EMPOWER RF SYSTEMS, INC.

Solid State Personal Communication Power Amplifier

7043 - PCM3Q4A6J

869 – 894 MHz / 4 Watt Multi-Channel CDMA

PRELIMINARY DATA

The PCM3Q4A6J (SKU # 7043) is designed for multi-channel CDMA repeater applications in the Cellular frequency range. Also suitable for GSM, and TDMA digital modulations, this amplifier provides high gain, wide dynamic range, low distortions, excellent group delay and phase linearity. Exceptional performance, long term reliability, and high efficiency are achieved by employing efficient broadband RF matching networks and combining techniques, EMI/RFI filters, machined housings, and qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.

- Solid-state linear design
- Small and lightweight
- Suitable for multi FA CDMA, GSM, TDMA & CW
- 50 Ohm Input/Output impedance
- High reliability and ruggedness
- Built in monitoring circuit
- Built in Output Isolator

ELECTRICAL SPECIFICATIONS @ T=25°C, VDD=+28VDC; 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	869	-	894	MHz
Output Power 3FA CDMA	P_{CDMA}	4			Watt
Output Power @ 1dB G.C.P	P_{1dB}	25			Watt
Power Gain @ 4W composite	G_p	40	-		dB
Small Signal Gain Flatness	ΔG		±0.25	±0.5	dB
Third Order Intercept Point 2–Tones, Pout = 4W Avg., 500KHz spacing	IP3		+58		dBm
Input/Output VSWR	S11/S22		1.2:1	1.5:1	-
Noise Figure	NF		7	10	dB
Harmonics @ P1dB G.C.P	H			-45	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V_{DC}	26	28	30	Volt
Supply Current @ Pout = 4W	I_{DD}			2.0	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	5.0 x 3.55 x 1.0	Inch	Max
Weight	1.0	lb.	Max
RF Connectors In/Out	SMA female		
DC Connectors	D-sub 9 Pins		
Cooling	External Heatsink		

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	Tc	-30		+70	°C
Storage Temperature	Tstg	-40		+85	°C
Relative humidity w/o condensation	RH	95			%
Altitude	ALT	10,000	30,000		Feet
Shock & Vibration	SH / VI		Airborne		

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PROTECTIONS

RF Input Overdrive	
Infinite Load VSWR output Isolator	

1. GND
2. GND
3. +28VD
4. +28VDC
5. MUTE (TTL “H”)
6. FORWARD
7, 8, 9 N/C

INTERFACE CONNECTORS
D-Sub, 9-Pin

Pin #	Description	Specifications
1	GND	Ground
2	GND	Ground
3	+28VDC	+28V_{DC}
4	+28VDC	+28V_{DC}
5	MUTE (TTL “H”)	
6	FORWARD	
7	N.C.	Reserved
8	N.C.	Reserved
9	N.C.	Reserved

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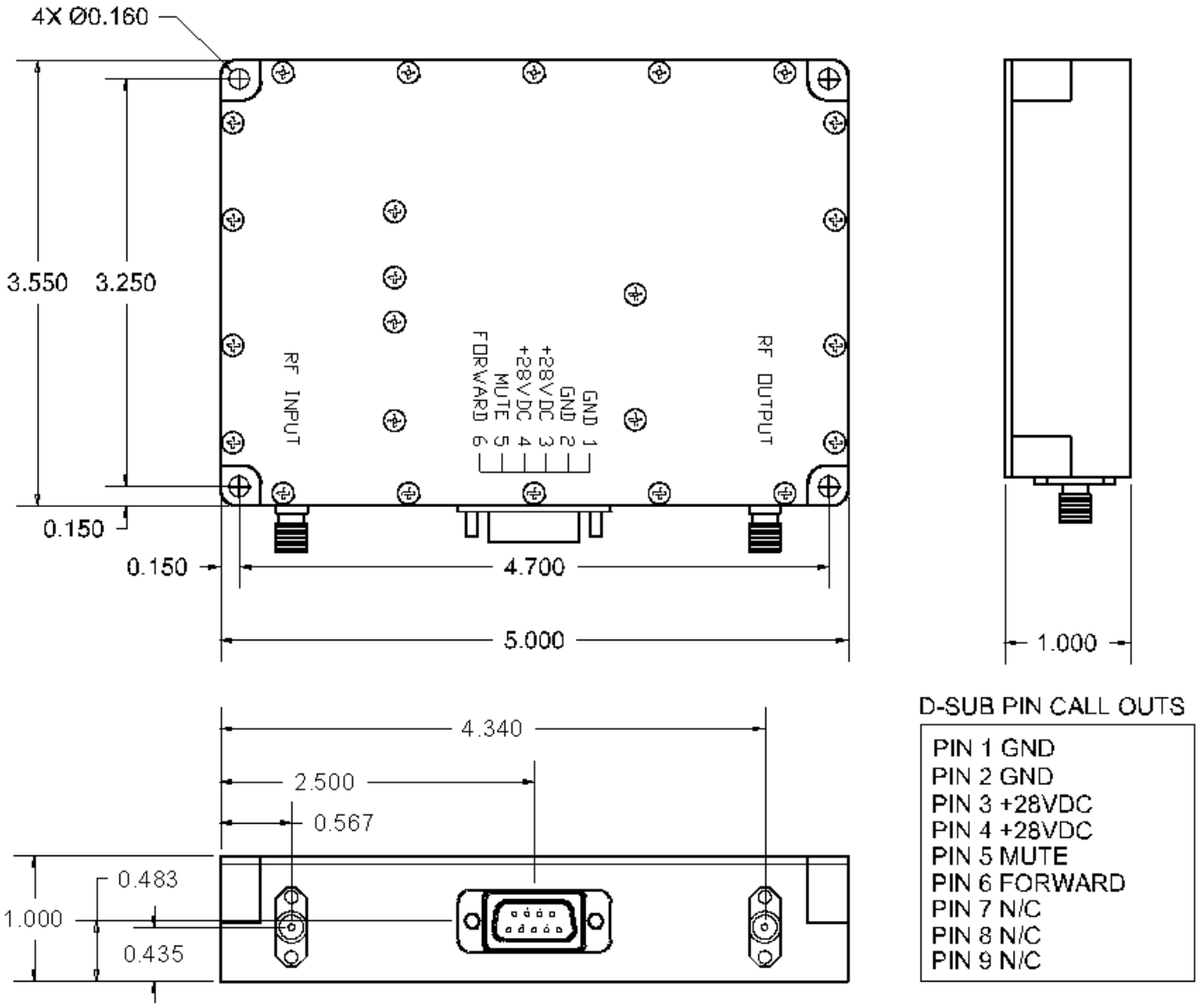
OUTLINE DRAWING



D-SUB PIN CALL OUTS

PIN 1 GND
PIN 2 GND
PIN 3 +28VDC
PIN 4 +28VDC
PIN 5 MUTE
PIN 6 FORWARD
PIN 7 N/C
PIN 8 N/C
PIN 9 N/C

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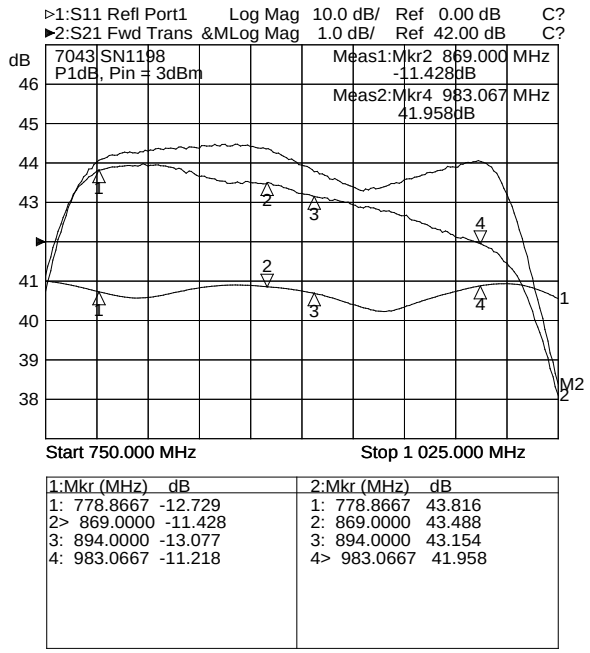
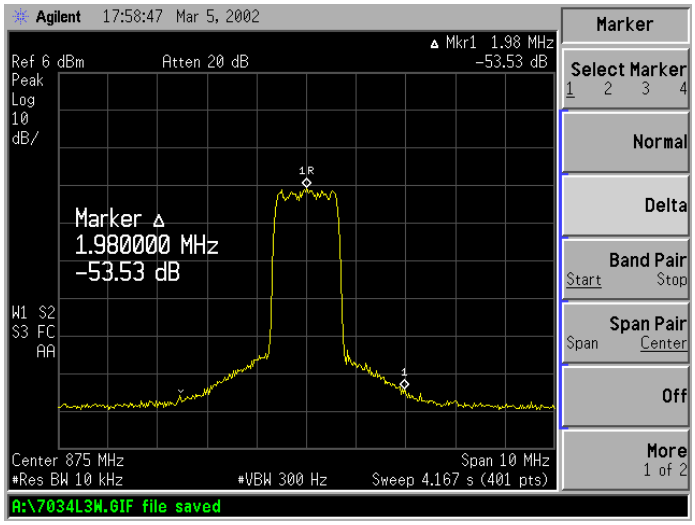
TYPICAL PERFORMANCE PLOTS

Top curve: Small signal gain @ Pin = -20dBm
Middle curve: Power gain @ Pin = 3dBm
Reference = 42dB
Bottom curve: Input VSWR @ 10dB/Div.

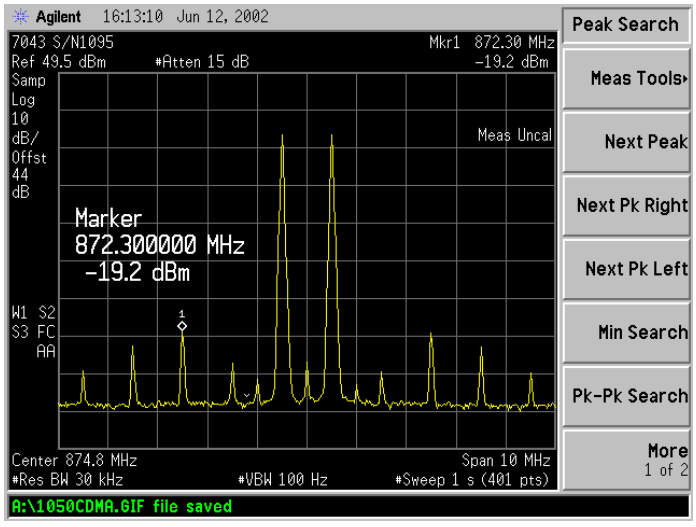


1:Mkr (MHz) dB	2:Mkr (MHz) dB
1: 778.8667 -12.729	1: 778.8667 43.816
2> 869.0000 -11.428	2: 869.0000 43.488
3: 894.0000 -13.077	3: 894.0000 43.154
4: 983.0667 -11.218	4> 983.0667 41.958

Single CDMA channel @ Pout = 3W
Fc = 875MHz



2-Tones @ Pout = 4W Composite
Fc = 874.8MHz



3-CDMA Channels @ Pout = 4W Composite
Fc = 874.8MHz