



Linear Power Amplifiers

CPA Series

Features

- Amplifier packages available in the ADC, GSM and both PDC/JDC bands.
- Linearity can be further enhanced for custom applications.
- Single Channel and Multi-Carrier
- Custom packaging available.

Description

M/A-COM's single channel and multi-carrier Linear Power Amplifiers meet the demanding needs of higher capacity Digital Cellular and PCN systems. Enhanced linearity required to meet strict FCC mask requirements can be accomplished through the use of Feed Forward techniques.

Put M/A-COM on your team today to develop Power Amplifiers optimized to meet your exact needs. As a first step, these standard design amplifiers are available for evaluation in your facility.

Model Number	Frequency	Output Power (Average)	Gain	Operating Mode	Linearity	Supply Voltage (Vs)
CPA-112-CBA	869-894 MHz	43.0 dBm min	18 dB min	Class AB	IM3, -28 dBc max	24-26 volts
CPA-120-CBA	869-894 MHz	47.0 dBm min	24 dB min	Class AB	IM3, -28 dBc max	24-26 volts
CPA-113-CBA	925-960 MHz	43.0 dBm min	18 dB min	Class AB	IM3, -28 dBc max	24-26 volts
CPA-110-PBM	1805-1880 MHz	45.0 dBm min	7.5 dB min	Class AB	AM/PM max 1.0 deg/dB	24-25 volts
CPA-111-PBA	1805-1880 MHz	38.5 dBm min	29 dB min	Class AB	IM3, -25 dBc max	24-25 volts
CPA-114-PBA	1805-1880 MHz	43.0 dBm min	24 dB min	Class AB	IM3, -25 dBc max	23-24 volts
CPA-118-PAA	1750-3000 MHz	29.0 dBm min	23 dB min	Class A	AM/PM max 1.0 deg/dB	7-10 volts

869-894 MHz, P_{out} > 43 dBm Average

Specifications

Parameter	
Frequency	869-894 MHz
Supply Voltage	24-26 volts
Supply Current	4 amperes max
Temperature	0° to +60°C

Electrical Characteristics

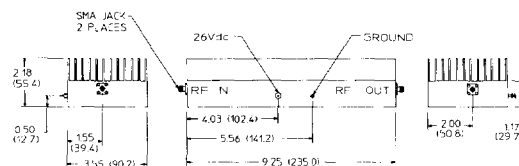
Parameter	Conditions	
Linear Output Power	V _s = 26 V	43 dBm min
Gain	V _s = 26 V	18 dB min
Gain Flatness	F = 869-894 MHz	1 dB max
In/Out VSWR		1.5:1 max
Efficiency	P _{out} > 43 dBm average	25% min ¹
Harmonics		-35 dBc max
Phase Linearity	P _{out} = 1 to 43 dBm	1.5 °/dB
Intermodulation	P _{out} = 43 dBm average, Tone spacing = 100 KHz	-28 dBc max

NOTES:

1) Operating mode Class AB

Specifications Subject to Change Without Notice.

CPA-112-CBA



869-894 MHz, $P_{out} > 46$ dBm Average

Specifications

Parameter	
Frequency	869-894 MHz
Supply Voltage	24-26 volts
Supply Current	7 amperes max
Temperature	0° to +60°C

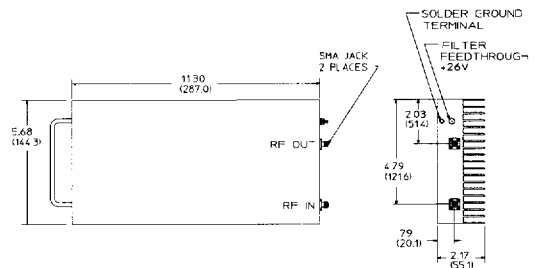
Electrical Characteristics

Parameter	Conditions	
Linear Output Power	$V_s = 26$ V	47 dBm min
Gain	$V_s = 26$ V	24 dB min
Gain Flatness	$F = 869-894$ MHz	1 dB max
In/Out VSWR		1.5:1 max
Efficiency	$P_{out} > 46$ dBm average	25% min ¹
Harmonics		-35 dBc max
Phase Linearity	$P_{out} = 1$ to 46 dBm	1.5°/dB max
Intermodulation	$P_{out} = 46$ dBm average, Tone spacing = 100 KHz	-28 dBc max

NOTES:

1) Operating mode Class AB

CPA-120-CBA

925-960 MHz, $P_{out} > 43$ dBm Average

Specifications

Parameter	
Frequency	925-960MHz
Supply Voltage	24-26 volts
Supply Current	4 amperes max
Temperature	0° to +60°C

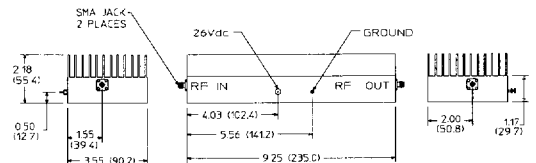
Electrical Characteristics

Parameter	Conditions	
Linear Output Power	$V_s = 26$ V	43 dBm min
Gain	$V_s = 26$ V	18 dB min
Gain Flatness	$F = 925-960$ MHz	1 dB max
In/Out VSWR		1.5:1 max
Efficiency	$P_{out} > 43$ dBm average	25% min ¹
Harmonics		-35 dBc max
Phase Linearity	$P_{out} = 1$ to 43 dBm	1.5°/dB max
Intermodulation	$P_{out} = 43$ dBm average, Tone spacing = 100 KHz	-28 dBc max

NOTES:

1) Operating mode Class AB

CPA-113-CBA



Specifications Subject to Change Without Notice.

1805-1880 MHz, $P_{out} > 43$ dBm Average

Specifications

Parameter	
Frequency	1805-1880 MHz
Supply Voltage	24-25 volts
Supply Current	4 amperes max
Temperature	-10° to +60°C

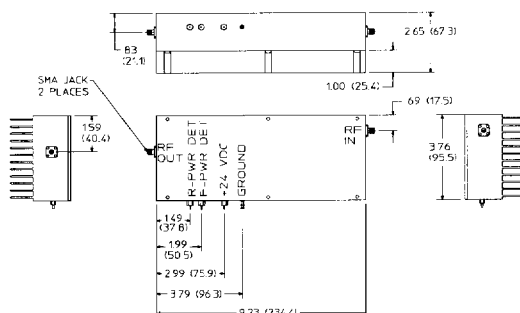
Electrical Characteristics

Parameter	Conditions	
Linear Output Power	$V_s = 24$ V	45 dBm min
Gain	$P_{out} = +1$ to +45 dBm	7.5 dB min
Gain Flatness	$P_{out} = +1$ to +45 dBm	1 dB max
In/Out VSWR		1.5:1 max
Efficiency	$P_{out} > 43$ dBm average	25% min ¹
Harmonics	2 nd	30 dBc min
	3 rd	50 dBc max
Output power detector		0.35 V/dBm max
Reverse output power detector		0.065 V/dBm max
Phase Linearity	$P_{out} < 45$ dBm	1.0 °/dB max
Reverse Intermodulation	$P_{out} = 43$ dBm cw, -13 dBm tone, 200 KHz offset, injected back into output	-70 dBc max -36 dBm max ²

NOTES:

- 1) Operating mode Class AB
- 2) Output, whichever is higher

CPA-110-PBM

1805-1880 MHz, $P_{out} > 36$ dBm Average

Specifications

Parameter	
Frequency	1805-1880 MHz
Supply Voltage	24-25 volts
Supply Current	2 amperes max
Temperature	0° to +60°C

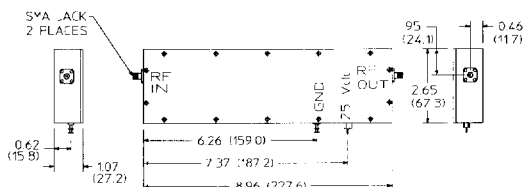
Electrical Characteristics

Parameter	Conditions	
Linear Output Power	$V_s = 24$ V	38.5 dBm min
Gain	$P_{out} = +1$ to +38 dBm	29 dB min
Gain Flatness	$P_{out} = +1$ to +38 dBm	1 dB max
In/Out VSWR		1.5:1 max
Efficiency	$P_{out} > 36$ dBm average	15% min ¹
Harmonics		-60 dBc max
Phase Linearity	$P_{out} = 1$ to 39 dBm	1.0 °/dB max
Intermodulation	$P_{out} = 36$ dBm average, Tone spacing = 200 KHz	-25 dBc max

NOTES:

- 1) Operating mode Class AB

CPA-111-PBA



Specifications Subject to Change Without Notice.

1805-1880 MHz, $P_{out} > 40$ dBm Average

Specifications

Parameter	
Frequency	1805-1880 MHz
Supply Voltage	23-24 volts
Supply Current	3 amperes max
Temperature	0° to +60°C

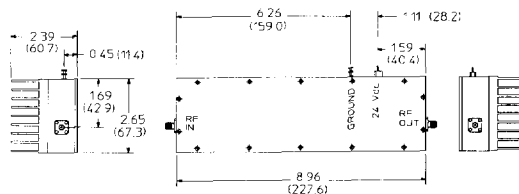
Electrical Characteristics

Parameter	Conditions	
Linear Output Power	$V_s = 24$ V	43 dBm min
Gain	$V_s = 26$ V	18 dB min
Gain Flatness	$F = 1805$ -1880 MHz	1 dB max
In/Out VSWR		1.5:1 max
Efficiency	$P_{out} > 40$ dBm average	25% min ¹
Harmonics		-35 dBc max
Phase Linearity	$P_{out} = 1$ to 40 dBm	1.5 °/dB max
Intermodulation	$P_{out} = 40$ dBm average, Tone spacing = 100 KHz	-25 dBc max

NOTES:

- 1) Operating mode Class AB

CPA-114-PBA

1750-3000 MHz, $P_{out} > 30$ dBm Average

Specifications

Parameter	
Frequency	1750-3000 MHz
Drain Voltage	7-10 volts
Gate Voltage ²	-10.5 min/-9.5 max volts ²
Drain Current	0.8 amperes max
Gate Current	40 mA max
Temperature	-10° to +60°C

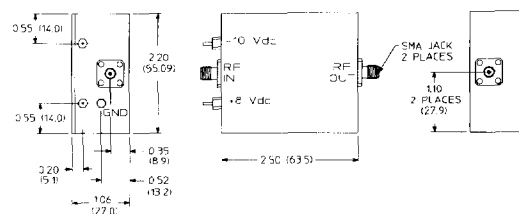
Electrical Characteristics

Parameter	Conditions	
Linear Output Power	$V_{dd} = 9$ V, $V_{gg} = -10$ V	29 dBm min
Gain	$P_{out} = 30$ dBm	23 dB min ^{3,4}
Gain Flatness	$P_{out} = 30$ dBm	1 dB max
Input VSWR		1.3:1 max
Output VSWR		2:1 max
Phase Linearity	$P_{out} < 30$ dBm	1.0 °/dB max

NOTES:

- 1) Operating mode Class A
 2) Gain varies by 0.04 dB/°C (decreases for increasing temperature)
 3) Gain set by resistive input attenuator network. Up to 35 dB gain is available by changing component values
 4) Units are supplied with voltage sequencer.
 5) Units with up to +33 dBm output power are available on special order.

CPA-118-PAA



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