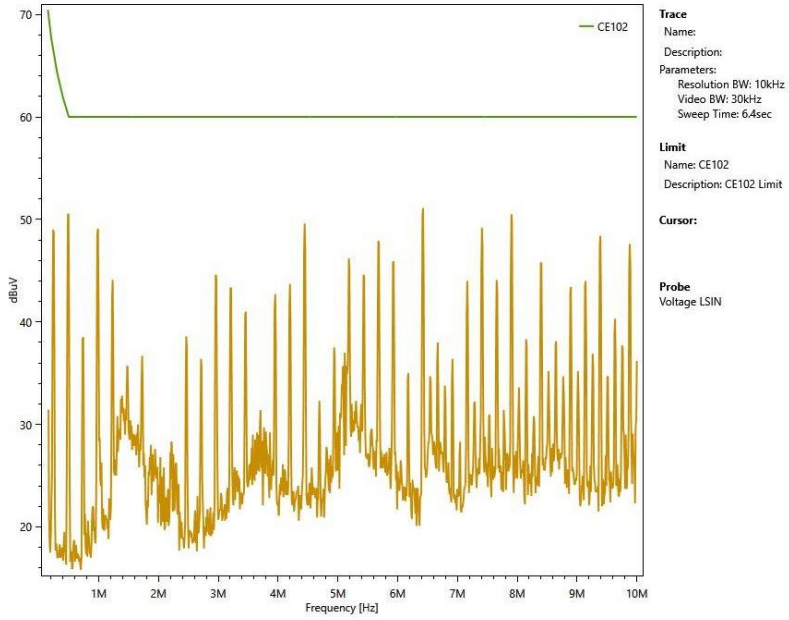


CE102 MIL-STD-461F Conducted Emission, 10 kHz -150 kHz
Return (nominal input voltage, full load)



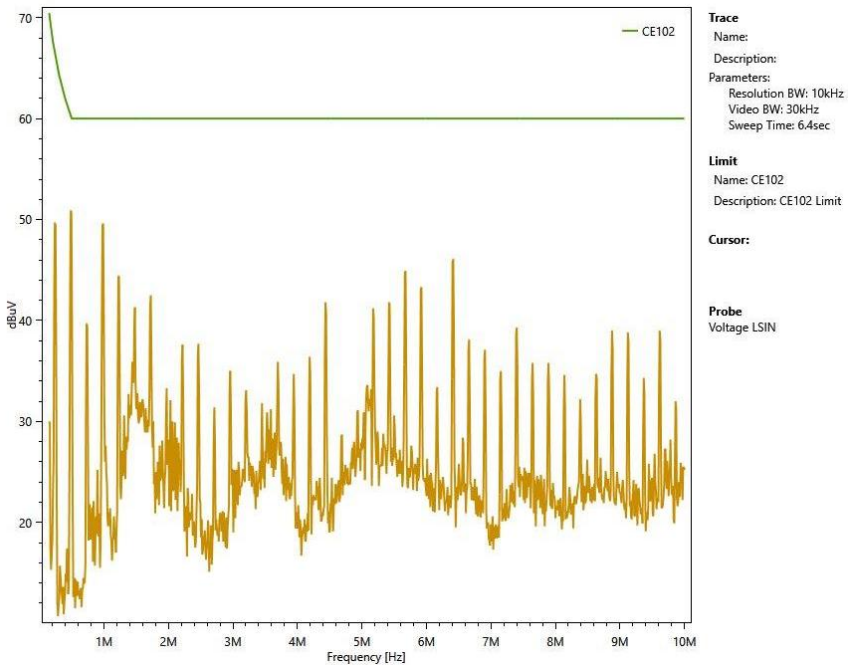
CE102 MIL-STD-461F Conducted Emission, 150 kHz -10 MHz

Return (nominal input voltage, full load)

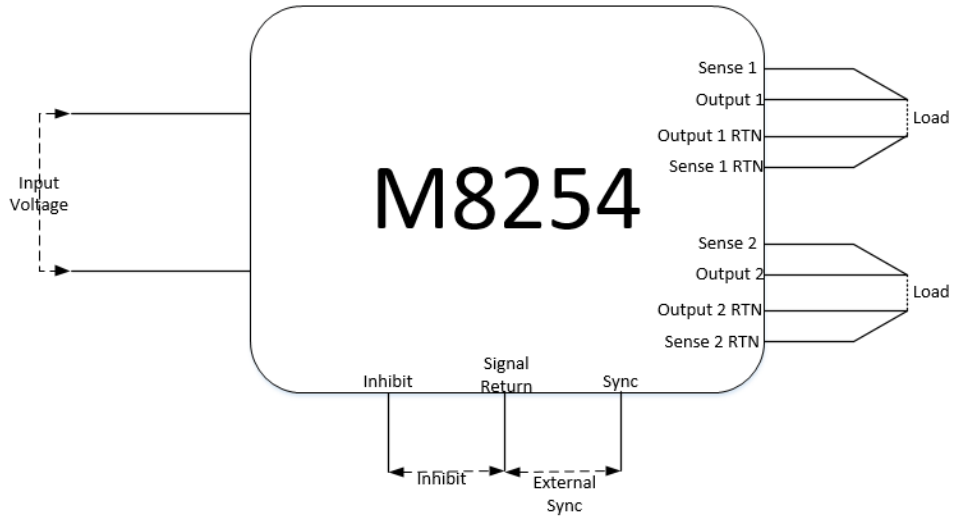


CE102 MIL-STD-461F Conducted Emission, 150 kHz -10 MHz

Line (nominal input voltage, full load)



TYPICAL CONNECTION DIAGRAM



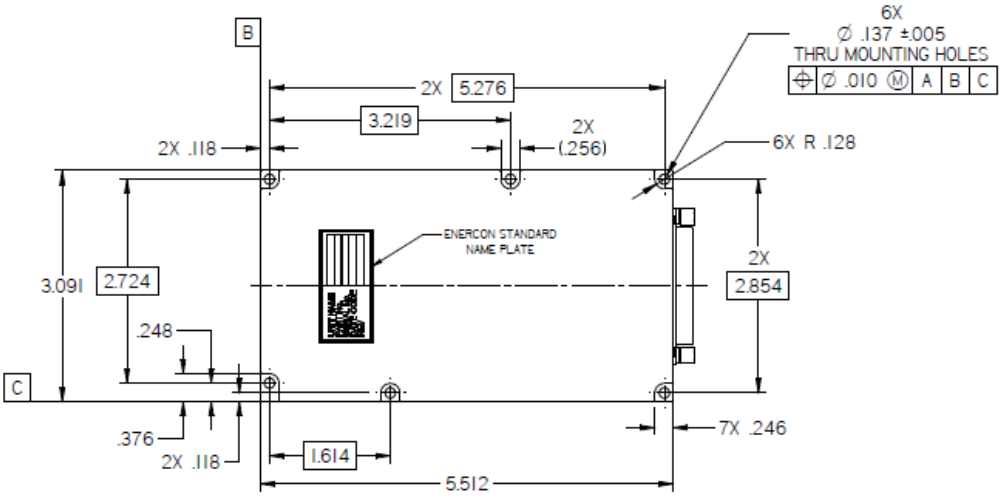
Outputs Range

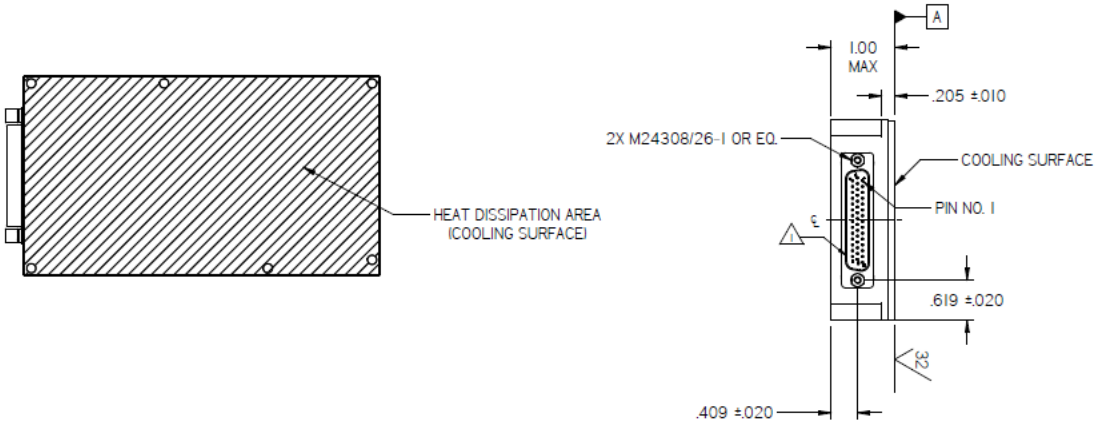
Output #	Voltage Range	Current Range	Output Regulation	Power Range
1	3.3 to 48 V_{DC}	0-18A	±%1	0 to 160 W
2	3.3 to 48 V_{DC}	0-12A	±%1	0 to 40 W
Total				0 to 200 W *

*Depending on the input voltage.

OUTLINE DIMENSIONS:

For detailed dimensions and tolerances see Drawing: M8254001





Please note: Specifications are subject to change without prior notice by the manufacturer.

Standard Configurations

Part Number	Input	Output		Special features
	Voltage range	Voltage	Current	
M7525-100	18 to 48 V_{DC}	5 V_{DC}	50 A	
M7525-101	18 to 48 V_{DC}	12 V_{DC}	50 A	
M7525-102	18 to 48 V_{DC}	15 V_{DC}	50 A	
M7525-103	18 to 48 V_{DC}	24 V_{DC}	33 A	
M7525-104	18 to 48 V_{DC}	28 V_{DC}	28 A	
M7525-105	18 to 48 V_{DC}	48 V_{DC}	16 A	
M7525-106	18 to 48 V_{DC}	28 V_{DC}	28 A	Parallel operation via output voltage droop. Voltage regulation is ±2%.
M7525-107	18 to 48 V_{DC}	48 V_{DC}	16 A	Parallel operation via output voltage droop. Voltage regulation is ±2%.
M7525-108	18 to 48 V_{DC}	24 V_{DC}	33 A	Parallel operation via output voltage droop. Voltage regulation is ±2%.
M7525-800	18 to 48 V_{DC}	5 V_{DC}	50 A	
M7525-801	18 to 48 V_{DC}	12 V_{DC}	50 A	
M7525-802	18 to 48 V_{DC}	15 V_{DC}	50 A	
M7525-803	18 to 48 V_{DC}	24 V_{DC}	33 A	
M7525-804	18 to 48 V_{DC}	28 V_{DC}	28 A	
M7525-805	18 to 48 V_{DC}	48 V_{DC}	16 A	
M7525-806	18 to 48 V_{DC}	28 V_{DC}	28 A	Parallel operation via output voltage droop. Voltage regulation is ±2%.
M7525-807	18 to 48 V_{DC}	48 V_{DC}	16 A	Parallel operation via output voltage droop. Voltage regulation is ±2%.
M7525-808	18 to 48 V_{DC}	24 V_{DC}	33 A	Parallel operation via output voltage droop. Voltage regulation is ±2%.

Special Features for M7525-800 to 808:

- M7525-8xx: this variant is REACH Compliant
- M7525-8xx: The aluminum parts comprising this converter are chromate conversion coated per MIL-DTL-5541F, Type II CLASS 1A or eq.
- M7525-8xx: The shell of the connectors are Zinc:
  - **Input connector - J1**

    Connector type: M24308/24-39Z or eq.
  - **Output connector – J2**

    Connector type: M24308/23-39Z or eq.

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