

Solid State Personal Communication Power Amplifier

7045 - PCM3Q4A6M
869 - 894MHz / 4Watts for CDMA

The PCM3Q4A6M (SKU # 7045) is designed for Cell A & B single & multi-channel CDMA repeaters and MicroCell applications repeater applications. Also suitable for GSM and TDMA applications, this amplifier utilizes proprietary DIP™ (Direct Injection Pre-D) circuit and linear LDMOS power devices that provide ample output power margins, high gain, wide dynamic range, and excellent group delay and phase linearity. Exceptional performance, long term reliability, and high efficiency are achieved by employing advanced matching networks and combining techniques, EMI/RFI filters, machined housings, and qualified components. This rugged module is input overdrive and output isolator protected, and proprietary ALC circuits ensure stable, ripple free output power under multi-channel conditions. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.



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

ELECTRICAL SPECIFICATIONS @ +28V_{DC}; 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	869		894	MHz
Output Power CDMA	P _{CDMA}	4			Watt
Output Power @ 1dB Gain Compression	P _{1dB}	25			Watt
Small Signal Gain	G _{SS}	44	46	48	dB
Gain Flatness (ALC On)	ΔG			±0.5	dB
ACPR @ 4W _{AVERAGE} , CDMA	ACPR			-50	dBc
F _C ±885KHz @ 30KHz RBW, 100Hz VBW				-60	dBc
F _C ±1.98MHz @ 30KHz RBW, 100Hz VBW				-13	dBm
Third Order Intercept Point 2-Tone @ 33dBm/Tone, 500kHz Spacing	IP3	+56	+58		dBm
Input/Output Return Loss	S ₁₁ /S ₂₂			-14	dB
Noise Figure	NF		7	10	dB
Harmonics @ P _{OUT} = 25W	H			-45	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DD}	26	28	30	Volt
Current Consumption @ P _{OUT} = 25W CW	I _{DD}		3.0		Amp
Current Consumption @ P _{OUT} = 4W Composite	I _{DD}		2.0	2.5	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	5.0 x 3.75 x 1.0	Inch	Max
Weight	1.0	lb.	Max
RF Connectors Input / Output	Type-SMA, Female		
DC Interface Connector	D-sub 9-pin, Male		
Cooling	External Heatsink (not supplied)		

ENVIRONMENTAL CHARACTERISTICS (Designed to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _C	-10		+50	°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	SH / VI		Airborne		

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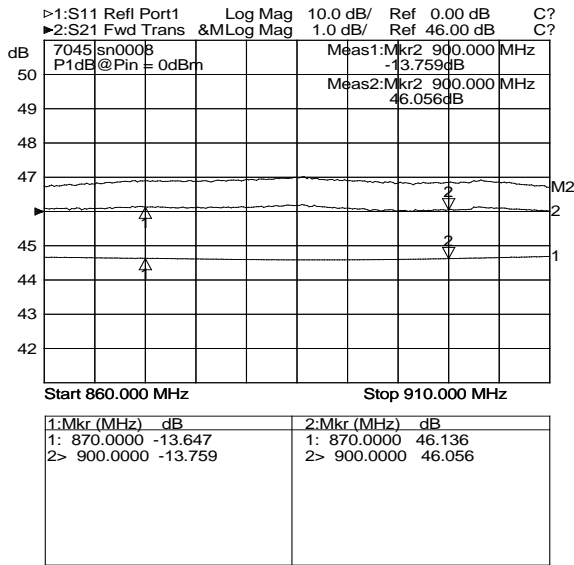
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TYPICAL PERFORMANCE PLOTS

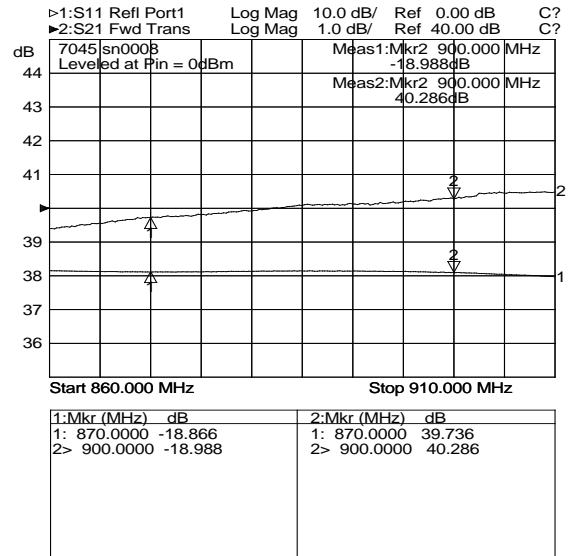
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small signal @ P_{IN} = -20dBm
 Middle Curve: Output power @ P_{IN} = 0dBm
 Reference: 46dB, 1dB/div
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div



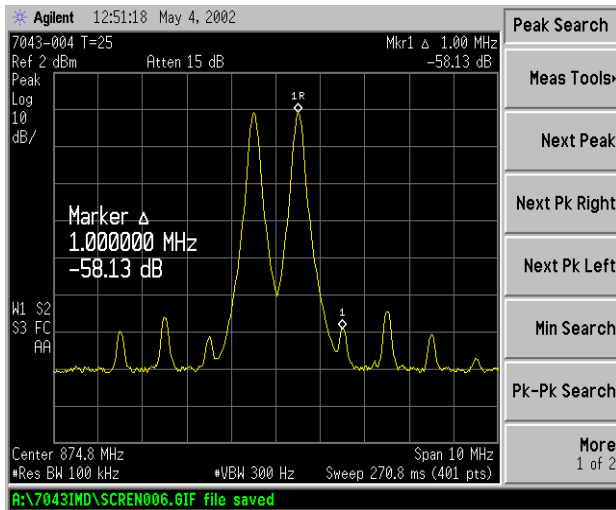
Plot 2 – ALC Flatness @ 10W

Top Curve: ALC Mode @ P_{IN} = 0dBm
 Reference: 40dB, 1dB/div
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div



Plot 3 – 2-Tone IMD

Composite P_{OUT} = 4W, @ 25°C



Plot 4 – CDMA @ 3 Channels

P_{OUT} = 4W, @ 25°C

