

Solid State Personal Communication Power Amplifier

7094– PCM4S5AIO
1930 – 1995 MHz / 60 Watts USPCS

The PCM4S5AIO (SKU 7094) is suitable for single and Multi-Channel CDMA base station and repeaters applications in the Cellular frequency range. Also suitable for GSM and TDMA applications, this amplifier utilizes linear LDMOS power devices that provide excellent linearity and low distortions, high gain, and wide dynamic range. Exceptional performance, long term reliability, and high efficiency are achieved by employing advanced matching networks and combining techniques (Doherty Design), EMI/RFI filters, machined housing, and qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.

- Solid-state Pre-D linear design
- Small form factor and lightweight
- Suitable for Multi-Carrier CDMA, GSM, and TDMA Applications
- Built-in control monitoring & protection circuits
- 50 ohm input/output impedance
- Built in Output Isolator
- High reliability and ruggedness
- High efficiency
- Doherty Design

ELECTRICAL SPECIFICATIONS @ +28V_{DC}, 25°C, 50 Ω System, PAR 8 dB @ CCDF 0.01%

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	1930		1995	MHz
Small Signal Gain	G _{SS}	49	50	51	dB
Gain Flatness @ P _{IN} = -20 dBm	ΔG			±0.75	dB
Gain variation over operating temperature range	ΔG _{TEMP}			±0.75	dB
Input/Output Return Loss	S ₁₁ / S ₂₂			-18	dB
Power Output CDMA per IS-95 standard	P _{CDMA}	60			Watt
ACPR @ P _{OUT} = 47.8 dBm 10FA CDMA, 9-Channels, IS-95 BW = 1.25 MHz Settings: RBW = 30 KHz, VBW = 100 Hz	Δ = 885 KHz			-29	dBc
	Δ = 1.98 MHz			-44	
Harmonics @ 60 Watt 1FA CDMA, 2 ND	H			-45	dBc
Spurious Signals @ 60 Watts	Spur			-70	dBc
Operating Voltage	V _{DD}	27	28	29	Volt
Supply Current @ P _{OUT} = 60 W 10FA CDMA	I _{DD}		8	8.5	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions – Metric (Inch)	210 x 175 x 28 mm (8.3" x 6.9" x 1.1")	Max
Weight	TBD	Max
RF Connectors Input / Output	SMA F / Type-N female	
DC Interface Connectors	Hybrid, D-Sub 3-Pin, Male and, D-Sub 9-Pin, Male	
Cooling	External Heatsink required (not supplied)	

ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _C	-30		+85	°C
Storage Temperature	T _{STG}	-40		+85	°C
Relative Humidity (non-condensing)	RH			95	%
Altitude (MIL-STD-810F Method 500.4)	ALT			30,000	Feet
Vibration/Shock MIL-STD-810F - Method 514.5/516.5 – Proc I	VI/SH		Airborne		

LIMITS

Over Power Shutdown	+49 dBm	Min
Load VSWR @ P _{OUT} = 60W	∞:1 VSWR	-
Thermal Overload	95°C shutdown	Max

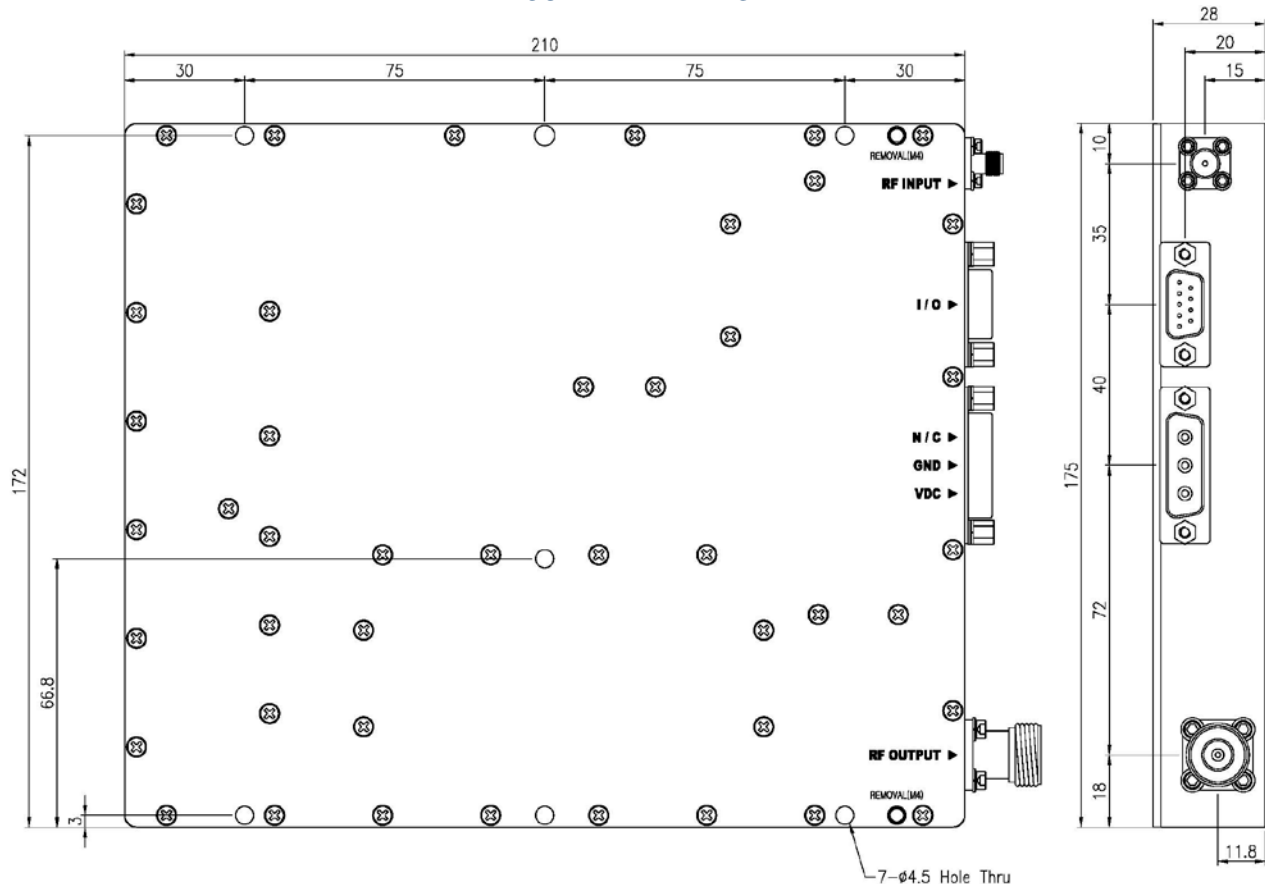
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CONTROL INTERFACE CONNECTOR – D-Sub 9-Pin, Male

Pin #	Description	Specifications
1	GND	Ground
2	Over Power Alarm	Over Power Alarm: TTL Logic High (5V) @ 49 dBm \pm 0.5dB (Internally Pulled-low)
3	VSWR Alarm	VSWR Alarm: TTL Logic High (5V) (Internally Pulled-low)
4	Temperature Monitor	Analog: (10 mV/°C x Temp) + 500 mV
5	Over Temp Alarm	Temp Fault: TTL Logic High (5V) @ 95°C module shutdown (Internally Pulled-low) Auto-restart @ 85°C
6	Shutdown	Amplifier Enable: TTL Logic Low (0V) (Internally Pulled-high)
7	GND	Ground
8	Forward Power Monitor	Analog: +4.0V _{DC} @ 47.8dBm, 0.1 V/dB
9	N/C	No Connection

DC POWER INTERFACE CONNECTOR – Hybrid D-Sub 3-Pin, Male

Pin #	Description	Specifications
A1	VDD	+27.0-29.0V _{DC}
A2	GND	Ground
A3	N/C	

OUTLINE DRAWING


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Plot 1 - Broadband Plot

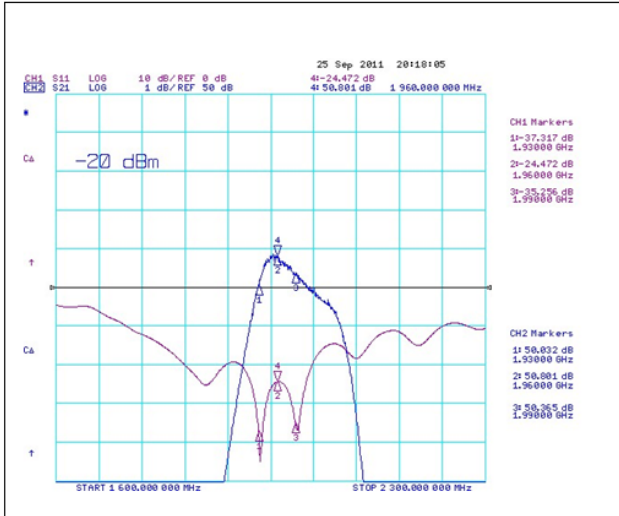
1600 - 2300MHz

Middle Curve: Small Signal Gain @ Pin = dBm (Note 2)

Reference: 50dB, 1dB/div.

Bottom Curve: Input VSWR

Reference: 0dB, 10dB/div.



Plot 2

ACLR @ WCDMA 2FA PAR 8 dB @ CCDF0.01%, 60W

CF=1960MHz

