56GS1

AC/DC POWER SUPPLY 25 Watt
Single Output

Features

- High Power Density, Low Profile Packaging
- Full Output Power at +85°C Baseplate Temperature
- Switching Power Supply – Low Noise
- Accepts Multiple AC inputs or +270Vdc Input
- ESS Screening
- Designed and Manufactured Per NAVMAT Guidelines
- EMI Filtering Designed to MIL-STD-461
- Remote Error Sensing
- Remote Digital (TTL) Turn On/Off
- Transient Protection per MIL-STD-704

Contents

Description

North Atlantic Industries 56GS1 is a high power density, low profile, AC/DC switch mode power supply in a 25 Watt single output configuration. The 56GS1 is ideally suited for rugged, military conduction cooled applications. All North Atlantic Industries AC/DC Power Supplies are designed and qualified to the most stringent performance and environmental requirements.

Electrical Specifications

AC Input Characteristics:

Input	115/230 VAC, See Table 2 270Vdc, Input range of 170Vdc to 355Vdc
EMI/RFI Characteristics	Designed to meet the requirements of MIL-STD-461C
Input Transient Protection	Per MIL-STD-704D; For nominal 115 VAC input: 180 VAC for 0.1 second For nominal 230 VAC input: 292 VAC for 0.1 second

DC Output Characteristics:

Output Power	See Table 1
Output Voltage	See Table 1
Efficiency	75% Typical
Line Regulation	Within 0.1% or 10mv (whichever is greater) for low to high line changes at constant load
Load Regulation	0.1% or 10mv (whichever is greater) for 0 to 100% of rated load at nominal input line
PARD (Noise and Ripple)	50 mV p-p typical; 100 mV p-p maximum for 5V outputs (20 MHz bandwidth); 1% of the output voltage, with a maximum of 200 mV p-p, for all other outputs (20 MHz bandwidth)
Load Transient Recovery	Output voltage returns to regulation limits within 0.5 msec (typical), half to full load
Load Transient Under/Overshoot	0.35 Volt maximum from nominal output voltage set point for 3.3 V and 5.0 V outputs, all other outputs are 5%.
Short Circuit Protection	Under any short circuit condition, continuous short circuit with Auto Recovery

DC Output Characteristics (Continued):

Current Limiting	Limited to 130% of rated output at 85° C
OverVoltage Protection	Automatic electronic shutdown if voltage exceeds 125% ±10%
Remote Error Sensing	Compensates for up to 0.5-volt drop on output leads
Remote Turn On/Off	TTL logic 1 inhibits (turns off) the output; a floating input acts as a logic 0 (output on)
Isolation Voltage	1000 VDC input to output and input to case; 200 VDC output to case.
Insulation Resistance	50 Megohm at 50 VDC

Physical/Environmental Specifications

Temperature Range	Operating: -55°C to +85°C at 100% load (Temperature measured at baseplate; conduction via baseplate only); Derate linearity to 80% load at 100°C; Storage: -55°C to +125°C
Temperature Coefficient	0.01% per °C
Shock	30 G's each axis, per MIL-STD-810C, Method 516.2, Procedure 1. Hammer shock per MIL-S-901C
Acceleration	6 G's per MIL-STD-810C, Method 513.2, Procedure 11, and 14 G's per Procedure 1
Vibration	Per MIL-STD-810C, Method 514.2, Procedure 1A
Reliability (MTBF)	200,000 hours, ground benign, at 50°C baseplate
Humidity	95% at 71°C per MIL-STD-810C, Method 507.1 (non-condensing)
Altitude	40,000 feet per MIL-STD-810C, Method 504.1, Category 6 Equipment
Dimensions	See Table 3
Salt & Fog	Per MIL-STD-810C, Method 509.1
Sand/Dust/Fungus	Per MIL-STD-810C
Enclosure	Aluminum housing to aluminum baseplate
Finish	Cover: Black anodized; Baseplate: chemfilm
Interface	Connections via a D-subminiature connector per Page 2 of this Data Sheet
Weight	9 ounces

Table 1. Output Power

Volts	Watts @ 85°C	Amps @ 85°C	Watts @ 100°C	Amps @ 100°C
5.0	15	3	15	3
12.0	25	2.1	20	1.67
15.0	25	1.7	20	1.33
28.0	25	0.9	20	0.71

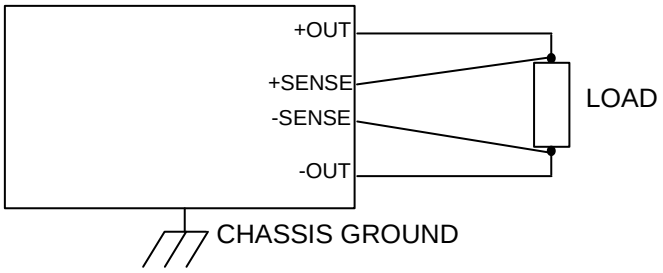
Table 2. Pinout Designations

J1 Pin Out Designations			Input	Pin #
1. Input	6. +Output	11. Ground	115 Vac, 1∅	1,2 (neutral)
2. Input	7. +Output	12. –Sense	115 Vac, 3∅, Δ	1,9,10
3. –TTL	8. +Output	13. –Output	115 Vac, 3∅, Y	1,9,10,2 (neutral)
4. +TTL	9. Input	14. –Output	230 Vac, 1∅	9,10
5. +Sense	10. Input	15. –Output	230 Vac, 3∅, Δ	1,9,10
			270Vdc	1 (positive), 9 (rtn)

Connector Specifications

Connector	Part Number - Series
Unit Connector	DAMME15PR
Mating Connector	DAMM15S

Output Wiring Diagram



Mechanical Layout

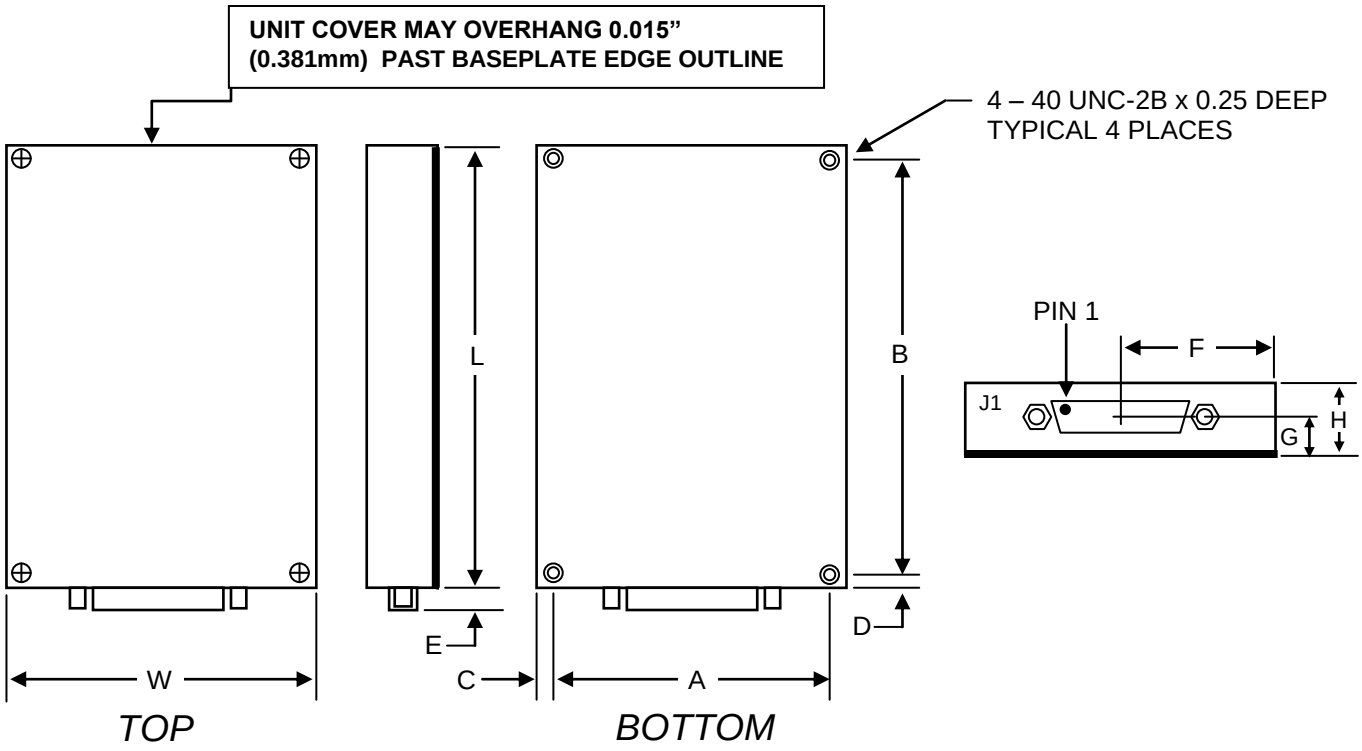


Table 3. Mechanical Dimensions

UNITS	L	W	A	B	F
Inches	3.40	2.80	2.40	3.00	1.40
mm	86.4	71.1	60.96	76.2	35.6

Notes

Dimensions C & D are 0.2" (5.1 mm)
Dimension E is 0.23" (5.84 mm)
Dimension G is 0.455" (11.56 mm)
Dimension H is 0.8" (20.3 mm)

Tolerances: Inches
.xxx = +/-.015
.xx = +/- .03

Ordering Information for 56GS1 Series (25 Watt Single AC/DC Power Supply)

56 G S1 - 005 M 0 - XX

CODE (Used only for "Specials") **See Code Table Below**

OPTIONS: 0 = Standard Testing (Includes ESS Temperature Cycling per NAVMAT)
1 = Standard Testing plus ESS Vibration Testing (per NAVMAT)

RELIABILITY:

M = COTS-Mil-Type: -55°C to +85°C, Mil-Type Components, Designed to meet the Requirements of MIL-STD-461C, Designed to meet the requirements of MIL-STD-810C, Designed per NAVMAT Guidelines.

OUTPUT VOLTAGE(s): 000 = Special Voltage – See Code Table Below
005 = 5 V
012 = 12 V
015 = 15 V
028 = 28 V

OUTPUTS: S1 = Single

WATTAGE: G = 25 W

SERIES: 56 = AC/DC

***Example**: 56GS1-012M0 = AC/DC; 25 Watt; Single Output; +12 V; COTS-Mil-Type; Standard Testing*

Consult Factory for Additional Options and/or Special Units

Code Table for "Specials"

Code	Code Description
01	Potted, Designed to meet Mil-Std-810C, Procedure 1, Category 6, 70,000 feet
02	Reserved