

Solid State General Communication Power Amplifier

3041 - GCM4Q5EAJ-AGC
1800 - 2200MHz / 10Watts

The GCM4Q5EAJ (SKU # 3041) is suitable for linear repeater and counter communication applications in the PCS & UMTS frequency ranges. This amplifier utilizes advanced 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. Functions such as FWD/REV power reading and ALC circuits are included. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.



- Solid-state Class AB linear design
- Built in ALC control circuit
- Built in control, monitoring and protection circuits
- Small and lightweight
- Suitable for CW, AM and FM (Consult factory for other modulation types)
- 50 Ohm Input/Output impedance
- High reliability and ruggedness

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	1800		2200	MHz
Output Power CW	P _{SAT}	10	12		Watt
Output Power @ 1dB Gain Compression	P _{1dB}	8	10		Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	40	42		dB
ALC Level via External Analog Control Voltage	ALC	27	40		dBm
Small Signal Gain Flatness	ΔG		±1.0	±1.25	dB
Input/Output Return Loss	S ₁₁ /S ₂₂			-10	dB
Noise Figure @ minimum attenuation	NF		7	10	dB
Third Order Intercept Point 2-Tone @ 27dBm/Tone, 100kHz Spacing	IP3		+49		dBm
Harmonics @ P _{OUT} = 8W	H			-30	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DD}	24	26	30	Volt
Current Consumption @ P _{OUT} = 10W	I _{DD}		2.0	2.4	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions (L x W x D)	5.7 x 2.7 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 (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 w/o condensation	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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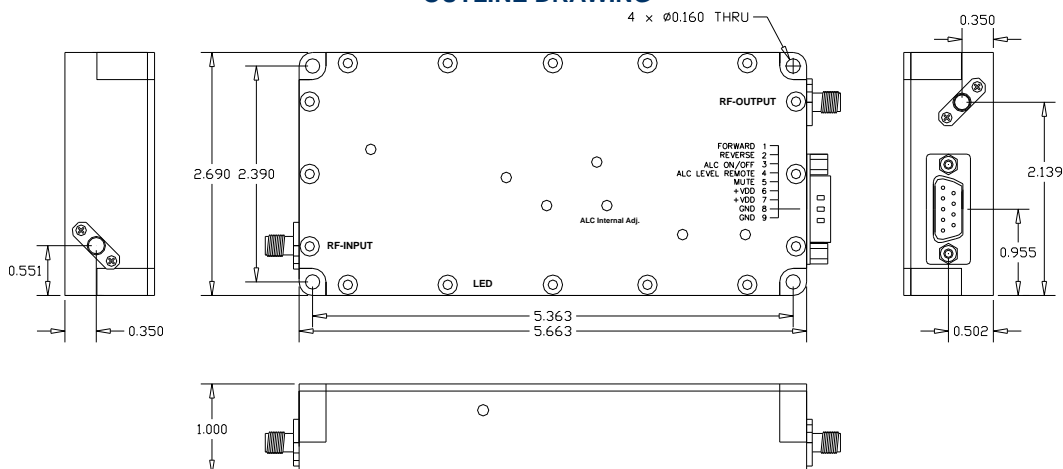
PROTECTIONS

Input Drive without Damage	+6dBm	Max
Load VSWR – Built-in Isolator	5:1 @ all load phase & amplitude	-
Thermal Overload	85°C shutdown	Max

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

Pin #	Description	Specifications
1	Forward Power	Continuous Analog voltage 0-5V _{DC} , relative to forward power level
2	Reverse Power	Continuous Analog voltage 0-5V _{DC} , relative to reverse power level
3	ALC ON/OFF	ALC ON = TTL Logic Low (0V) (Internally Pulled-High)
4	ALC Level	Continuous 20 - 40dBm adjustable range via 0.5-4.5V _{DC} Analog levels Maximum Gain: 4.5V _{DC} , Minimum Gain: 0.5V _{DC}
5	Mute	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
6, 7	+VDD	24V _{DC} to +28V _{DC}
8, 9	GND	Ground
LED	LED Indicator	Output Power level indicator referenced to ALC setting

OUTLINE DRAWING



TYPICAL PERFORMANCE PLOTS

