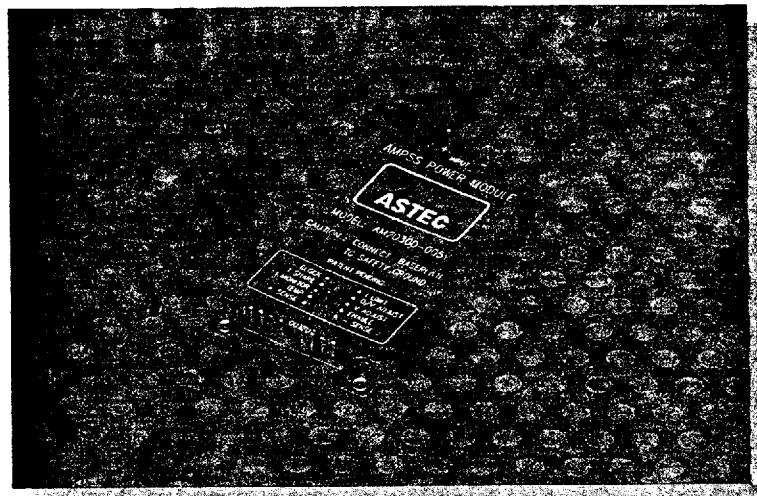


Special Features . . .

- 1 MHz fixed frequency
- 11 safety isolated low voltage secondary-side control and status functions
- High efficiency - 84% typical
- 100°C maximum baseplate temperature at full power without current derating
- No load operation; no minimum load or pre-loading required
- Unique ALP (Astec Linear Programming) control which is linear with external programming resistance or voltage
- Programmable output voltage
- Programmable current limit
- Programmable OVP margin automatically tracks output voltage setting
- Module to module current sharing with single wire connection
- TTL compatible enable-inhibit control
- Module output current monitor signal
- Module internal temperature monitor signal
- Remote sense
- Floating output
- Output ripple and noise < 1% typical
- Operating temperature -20°C to +100°C
- Multiple paralleled output pins for enhanced connection reliability

Safety.

IEC	IEC950
UL	UL1950
CSA	CSA22.2-234
VDE	VDE0805 / 05.90
BABT	BS6301



Description

The AMPSS AM80 Series of DC/DC modular power supplies is a family of highly efficient and fully featured modules with high power density operating at a 1 MHz fixed frequency.

This series offers high performance DC/DC power supplies in a low profile module with multiple safety isolated low-voltage secondary-side control and status functions. The series is aimed at a wide range of power system applications such as distributed power including N + 1 redundant systems and modular power supplies.

The integration of a user-friendly linear programming technique, located on the safety isolated low-voltage secondary-side, greatly simplifies the interfacing of control, monitoring, and status signals involving applications such as multi-paralleled modules in distributed power systems.

Environmental Reliability

Operating baseplate temperature: -20°C to 100°C

Storage temperature: -40°C to 105°C

Overtemperature shutdown: 110°C typical

Efficiency of 5 V module: 84% typical (at nominal line, nominal Vo, max Io)

The predicted MTBF for the AM80 Series is greater than 1,000,000 hours at maximum rated output current and 50°C baseplate temperature. Calculated MTBF by MIL-HDBK-217E under ground benign conditions is 200,000 hours.

Distributed Power 200 W Modules AM80 Series

Distributed Power



ASTEC STANDARD POWER
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Oceanside, CA 92054-1216
Telephone: 619-757-1880
Facsimile: 619-439-4243

ASTEC STANDARD POWER EUROPE
A Division of Astec Europe Limited
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Telephone: 0246-455946
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Electrical Specifications

Input

300 V INPUT SPECIFICATIONS	Minimum	Nominal	Maximum	Units
Input voltage	180	300	400	V
Surge -- 1 second			425	V
Input undervoltage: Power ON		160	175	V
Hysteresis		15	20	%
Input current @ low line, nom Vo, max Io			1.40	A
Input current @ low line, max Vo, max Io			1.70	A
No load input power		10	15	W
Turn-on time (load independent)		1	10	mS
Maximum input capacitance			0.5	μF

48 V INPUT SPECIFICATIONS	Minimum	Nominal	Maximum	Units
Input voltage	36	48	75	V
Surge -- 1 second			80	V
Input undervoltage: Power ON		33	35	V
Hysteresis	10	15	20	%
Input current @ low line, nom Vo, max Io			7.00	A
Input current @ low line, max Vo, max Io			8.50	A
No load input power		10	15	W
Turn-on time (load independent)		1	10	mS
Maximum input capacitance			2.5	μF

Output

OUTPUT SPECIFICATIONS	Minimum	Nominal	Maximum	Units
Output voltage -- See "Ordering Information".				
Output voltage set-point accuracy		± 0.4	± 1.0	% Vo
Line regulation		0.02	0.20	% Vo
Load regulation		0.10	0.20	% Vo
Temperature coefficient			0.02	% Vo / °C
Ripple & spikes p-p (20 MHz B.W.)		1.00	2.00	% Vo
Ripple & spikes p-p (20 MHz B.W.) -- 2.2 V module		50	100	mV
Remote sense compensation	0.5			V
Current limit (C LIM ADJ open)	105		115	% I max
Short circuit (C LIM ADJ open)			160	% I max
Transient response: voltage deviation		3	5	% Vo
Transient response: settling time (25% to 75% load change @ 1 A/μsec, recovery to 1% Vo)		60	200	μsec

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Electrical Specifications

Output (cont.)

SECONDARY SIDE CONTROL CHARACTERISTICS	Minimum	Nominal	Maximum	Units
Output Voltage Vo Adjust				
Range	-20		20	%
Ratio ($\Delta V_o / \Delta V$ ADJ)	18	20	22	% V_o / V
Programming current source	0.95	1.00	1.05	mA
Overvoltage Protection Adjust				
Margin max (OVP ADJ short)	40	45	50	% V_o
Margin min (OVP ADJ open)	10	15	20	% V_o
Ratio ($\Delta OVP / \Delta OVP$ ADJ)		30		% V_o / V
Programming current source	0.95	1.00	1.05	mA
Output Current Limit Adjust				
Range	20		100	% I max
Ratio (Δ current limit / ΔC LIM ADJ)		20		% I max / V
Programming current source	0.95	1.00	1.05	mA
Output Current Monitor				
Range	20		100	% I max
Ratio ($\Delta I_o / \Delta C$ MON)	95	100	105	% I max / mA
Current source voltage range	0		7.00	V
Internal Temperature Monitor				
Ratio	9.80		10.20	mV / °K
Source impedance		1000		ohm
Current Share				
Accuracy		± 5	± 10	%
Clock Sync				
Clock-in: external frequency	0.80		1.20	MHz
amplitude p-p	3.30		5.50	V
Clock-out: amplitude p-p	3.50		5.00	V
Enable				
Module enable threshold	0.80	1.20	2.00	V
Enable low current			100	μA

300 V ISOLATION CHARACTERISTICS	Minimum	Nominal	Maximum	Units
Input to output	3750			Vrms
Input to baseplate	1500			Vrms
Output to baseplate	500			Vrms
Input to output @ 500 Vdc	10			Mohm
Input to baseplate @ 500 Vdc	10			Mohm

48 V ISOLATION CHARACTERISTICS	Minimum	Nominal	Maximum	Units
Input to output	500			Vdc
Input to baseplate	500			Vdc
Output to baseplate	500			Vdc
Input to output @ 500 Vdc	10			Mohm
Input to baseplate @ 500 Vdc	10			Mohm



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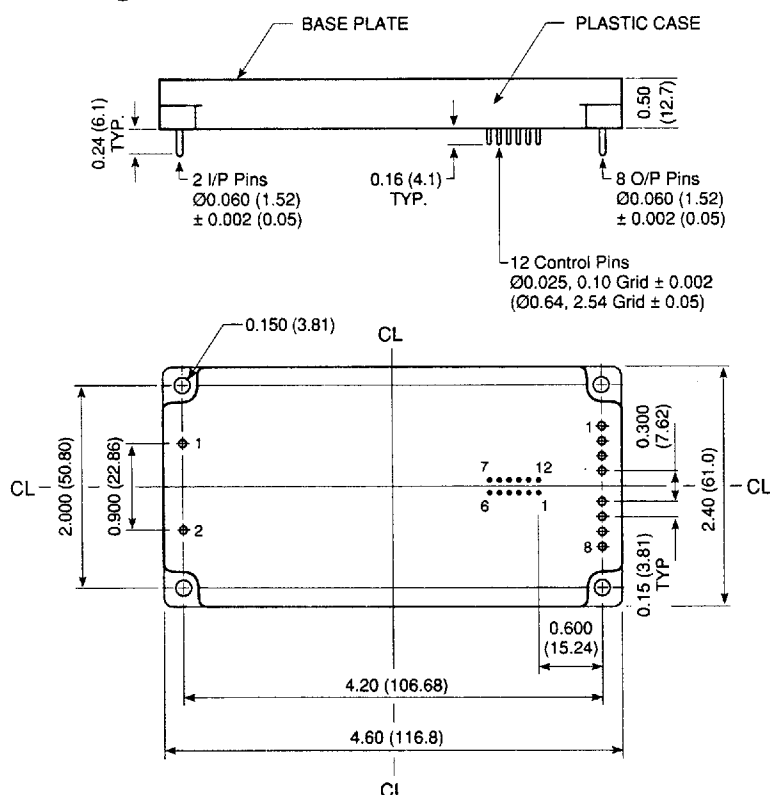
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Ordering Information.

Input Voltage	Output Voltage	Output Current	Model Number
300 V	2.2 V	60 A	AM80A-300L-022F60
300 V	3.3 V	50 A	AM80A-300L-033F50
300 V	5 V	40 A	AM80A-300L-050F40
300 V	12 V	18 A	AM80A-300L-120F18
300 V	15 V	16 A	AM80A-300L-150F16
300 V	24 V	9 A	AM80A-300L-240F09
300 V	48 V	4.5 A	AM80A-300L-480F05
48 V	2.2 V	60 A	AM80A-048L-022F60
48 V	3.3 V	50 A	AM80A-048L-033F50
48 V	5 V	40 A	AM80A-048L-050F40
48 V	12 V	18 A	AM80A-048L-120F18
48 V	15 V	16 A	AM80A-048L-150F16
48 V	24 V	9 A	AM80A-048L-240F09
48 V	48 V	4.5 A	AM80A-048L-480F05

Contact factory for additional output voltages, power ranges, and configurations.

Drawings



Mechanical

1. Free convection thermal impedance of the AM80 package is $5^{\circ}\text{C}/\text{watt}$.
2. Input and output pins are tin-plated over copper.
3. Soldering specification: 235°C for 5 seconds.

Pin Assignments

Input	Output	Control Pins
1 Negative	1 Negative	1 + SENSE (remote positive sense)
2 Positive	2 Negative	2 TEMP MON (temperature monitor signal)
	3 Negative	3 C MON (current monitor signal)
	4 Negative	4 C SHARE (current share)
	5 Positive	5 CLK OUT (output clock signal)
	6 Positive	6 CLK IN (input clock signal)
	7 Positive	7 RSV (reserved for future use)
	8 Positive	8 C LIM ADJ (linear current limit adjustment)
		9 OVP ADJ (overvoltage protection margin adjustment)
		10 V ADJ (linear output voltage adjustment)
		11 ENABLE (module output power enable)
		12 - SENSE (remote negative sense)

Notes

1. All dimensions are in inches and (mm).
2. Specifications subject to change without notice.
3. General tolerance: $.X \pm 0.5$ (0.02)
 $.XX \pm 0.25$ (0.010)
4. Detailed specifications and applications information available on all models. Please contact factory.