

47dBm 850MHz Band-5 Multi Carrier Solid State Power Amplifier

Model No: MCPA-850-47W50



Main Features:

- Supports 4G LTE and 5G NR air interfaces (FDD and TDD) at band B5
- Compatible with public and private cellular networks, including LTE, 5G NR, GSM, WCDMA and legacy DMR applications where required
- Solid-state, high linearity RF power amplifier architecture
- Up to 50 W average linear RF output power
- Wideband and band-specific configurations available
- Digital predistortion (DPD) ready or integrated, depending on configuration
- High efficiency Doherty architecture for optimized power consumption
- Integrated automatic gain control (AGC) and protection circuitry
- Built-in monitoring and remote control interfaces
- Integrated output isolator for enhanced reliability and load protection
- Compact, lightweight and thermally optimized mechanical design
- High reliability, industrial-grade construction for continuous 24/7 operation
- Low adjacent channel leakage ratio (ACLR) and excellent error vector magnitude (EVM) performance
- Suitable for DAS, Repeaters, Small Cells, Private LTE/5G Networks and OEM
- Custom frequency bands and output power levels available



EMTS Telecom Services Ltd. offers a comprehensive portfolio of enhanced coverage solutions for the Wireless Networks. Based on advanced technologies, EMTS's proven, indoor and outdoor solutions solve a wide range of network issues including interference and oscillation problems, challenging coverage holes, rapid response deployment and inadequate in-building coverage. Regardless of the technology or frequency, EMTS can provide customized coverage solutions that address any combination of unique and complex network needs for the Wireless Networks.

Introduction

The EMTS Telecom Services PA-850-47W50 RF Power Amplifier is a high performance, high linearity solid-state amplifier specifically designed for professional wireless communication systems operating in the 850 MHz frequency band. The amplifier is optimized for 4G LTE, Private LTE, legacy GSM, UMTS/WCDMA, and other narrowband or broadband wireless applications requiring outstanding linearity, spectral purity, and long-term operational reliability.

Designed to support both single-carrier and multi-carrier operation, the PA delivers up to 50 W average linear RF output power while maintaining excellent adjacent channel performance, low intermodulation distortion, superior Error Vector Magnitude (EVM), and outstanding Adjacent Channel Leakage Ratio (ACLR), making it suitable for demanding commercial, industrial, public safety, and mission-critical communications systems.

The amplifier utilizes the latest generation of high efficiency **LDMOS RF power transistors** combined with advanced broadband matching networks and optimized RF combining techniques. Its **Doherty amplifier architecture** maximizes efficiency while maintaining exceptional linearity over a wide output power range, significantly reducing power consumption and thermal dissipation.

To ensure superior RF performance under continuous 24/7 operation, the PA incorporates advanced linearization techniques, high quality EMI/RFI suppression filters, precision machined aluminum housing for excellent thermal management, integrated protection circuitry, and carefully selected industrial-grade components. The result is outstanding gain stability, excellent phase and group delay characteristics, low distortion, high reliability, and long operational lifetime, even in harsh environmental conditions.

The compact, rugged design makes the PA an ideal building block for a wide range of applications, including:

- Cellular Repeaters (BDA)
- Distributed Antenna Systems (DAS)
- Private LTE Networks
- Critical Communications Networks
- Public Safety Infrastructure
- OEM Wireless Equipment
- RF Coverage Enhancement Systems
- Industrial Wireless Applications

The PA-850-47W50 is designed for seamless integration into both new and existing wireless infrastructures and is available in customized frequency ranges, output power levels, and mechanical configurations to meet specific customer requirements.

About EMTS telecom Services:

EMTS Telecom Services is a leading supplier of high-quality RF coverage solutions designed to maximize wireless network coverage in difficult RF environments and complex settings. The company specializes in extending RF radio coverage to rural areas, office buildings, subways, tunnels and shadowed areas. The EMTS coverage solution supports all major mobile technologies and standards of wireless Networks.

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Technical Specification

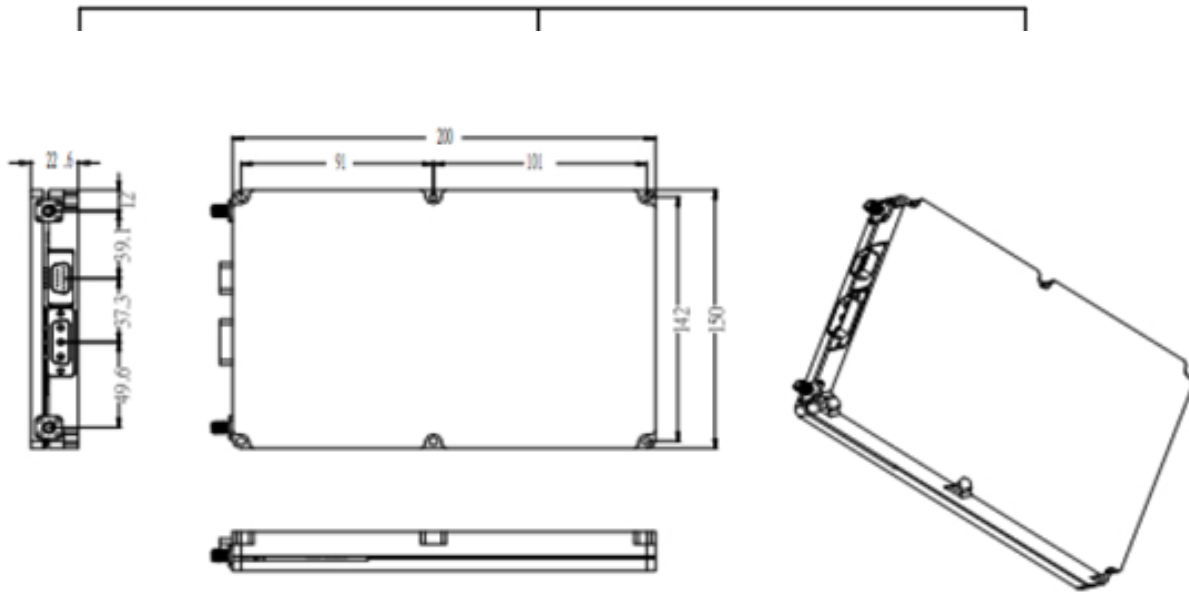
Electrical Specifications			
Frequency range	869 -894 MHz		
Output power	+ 47dBm (higher / Lower Power types are also available)		
Output power versus temperature	±1 dB @-40°C to +55°C		
Gain	50 dB ±1 dB		
Gain variation versus frequency	≤1 dB		
Gain variation versus temperature	±2 dB @ -40°C to +55°C		
In / Output VSWR	1.25 :1 typical / 1.5:1 maximum		
Allowable maximum input power	≥ 10 dBm		
Gain Adjust Range	0-31dB @ 1 dB step		
IMD3 (intermodulation))	55 dBc typical / 52 dBc minimum		
CDMA EVM @Pout=47dBm	< 2% @ above source own EVM		
ALC range	≥ 15		
Power voltage	+28±1VDC		
Current	Working current: ≤ 8.5A (+47dBm		
Environmental Specifications			
Operating Temperature	-25° C to +80° C at location		
Storage temperature	-40° C to ~+85 ° C ambient		
Cold Start	-40°C		
Operating Humidity	5% to 95% relative humidity, non-condensing		
Storage Humidity	5% to 95% relative humidity, non-condensing		
MTBF	≥ 100,000h		
Mechanical Specifications			
Size	200×150×23 mm (Mounting 6 M4 screws)		
Wight	2 kg		
Interface name	Signal type	Interface structure	quantity
Power	DC	connector 3W3(male)	1
RF IN	RF signal	SMA-KFD-5-3 ROHS	1
RF OUT	RF signal	SMA-KFD-5-3 ROHS	1
Data control	TTL	DB9(male)	1



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Monitoring function (DB9(male))	
Serial bus RS485	Serial bus RS485
Reading parameters	Input power, output power, reverse power, VSWR, temperature, ALC level, digital attenuation
Setting parameters	Digital attenuation, ALC level,
Alarm	High temperature, output power overload, VSWR, PA fault

Pin Description



Outline Drawing

Note: All specifications subject to change without notice.

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