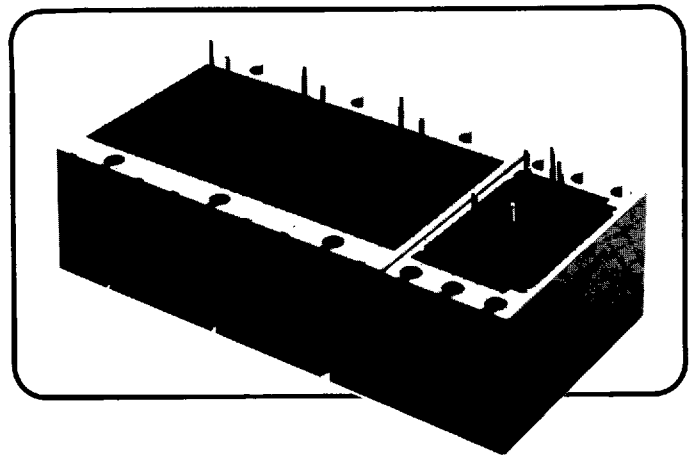
ASP Switching Pre-Regulator AC-DC Regulated 100 Watt Converter

Features:

- **Off-line Switching**
- **MIL-STD-704A Conditioning**
- **MIL-STD-461A Compatible**
- **High Reliability**

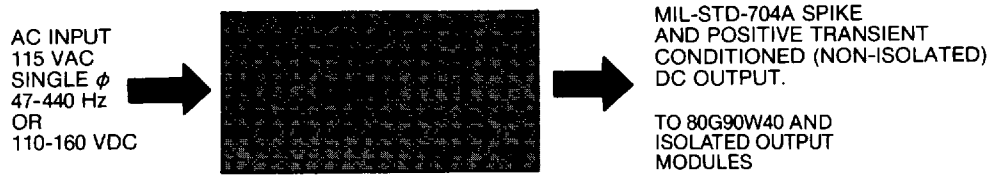


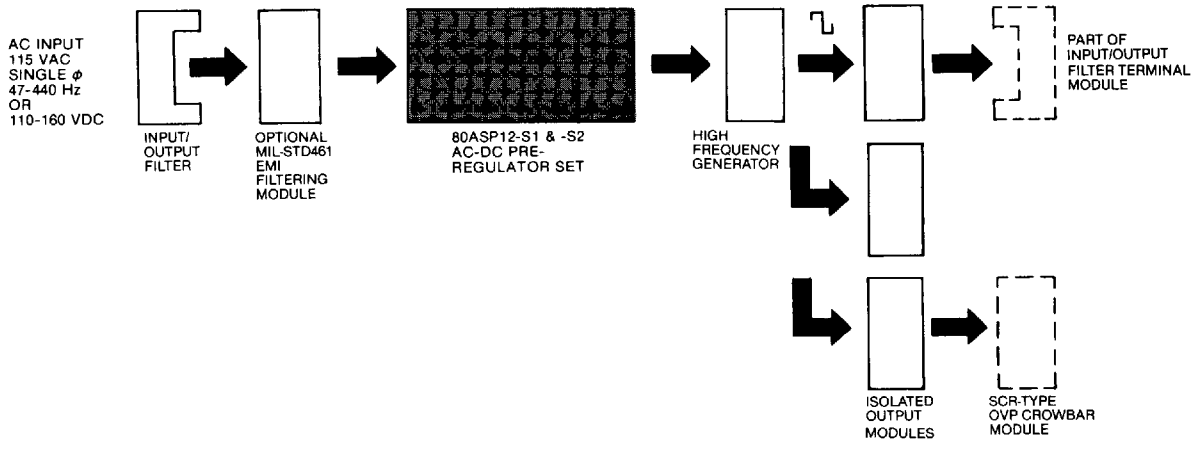
ASP Switching Pre-Regulator

The ASP AC input switching preregulator provides input line conditioning for the DC-AC generator (inverter) modules. It is designed to accept a MIL-STD 704A, 115VAC, single phase, 47-440 Hz input and then to rectify, filter, regulate and provide a non-isolated DC output to the high frequency generator. The ASP input can also accept 110-160 VDC source voltage.

AC-DC conversion and DC regulation are accomplished by using a full-wave rectifier/filter module (-S1) in conjunction with a DC-DC switching regulator module (-S2) which utilizes a high-efficiency pulse-width modulated switching circuit.

Small size and high efficiency make this set of modules extremely suitable for the first stage of power conversion in aircraft, shipboard, ground vehicle or ground support applications.





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A SUBSIDIARY OF UNITRODE CORPORATION
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ASP Switching Pre-Regulator AC-DC Regulated 100 Watt Converter

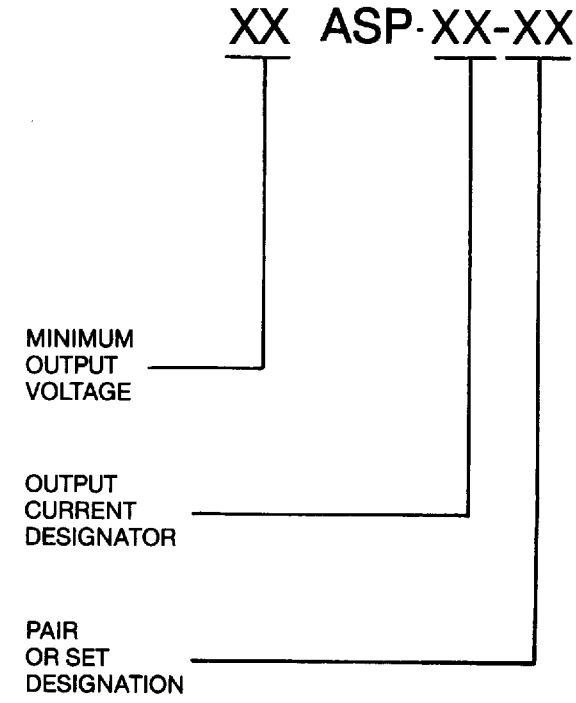
DESIGN INFORMATION

Voltage Input Range	Nominal AC Input Voltage Volts RMS	Total Power Delivered Watts	Eff. @ Vin Min Full Load Typ.	DC Output Voltage All Cond. Min.	Max.	Model Number
95-132 AC 110-160 VDC	115	100	85%	80	85	80ASP12-S1 & -S2

SPECIFICATIONS:

Input:	95-132 VAC, Single phase, 47-440 Hz, (or) 110-160 VDC, bipolar
Output:	100 watts
Rated Load:	1.25 Amps (max)
Ripple:	1.5V p-p as measured with an isolated 10 MHz bandwidth oscilloscope.
Operating Temperature:	– 55 °C to + 100 °C (case)
Storage Temperature:	– 65 °C to + 125 °C
Temperature Coefficient:	0.025%/ °C Max.
Inrush Current:	60 amps (theoretical 90A peak with zero source impedence) for approx. 6ms.
Power Factor:	.65
Weight:	-S1: 9 oz. max., -S2: 3 oz. max.
Case Finish:	Case: anodize per MIL-A-8625-II, Class 2 over aluminum
Terminals:	0.040" diameter solderable per MIL-T-10727
Isolation:	(all terminals to case): -S1: 1000 VDC allowing 10μA leakage max. -S2: 500 VDC allowing 10μA leakage max.

PART NUMBER DESIGNATION



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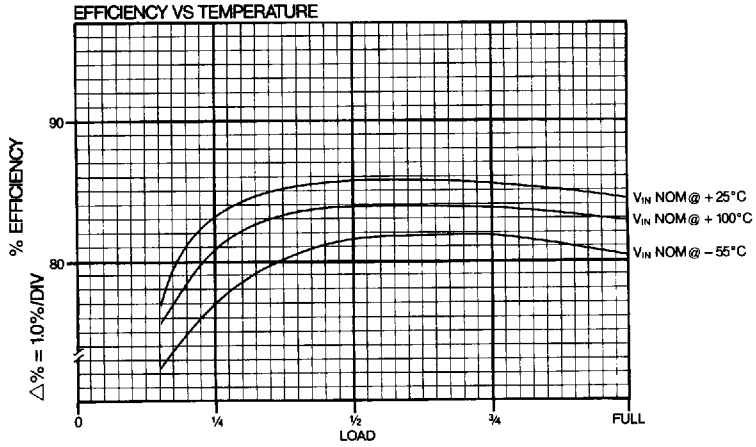
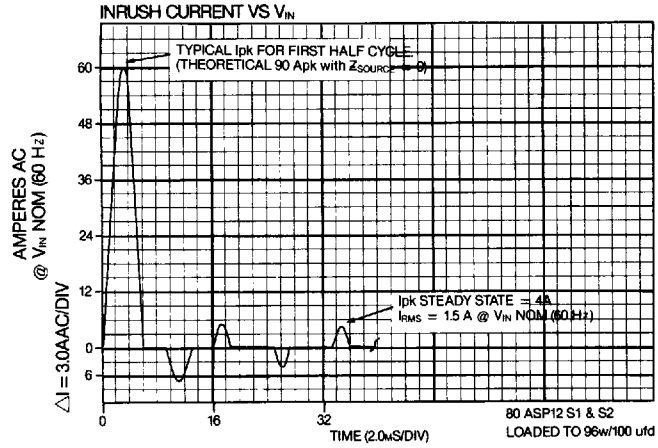
TYPICAL CHARACTERISTICS

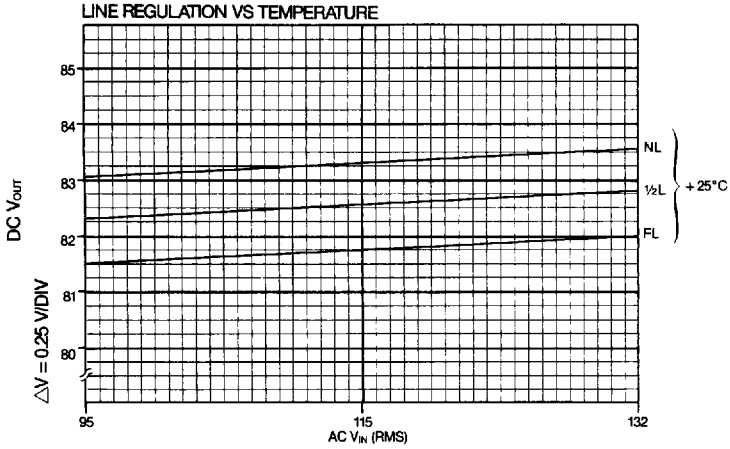
EFFICIENCY VS TEMPERATURE



INRUSH CURRENT VS V_{IN}

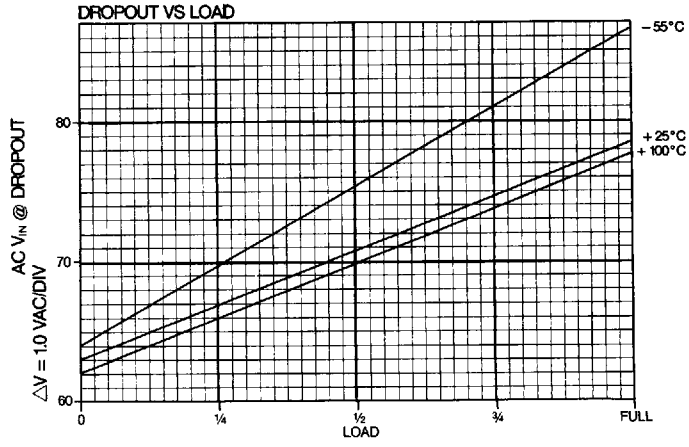


LINE REGULATION VS TEMPERATURE



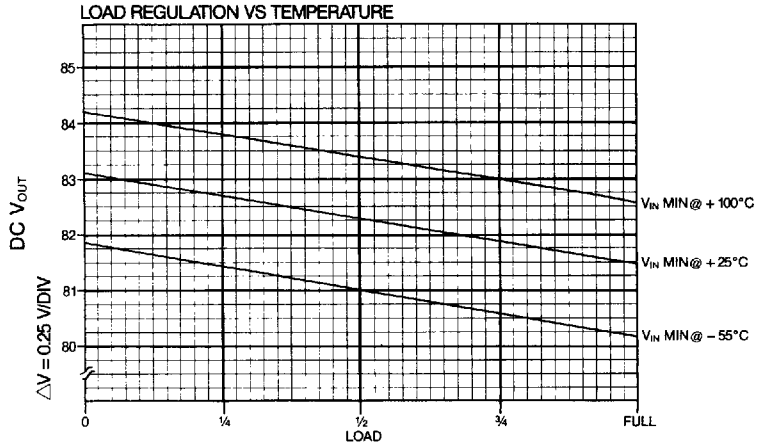
NOTE: Typical T.C ≈ + .02%/°C

DROPOUT VS LOAD



NOTE: Input dropout is that point where the output goes out of regulation when reducing the input voltage below rated V_{IN} MIN.

LOAD REGULATION VS TEMPERATURE



NOTE: Typical T.C. ≈ + .02%/°C

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APPLICATIONS INFORMATION

To insure optimum performance of the ASP modules, the following applications information is offered.

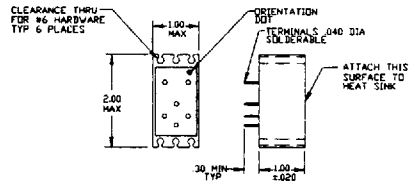
1. Do not ground either output terminal of a ASP module.
2. Do not exceed rated output power when module is re-trimmed higher, or rated load current when module is retrimmed to a lower output voltage.
3. Do not increase output voltage more than 5 percent above the rated value. Above this value, a zener diode may conduct.
4. ASP modules operate in the current mode, with current limiting to protect the active components. Dissipation can increase substantially however, during overload conditions. Therefore, when operating ASP modules with unregulated output modules (TD type), ensure that the ASP modules are not subjected to sustained overloads or short circuits which are reflected back from the load through the generator module.

MIL-STD COMPLIANCE

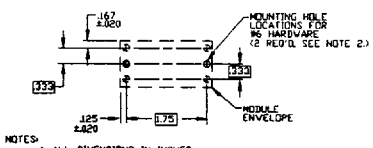
1. Meets environmental conditions of MIL-E-5400.
2. Meets MIL-STD-1399, Types 1 & 2 transients (except 2500V transient) assuming nominal is 115 VAC.
3. MIL-STD-704A dropout condition can be supported with a maximum of 70 watts output from the input set. (Consult factory)
4. Additional filtering can be designed to meet MIL-STD-461 (Notice 3 and sections specified by the user).

-S2 DIMENSIONAL DRAWINGS

MODULE DIMENSIONS



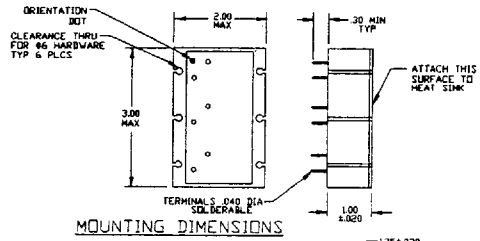
MOUNTING DIMENSIONS



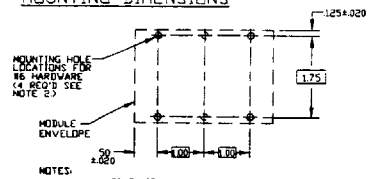
NOTES:
1. ALL DIMENSIONS IN INCHES.
2. A TOTAL OF 2 MOUNTING SCREWS ARE RECOMMENDED. 1 ON EACH SIDE OF THE MODULE. POWERCUBE SUGGESTS THAT THE "CENTER" LOCATIONS (SHOWN AS SOLID CIRCLES) BE USED.

-S1 DIMENSIONAL DRAWINGS

MODULE DIMENSIONS

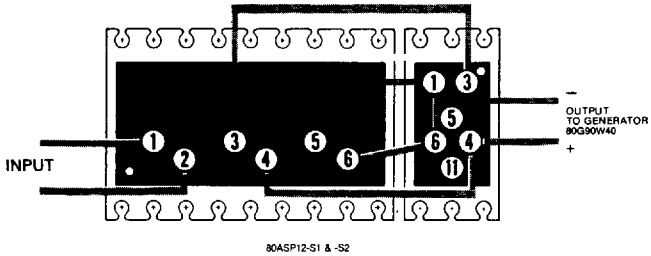


MOUNTING DIMENSIONS



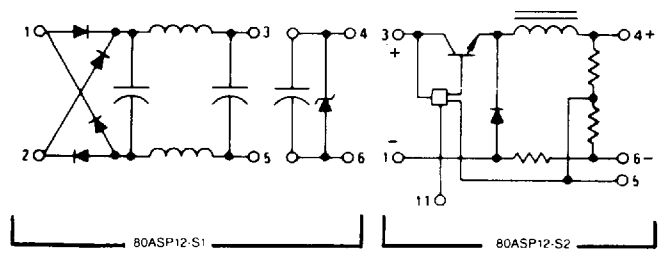
NOTES:
1. ALL DIMENSIONS IN INCHES.
2. A TOTAL OF 4 MOUNTING SCREWS ARE RECOMMENDED. TWO SCREWS SHOULD BE USED ON EACH SIDE OF THE MODULE. POWERCUBE SUGGESTS THAT THE 2 "OUTSIDE" POSITIONS BE USED (SHOWN AS SOLID CIRCLES).

FUNCTIONAL DRAWING



80ASP12-S1 & -S2

ELECTRICAL SCHEMATIC



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