

# 500-2000 Watt AC-DC Switchers



## SPECIFICATIONS

### AC INPUT:

90-264 VAC 47-880 Hz single phase. Power factor corrected. Meets MIL-STD-1399, Section 300, type I requirements (spike voltage test).

### EFFICIENCY:

90% typical.

### LINE REGULATION:

±1% of nominal over the full range of line input voltage.

### LOAD REGULATION:

±1% for change from no load to full load.

### RIPPLE AND NOISE:

Peak-to-peak combined ripple and noise does not exceed 2% of nominal output measured with a 20 MHz bandwidth.

### OPERATING TEMPERATURE RANGE:

Storage, transportation and handling: -50° to +85°C.  
Ambient temperature: -40°C to +80°C baseplate with no power derating.

### ISOLATION:

Input to Output 1500 VRMS  
Input to Case 1500 VRMS  
Output to Case 500 VDC

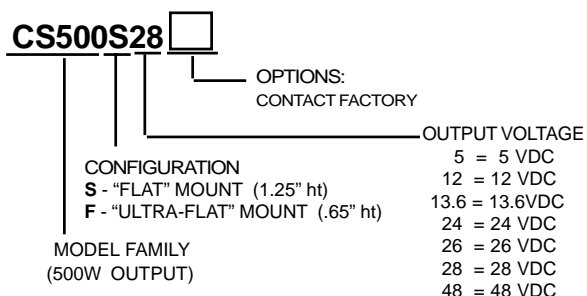
### SHORT CIRCUIT PROTECTION:

Each unit is completely protected against a short circuit of any duration. The constant current circuit is nominally set at 120% of full load to reduce voltage. The output voltage automatically restores to normal when the short is removed.

### INPUT PROTECTION:

Internal fuse. In-rush current limiting.

## MODEL NUMBER SYSTEM



## FEATURES

- Low Profile (0.65" height when mounted in "Ultra-Flat" configuration)
- Power Factor Correction
- Fully compliant with MIL-STD 461D, CE101, CE102
- Meets MIL-S-901 (High Impact shock)
- Meets MIL-STD-810F
- Forced Current Sharing (up to 4 modules for a total of 2000 watts)
- VME mounted version available
- Parallel mounting and alternate connectors available
- IP-65 Sealed Version Available



**REMOTE ERROR SENSING:** Standard.

### RELIABILITY:

MTBF 40,000 hours calculated per MIL-HDBK-217F in naval sheltered environment.

### ELECTROMAGNETIC COMPATIBILITY:

Meets the following MIL-STD-461D requirements: CE101, CE102.

### OUTLINE DIMENSIONS:

Refer to mechanical drawings.

**WEIGHT:** 4.4 to 5 lbs typical.

### ENVIRONMENTAL CONDITIONS:

**Shock test:** Unit meets MIL-S-901 requirements (light weight).

**Vibration test:** Unit meets MIL-STD-167, type I requirements.

**Humidity:** Power supply operates without any evidence of degraded performance in non-condensing relative humidity up to 95%. (Salt-spray option available for condensing environments).

## MAXIMUM OUTPUT CURRENT RATINGS

Output Voltage	Single Unit	2 Units Parallel	3 Units Parallel	4 Units Parallel
5V	100A	200A	300A	400A
12V	42A	83A	125A	167A
13.6V	36.7A	73.5A	110A	147A
15V	33A	67A	100A	133A
24V	21A	42A	63A	83A
28V	18A	36A	54A	71A
48V	10A	20A	31A	41A

Specifications are subject to change without notice



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## Application Notes

Abbott **AC-DC switchers** are designed to operate in a rugged military environment where a high degree of isolation, regulation and thermal performance is required. The extreme low-profile of these modules makes them an ideal choice in applications where space is limited, and reliability is a chief concern. These switchers represent a cost-effective, off-the-shelf alternative to costly DC-DC arrays. The units are fully compliant with MIL-STD 461D, CE101, CE102 and also meet MIL-S-901 (high impact shock), MIL-STD-810F and MIL-STD-1399, Section 300, type I requirements (spike voltage test).

Among **key standard features** are input power factor correction, full cycle holdup during power interruption, soft start/controlled inrush, and on-board in-line fuse. These state-of-the-art AC-DC switchers are well-suited for airborne, ground or shipboard systems.

### Key features include:

- Universal 90-264 Vrms input range
- Parallelable - single wire current sharing
- Isolated BIT outputs AC-OK, DC-OK, (Active High and Low)
- Isolated INHIBIT input
- MIL-STD 461D CE01/CE03 EMI compliance
- Wide input frequency range
- FCC 20780 class A EMI compliance

## Power Supply Glossary

**Ambient Temperature** – the temperature of the still air surrounding a power supply, measured a minimum of 4 inches (10.2 cm) from the supply. Note that these Abbott supplies are conduction-cooled and that temperature specifications refer to baseplate temperature, not ambient temperature.

**Efficiency** – the ratio of total output power, expressed as a percentage. Efficiency must be specified at a specific combination of load and input voltage.

**Isolation** – the electrical separation between the input and output of a power supply due primarily to the power transformer. The isolation is a function of materials and spacing throughout the supply.

**Line Regulation** – the maximum change in output voltage, expressed as a percentage of output voltage, that occurs as the input voltage varies over its specified limits, with load and temperature constant.

**Load Regulation** – the change in output voltage, expressed as a percentage of output voltage, that occurs as the load changes from minimum to maximum, at constant line and constant temperature. Load change may be specified for other than no load to full load as, for example, 50% load to full load.

**Mean Time Between Failure (MTBF)** – the failure rate of a power supply, expressed in hours, predicted as prescribed by MIL-HDBK-217F.

**Periodic and Random Deviation (PARD), or Ripple and Noise** - the unwanted periodic (ripple) or aperiodic (noise) deviation on the power supply output voltage from its nominal value. Ripple is a function of the input line and switching components. PARD is expressed in millivolts peak-to-peak or rms, at a specified bandwidth (typically 20 MHz).

**Over-Voltage Protection (OVP)** – a protective feature that shuts down a power supply (reduces the output voltage to a minimal level) to prevent damage to the load when the output voltage exceeds a predetermined limit.

**Short-Circuit Protection** – a protective feature that limits the output current of a power supply to prevent damage to the supply caused by short circuits. There are two types of short-circuit, or overload, protection depending on the power supply:

**Foldback Current Limiting** protects switching regulator power supplies from damage when an overload occurs by reducing, or folding back, both the output voltage and current as the load resistance ranges from maximum to short circuit.

**Constant Limiting Current** protects power supplies from damage when an overload occurs by holding the output at a constant predetermined maximum current level.



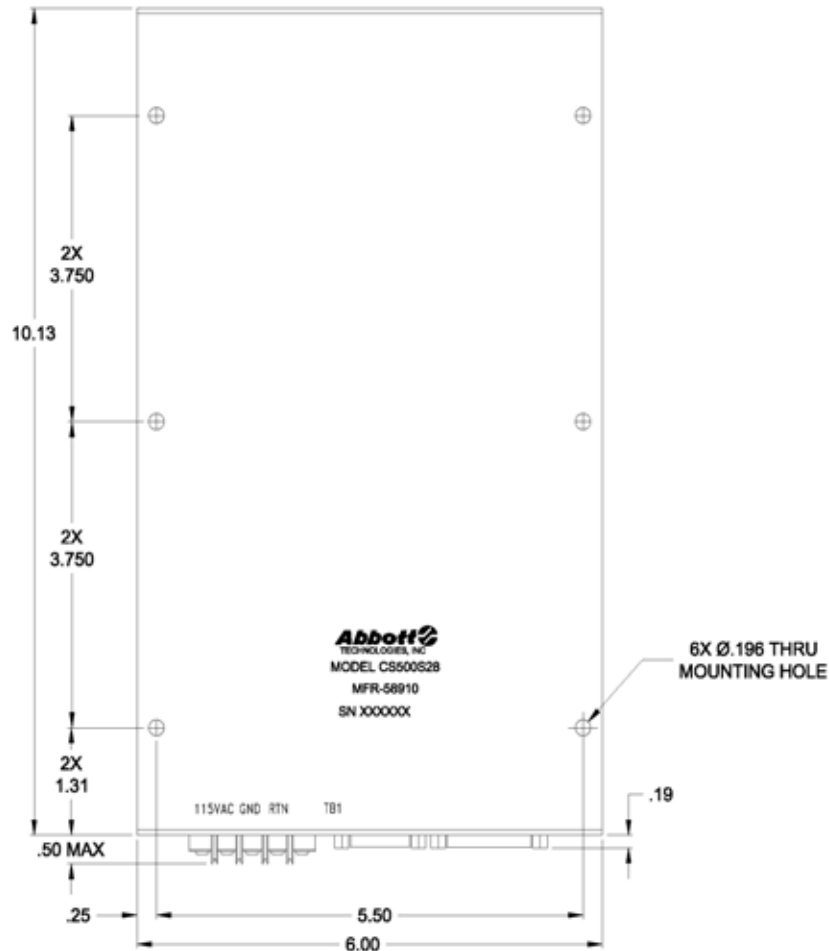
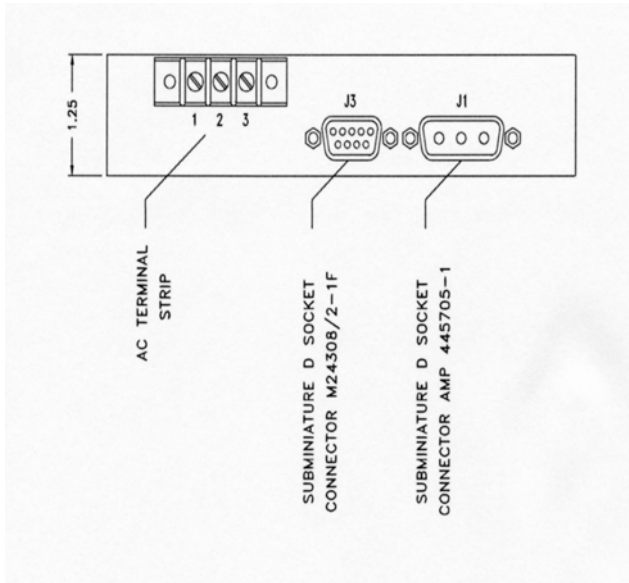
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## MECHANICAL DIMENSIONS

### FLAT CONFIGURATION



#### NOTES:

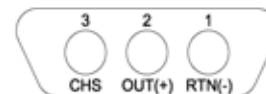
1. CASE MATERIAL: ALUMINUM ALLOY.  
FINISH: a) BLACK EPOXY PAINT.
2. MAXIMUM WEIGHT IS 5 POUNDS.

#### J3 CONTROL SIGNALS



- 1: CHASSIS CONNECTION
- 2: AC OK (LOW)
- 3: AC OK (HIGH)
- 4: DC OK (HIGH)
- 5: REMOTE SENSE +
- 6: INHIBIT
- 7: LOAD SHARE
- 8: DC OK (LOW)
- 9: REMOTE SENSE -

#### J1 OUTPUT DC



- 1: OUTPUT RETURN
- 2: OUTPUT POSITIVE
- 3: CHASSIS CONNECTION



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## MECHANICAL DIMENSIONS

### ULTRA-FLAT CONFIGURATION

