



SPA7984-53-50

Military X Band 100W Linear SSPA

Compact TWTA Replacement for Communication and Fixed and Mobile Ground Sat-Com Applications.

The module utilizes high power advanced GaN devices housed in compact machined Aluminium enclosure offering high gain & power, high efficiency and low distortions.

The exceptional performance has been achieved by careful design of matching networks using both commercial and proprietary CAD software.

In addition, using load-pull data and EM simulations have resulted in consistent and repeatable performance with the highest reliability.

Key features: -

- **Waveform Engineered Solid State design**
- **Suitable for use with CW, AM/FM and higher ordered modulation schemes including QAM.**
- **Built in Monitoring and Mute Function**

Parameter	Value	Remark	
Electrical Specification			
Operating Frequency	7900 – 8400 MHz		
Linear Output Power (P _{lin})	50 dBm typ	P _{lin} is the power at which IMD and Spectral Regrowth specs are met.	
Linear Gain	53 dB	Minimum	
Gain Flatness	1 dB pk-pk (max)	Over the entire 500MHz Band	
Gain Variation over Temperature	1 dB pk-pk (max)	Over the entire 500MHz Band	
Input and Output VSWR	1.3 : 1	With circulator	
Third Order IMD (two equal tones 5MHz apart, IM3 products relative to total power)	25 dBc min	@ P _{out} : +50dBm (P _{lin}) Combined power of two equal tones.	
Spectral Regrowth	20 dBc min	@ P _{out} : +47dBm (P _{lin}) 16QAM at 0.6 x symbol rate (8192KBaud)	
Harmonic Suppression	65 dBc min	@ P _{out} : +50dBm (P _{lin})	
DC Supply Voltage	+24V ±5%	Via 2-off DC Feedthru	
Power Consumption	700W max	@ P _{out} : +50dBm (P _{lin})	
Thermal Specification			
Operating Temperature	-30°C to +65°C	Cooling solution to be designed and installed by user	
Storage Temperature	-40°C to +75°C		
Mechanical and Environmental Specification			
Dimensions	240mm x 190mm x 25mm	Thickness of 25mm except for waveguide output	
Environmental	Environmental specs will be defined according to MIL-STD-801G. Unit will be designed and built to industry standard practices.		
EMC	Designed to MIL-STD-461F		
Electrical Interface			
RF Input Connector	SMA Female		
RF Output Connector	CPR-112G	Waveguide WG15, WR112	
RF Sample Output Connector	SMA Female		
PIN OUT FOR 9-Way D-Sub CONNECTOR Remote Control and Monitor for: Enable (Mute) Temperature monitoring, Temperature Fault Alarm Forward Power Sensor Output Power Fault Alarm	Pin Number	Connection	Remark
	1	SSPA_ENABLE	Enable: TTL 'Low' Disable: TTL 'High' or Open
	2	SSPA_SCL	I2C CLOCK
	3	SSPA_SDA	I2C DATA
	4	TEMP_ALARM	0: ALARM OFF 1(3V3): ALARM ON
	5	OUTPUT_POWER_ALARM	0: ALARM OFF 1(3V3): ALARM ON
	6	GND	
	7	GND	
	8	GND	
9	GND		