

# Broadband Spatially Combined Power Amplifier

## CHPA0812-1



The CAP Wireless CHPA0812-1 broadband power amplifier incorporates gallium arsenide (GaAs) monolithic microwave integrated circuit (MMIC) technology into its revolutionary, patented (#7215220) Spatium™ broadband spatial combining technology to achieve outstanding solid state power levels across an eight to 12 GHz frequency range. This compact, affordable, reliable alternative to traveling wave tube amplifiers (TWTAs) is uniquely positioned to meet the demanding specifications of applications such as electronic counter measures (ECM), laboratory instrumentation, and electromagnetic compatibility/electromagnetic interference (EMC/EMI) test, as well as narrower band applications like radar, microwave imaging, and satellite communications. The multiple element architecture provides protection from single point failures and facilitates even, dispersive, three-dimensional (3D) heat dissipation.

### Typical Applications

- Electronic warfare (ECM, ECCM)
- TWTA replacement
- Radar
- Satellite communications
- Instrumentation and test equipment

### Key Features

- Broadband 8 to 12 GHz power amplification
- 30 watts typical saturated power
- Exceptional reliability and MTBF
- Graceful degradation (soft-fail) in the event of device failure
- Low voltage primary power
- Low intermodulation and harmonic distortion
- Flat gain without equalization
- Low noise figure
- Low phase noise and spurious
- Infinite load VSWR without damage
- No warm-up or turn-on delay
- Unlimited altitude

Electrical Parameters	Units	Min.	Typ.	Max.
@ 9.5 V, 25° ambient				
Frequency	GHz	8		12
Gain	dB	19	23	
Gain variation 12-18 GHz	± dB		3	
Gain variation, over operating temp.	± dB			
Input VSWR (50 ohms)			2.0:1	
Output VSWR (50 ohms)			2.5:1	
Efficiency	%		20	
Output power, saturated	watts	25	40	
Output power, 1 dB compressed	watts		25	
Current	amps		25 <sup>1</sup>	28 <sup>2</sup>
Voltage	volts	9		10
Environmental Parameters	Units	Min.	Typ.	Max.
Temperature, operating	°C	-20		50
Temperature, storage	°C	-40		85
Cooling	Fan forced convection			
Altitude operating	K feet		50	
Physical Parameters	Units	Min.	Typ.	Max.
Dimensions	Inches	17.08 x 9.93 x 5.81		
RF connectors in/out		SMA (F)		
DC connectors		DA15 Male (Pin)		
DC pin configuration		1-6	+9.5 VDC	
		8	Module fault out (TTL high indicates fault)	
		9-14	Return	

<sup>1</sup>Quiescent

<sup>2</sup>@Max pout

