

YSPA13-6-18-S

Broadband Power Amplifier, 6-18 GHz, 50 W Output Power

Key Features

- Broadband Coverage: 6 – 18 GHz
- Output Power: ≥50 W (CW)
- Power Gain: ≥13 dB
- Input Power Required: 34 dBm
- Built-in OVP/OCP/OTP/VSWR Protection
- Telemetry Monitoring via RS-422

Applications

- EW & ECM Systems
- Test & Measurement
- Broadband Transmitters
- Radar Front-Ends
- As Final Stage in Multi-Stage Amplifier Chains

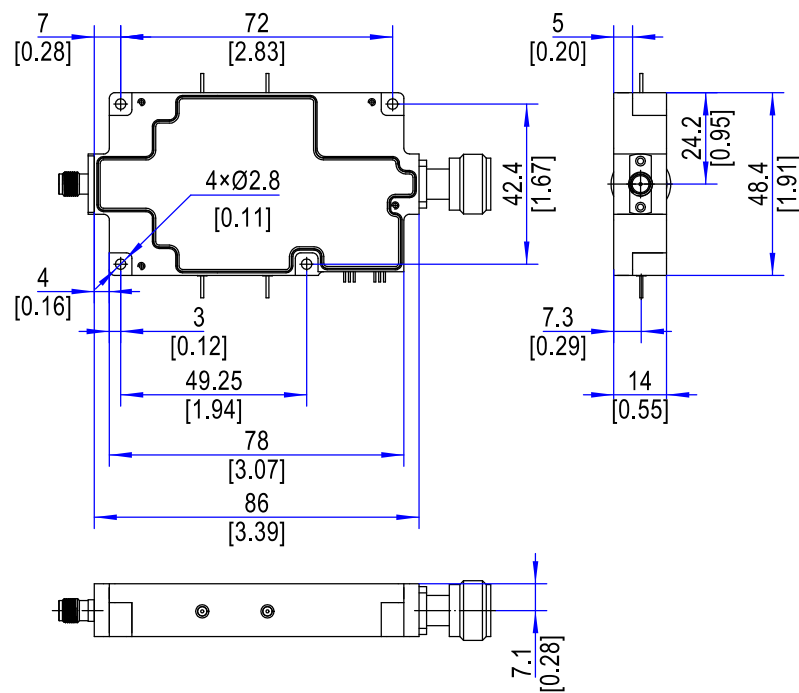
Electrical Specifications				
Parameter	Min.	Typ.	Max.	Unit
Frequency Range	6	-	18	GHz
Output Power(CW)	50	-	-	W
Input Power	-	34	-	dBm
Power Gain	13	-	-	dB
Gain Flatness	-	-	±1.5	dB
Spurious	60	-	-	dBc
Harmonics	10	-	-	dBc
Supply Voltage	-	+28	-	V
Operating Current	-	-	13	A
Modulation	Drain voltage sequencing protection			
Environmental Specifications				
Parameter	Min.	Typ.	Max.	Unit
Operating Temperature	0	-	+65	°C
Storage Temperature	-20	-	+65	°C
Relative Humidity	≤95%, non- condensing			
Mechanical Specifications				
Input Connectors	SMA Female			
Output Connectors	N-Type Female			
Housing Material	Copper base / Aluminum cover			
Surface Finish	Nickel plating			
Sealing	Soldered sealing (tin)			
Weight				
Dimensions ¹	86×48.4×14 mm [3.39×1.91×0.55in]			
Protection & Telemetry				
The module provides the following monitoring and protection functions				
Protection Type	Trigger Condition		Action	
Over-Temperature	Internal temp. exceeds limit		RF chip disabled	
Over-Voltage	Supply voltage exceeds limit		RF chip disabled	
Over-Current	Individual channel current exceeds limit		That specific channel disabled	

Excessive VSWR	Output load mismatch detected		RF chip disabled
Telemetry Signals (returned via serial communication)			
Signal Type	Quantity	Signal Type	Quantity
Temperature	1 channel	Voltage	1 channel
Power Normal Status	1 channel	Current	4 channel
VSWR Fault Status	1 channel		
Interface Definitions			
Table 1 – Interface Pin Definition (9-Pin Combined Connector)			
Pin No.	Signal	Definition	Board Label
1	+28 V	Supply positive	VCC
2	GND	Supply ground	GND
3	+28 V	Supply positive	VCC
4	GND	Supply ground	GND
5	EN	Enable control: +5 V = ON, 0 V = OFF	EN
6	TX+	Serial transmit (plus)	TX+
7	TX-	Serial transmit (minus)	TX-
8	RX+	Serial receive (plus)	RX+
9	RX-	Serial receive (minus)	RX-
Note: Both +28V pairs must be connected in parallel to support the 13 A maximum current draw.			
Serial Communication Protocol			
Parameter	Specification		
Baud Rate	115200 bps		
Data Bits	8		
Stop Bits	1		
Parity	None		
Transmission Mode	Auto-reply (once per second)		
Telemetry Data Returned (1 frame per second):			
• Temperature: 1 channel			
• Voltage: 1 channel			
• Current: 4 channels			
• Power Normal Status: 1 channel			
• VSWR Fault Status: 1 channel			
Table 2 – Return Data Frame Format (10 Bytes, Fixed Length)			
Byte No.	Field	Byte	Description
1	Frame Header	1	0xAA
2	Temperature	1	-40 ~ +125 °C, two's complement; 0xD8 = -40°C, 0x7D = +125°C
3-4	Voltage	1	Resolution 0.1 V; e.g., 28.3 V → 0x01 0x1B
5	Current Channel 1	1	0 ~ 25.6 A; 1 A → 0x0A, 10 A → 0x64
6	Current Channel 2	1	0 ~ 25.6 A; 1 A → 0x0A, 10 A → 0x64
7	Current Channel 3	1	0 ~ 25.6 A; 1 A → 0x0A, 10 A → 0x64
8	Current Channel 4	1	0 ~ 25.6 A; 1 A → 0x0A, 10 A → 0x64

9	Status Flags	1	Bit/Value definition: • 0x00 = Power Normal, VSWR Normal • 0x01 = Power Fault • 0x02 = VSWR Fault (Values may be combined)
10	Frame Trailer	1	0xBB

Note: Total current consumption is the sum of all 4 current channels. Status flags indicate fault conditions as defined in Byte 9.

Outline Drawing (Units: mm/[inch], Tolerance: ± 0.2 mm)



Note 1: Excluding Connectors