

Solid State Personal Communication Power Amplifier

7029 - PCM3Q4ACL
800 – 960 MHz / 16 Watts

The PCM3Q4ACL (SKU 7029) is suitable for Ultra linear GSM repeater applications in the Cellular frequency range. Also suitable for CDMA and TDMA applications, this amplifier utilizes Class A LDMOS power devices that provide 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 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 Class A linear design
- Built in AGC function
- Small and lightweight
- Suitable for GSM, TDMA and Multi-Carrier CDMA Application
- 50 ohm input/output impedance
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS @ +28 VDC, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	800		960	MHz
Power Output CW	P _{SAT}	16			Watt
Power Output @ 1 dB Gain Compression Point	P _{1dB}	12	14		Watt
Gain @ 1 dB Gain Compression Point, minimum attenuation	G _{1dB}	44	45		dB
Gain Adjustment Range via internal Pot.	GA	20	25		dB
Small Signal Gain Flatness	ΔG		±0.5	±0.75	dB
Input/Output VSWR	S ₁₁ /S ₂₂		1.2:1	1.5:1	-
Noise Figure @ minimum attenuation	NF		7	10	dB
Third Order Intercept Point 2 -Tones, P _{OUT} = 1 W/Tone, Δ = 100 KHz	IP3	+50	+52		dBm
Harmonics @ 1 dB Gain Compression Point	H			-30	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	VDD	26	28	30	Volt
Supply Current	IDD		1.7	1.9	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions (L x W x D)	5.67 x 2.42 x 0.87	Inch	Max
Weight	1.0	lb.	Max
RF Connectors In/Out	SMA female		
DC Connectors	Feed Thru		
Cooling	External Heatsink		

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	0		+50	°C
Storage Temperature	T _{stg}	-40		+85	°C
Relative humidity (non-condensing)	RH			95	%
Altitude (MIL-STD-810F Method 500.4)	ALT	10,000		30,000	Feet
Shock / Vibration (MIL-STD-810F Method 500.4)	SH / VI		Airborne		

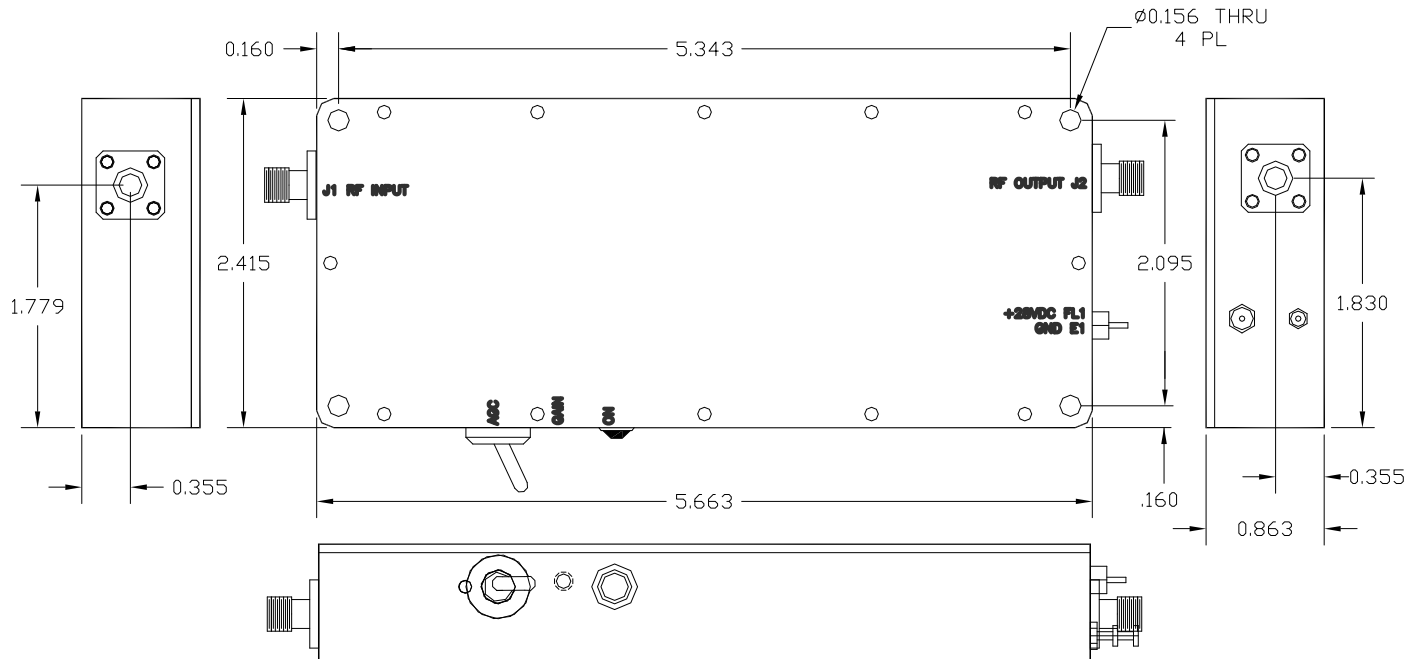
PROTECTIONS

Input Overdrive	+10 dBm	Max
Load VSWR programmable response	∞ @ all load phase and amplitude	Nom
Thermal Overload	85°C shutdown	Max

Solid State Personal Communication Power Amplifier

7029 - PCM3Q4ACL
800 – 960 MHz / 16 Watts
INTERFACE CONNECTION

Pin #	Description	Specifications
E1	GND	Ground
FL1	+28 VDC	+28 ±2 VDC

OUTLINE DRAWING


Solid State Personal Communication Power Amplifier

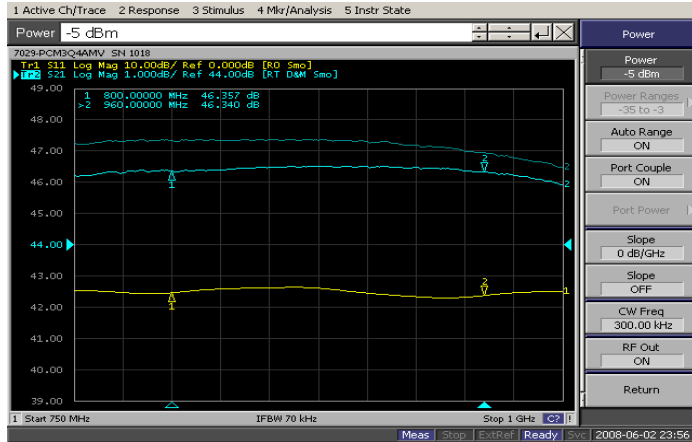
7029 - PCM3Q4ACL

800 – 960 MHz / 16 Watts

TYPICAL PERORMANCE PLOTS

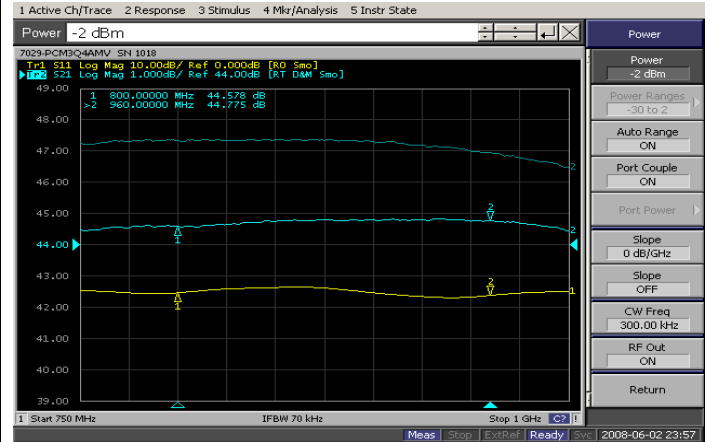
Plots 1 - Small Signal and P_{1dB} Gain

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -5.0dBm$
 Reference: 44dB, 1dB/div.
 Bottom Curve: Input VSWR
 Reference: 0dB, 10dB/div.



Plot 2 - Small Signal and P_{SAT}

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: P_{SAT} @ $P_{IN} = -2.0dBm$
 Reference: 44dB, 1dB/div.
 Bottom Curve: Input VSWR
 Reference: 0dB, 10dB/div.



Plot 3 - ALC 16W

Top Curve: Max Gain @ $P_{IN} = 0dBm$
 Reference: 42dB, 1dB/div.
 Bottom Curve: Input VSWR
 Reference: 0dB, 10dB/div.

