

Solid State Personal Communication Power Amplifier

7082 – PCM4S5ACO
1930 – 1990MHz / 16 Watts USPCS

The PCM4S5ACO (SKU 7082) 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, 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 and protection circuits
- 50 ohm input/output impedance
- Built in output isolator
- High reliability and ruggedness
- High efficiency

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	1930		1990	MHz
Small Signal Gain	G _{SS}	49	50	51	dB
Gain Flatness @ P _{IN} = -20 dBm	ΔG			±1.0	dB
Input/Output Return Loss	S ₁₁ /S ₂₂			-14/-20	dB
Power Output CDMA per IS-95 standard	P _{CDMA}	16			Watt
ACPL @ P _{OUT} = 42 dBm	Δ=885 kHz			-29	dBc
7FA CDMA, IS-95, BW= 1.25 MHz Settings: RBW= 30 kHz, VBW= 100 Hz	Δ=1.98 MHz			-44	
Harmonics @ P _{OUT} = 16W 1FA CDMA,	2 nd /3 rd			-45 / -60	dBc
Spurious Signals @ P _{OUT} = 16W	Spur			-70	dBc
Operating Voltage(< 560mV peak-to-peak)	V _{DC}	27	28	29	Volt
Current Consumption P _{OUT} = 16W, 7FA CDMA	I _{DD}		3.0	3.3	Amp
Max inrush current				2.4	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit	Limit
Dimensions	110 x 170 x 28 [4.4 x 6.7 x 1.1]	in/mm	Max
Weight	3.5	lbs.	Max
RF Connectors Input / Output	Type-SMA, Female	-	-
DC Interface Connectors	Control: D-Sub 9-Pin, Male DC Power: Hybrid, D-Sub 3-Pin, Male (3W3)	-	-
Cooling	External Heatsink (Not Supplied)	-	-

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

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		

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LIMITS

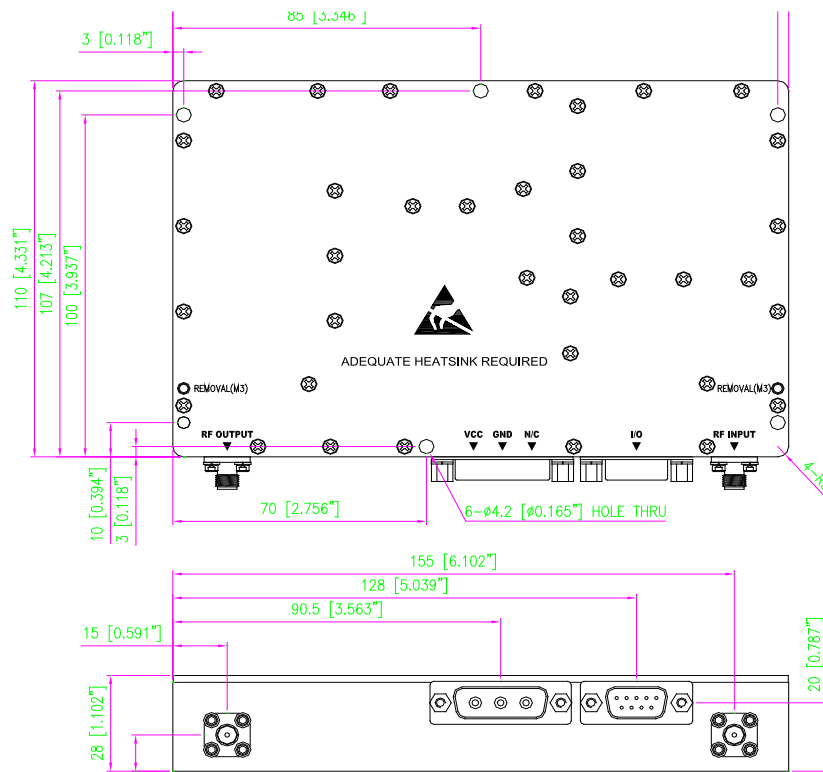
Load VSWR @ P _{OUT} = 16W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	95°C shutdown	Max

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

Pin #	Description	Specifications
1	GND	Ground
2	Over Power Alarm	TTL Logic High (5V) @ 44dBm ±0.5dB (Normally Low)
3	VSWR Alarm	TTL Logic High (5V) @ ≥3:1 VSWR (Normally Low)
4	Temperature Monitor	Analog voltage relative to module's temperature @ (10mV/°C x Temp) + 500mV
5	Over Temp Alarm	TTL Logic High (5V) @ 95°C shutdown, auto-restart @ 85°C (Normally Low)
6	Shutdown	Amplifier Enable: TTL Logic Low (0V) (Internally Pulled-High)
7	GND	Ground
8	Forward Power Monitor	Analog voltage relative to forward power level: +4V @ 42dBm, 0.1V/dB, 7FA CDMA
9	N/C	No Connection

DC Power Connector – Hybrid, D-Sub 3-Pin, Male (3W3)

Pin #	Description	Specifications
A1	VDD	+28.0V _{DC} ±1.0 V
A2	GND	Ground
A3	N/C	No Connection

OUTLINE DRAWING


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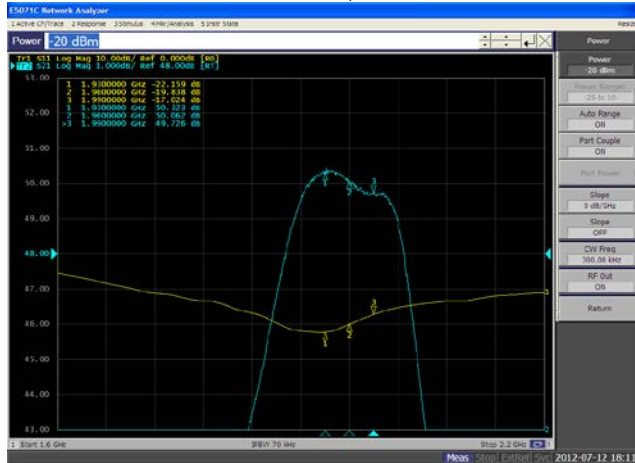
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TYPICAL PERFORMANCE PLOTS

Plot 1 – Small Signal Gain

Broadband Sweep: 1600 - 2200MHz
 Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$ (Note 2)
 Reference: 48dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.



Plot 2 – ACLR

W-CDMA 2FA @ 16 Watts
 Center Frequency= 1960.00MHz

