

## Solid State General Communication Power Amplifier

**3085 - GCM4Q5EFL-ALC**
**1800 – 2200 MHz / 30 Watts**

The GCM4Q5EFL (SKU 3085) is suitable for linear repeater and counter communication applications in the PCS and 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 form factor 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<sub>DC</sub>, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	1800		2200	MHz
Power Output CW	P <sub>SAT</sub>	30			Watt
Power Output @ 1dB Gain Compression	P <sub>1dB</sub>	25			Watt
Power Gain @ 1dB Gain Compression	G <sub>1dB</sub>	44		47	dB
ALC Level (external analog control voltage)	ALC	27	40		dBm
Small Signal Gain Flatness	ΔG		±0.75	±1.0	dB
Input Power @ Rated P <sub>SAT</sub> (ALC ON)	P <sub>IN</sub>		+5		dBm
Input/Output Return Loss	S <sub>11</sub> / S <sub>22</sub>			-10	dB
Noise Figure (at minimum attenuation)	NF		7	10	dB
Third Order Intercept Point 2-Tone @ 36dBm/Tone, 100kHz Spacing	IP3		+51		dBm
Harmonics @ P <sub>OUT</sub> = 30W	H			-30	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V <sub>DC</sub>	24	28	30	Volt
Current Consumption @ P <sub>OUT</sub> = 30W	I <sub>DD</sub>			7.0	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 <sub>C</sub>	0		+75	°C
Storage Temperature	T <sub>STG</sub>	-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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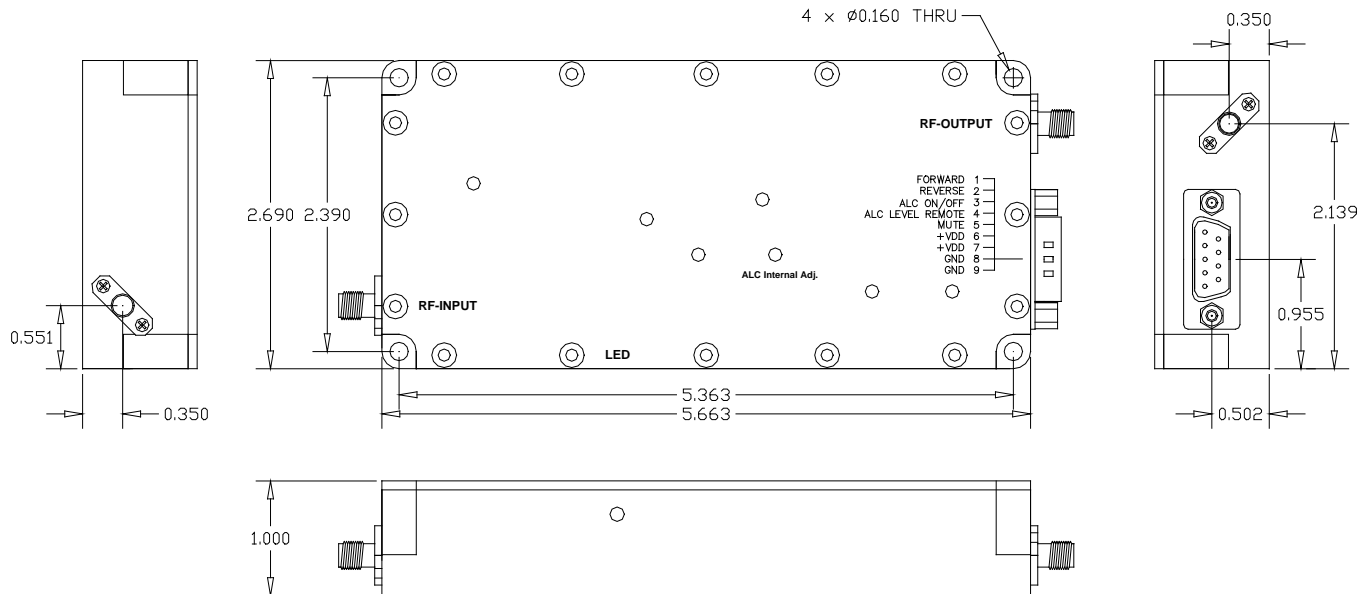
### LIMITS

Input RF drive level without damage	+7 dBm	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

Pin #	Description	Specifications
1	Forward Power Monitor	Continuous Analog voltage 0-5V <sub>DC</sub> relative to forward power level
2	Reverse Power Monitor	Continuous Analog voltage 0-5V <sub>DC</sub> relative to forward power level
3	ALC ON/OFF	ALC OFF = TTL Logic High (5V) (Internally Pulled-Low)
4	ALC Level	Continuous 32 – 45dBm adjustable range via 0-5 V <sub>DC</sub> Analog levels Maximum Gain: 5V <sub>DC</sub> Minimum Gain: 0V <sub>DC</sub>
5	Mute	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
6, 7	+VDD	24.0 – 30.0V <sub>DC</sub>
8, 9	GND	Ground
LED	LED Indicator	Output Power level indicator referenced to ALC setting

### OUTLINE DRAWING



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## TYPICAL PERFORMANCE PLOTS

