

## Solid State General Communication Power Amplifier

**3066 - GCM3Q4ANQ**
**800 - 1000MHz / 200Watts**

The GCM3Q4ANQ (SKU # 3066) is suitable for CW and pulse applications in the Cellular frequency range. This amplifier utilizes high efficiency 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 linear design
- Small and lightweight
- Suitable for CW, AM, and FM (Consult factory for other modulation types)
- 50 Ohm Input/Output impedance
- High reliability and ruggedness
- Built-in control, monitoring & protection circuits

### ELECTRICAL SPECIFICATIONS @ +28V<sub>DC</sub>, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	800	-	1000	MHz
Power Output CW	P <sub>SAT</sub>		250		Watt
Power Output @ 1dB Gain Compression	P <sub>1dB</sub>	200			Watt
Power Gain @ 1dB Gain Compression	G <sub>P</sub>	53	54		dB
Input Power for Rated P <sub>SAT</sub>	P <sub>IN</sub>		0		dBm
Small Signal Gain Flatness	G <sub>SS</sub>		±1.0	±1.5	dB
Gain @ Shutdown, P <sub>IN</sub> = -10dBm	G <sub>SD</sub>		-25		dB
Input/Output Return Loss	S <sub>11</sub> / S <sub>22</sub>			-10	dB
Third Order Intercept Point 2-Tone @ 44dBm/Tone, 100kHz Spacing	IP3		+62		dBm
Harmonics @ P <sub>OUT</sub> = 200W	2 <sup>ND</sup> /3 <sup>RD</sup>			-50/-50	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V <sub>DD</sub>	26	28	30	Volt
Current Consumption @ P <sub>OUT</sub> = 200W CW	I <sub>DD</sub>			26	Amp

### MECHANICAL SPECIFICATIONS

Parameter	Value	Unit	Limit
Dimensions (w/o connectors)	9.0 x 8.0 x 1.50	Inch	Max
Weight	5.7	lb	Max
RF Connectors Input / Output	Type-SMA, Female / Type-N, Female		
DC Interface Connector	Hybrid 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>	-30		+55	°C
Storage Temperature	T <sub>STG</sub>	-40		+60	°C
Relative Humidity (non-condensing)	RH			95	%
Altitude MIL-STD-810F (Method 500.4 – Proc I)	ALT			30,000	Feet
Vibration / Shock MIL-STD-810F – Method 514.5/516.5 – Proc I	VI / SH		Airborne		

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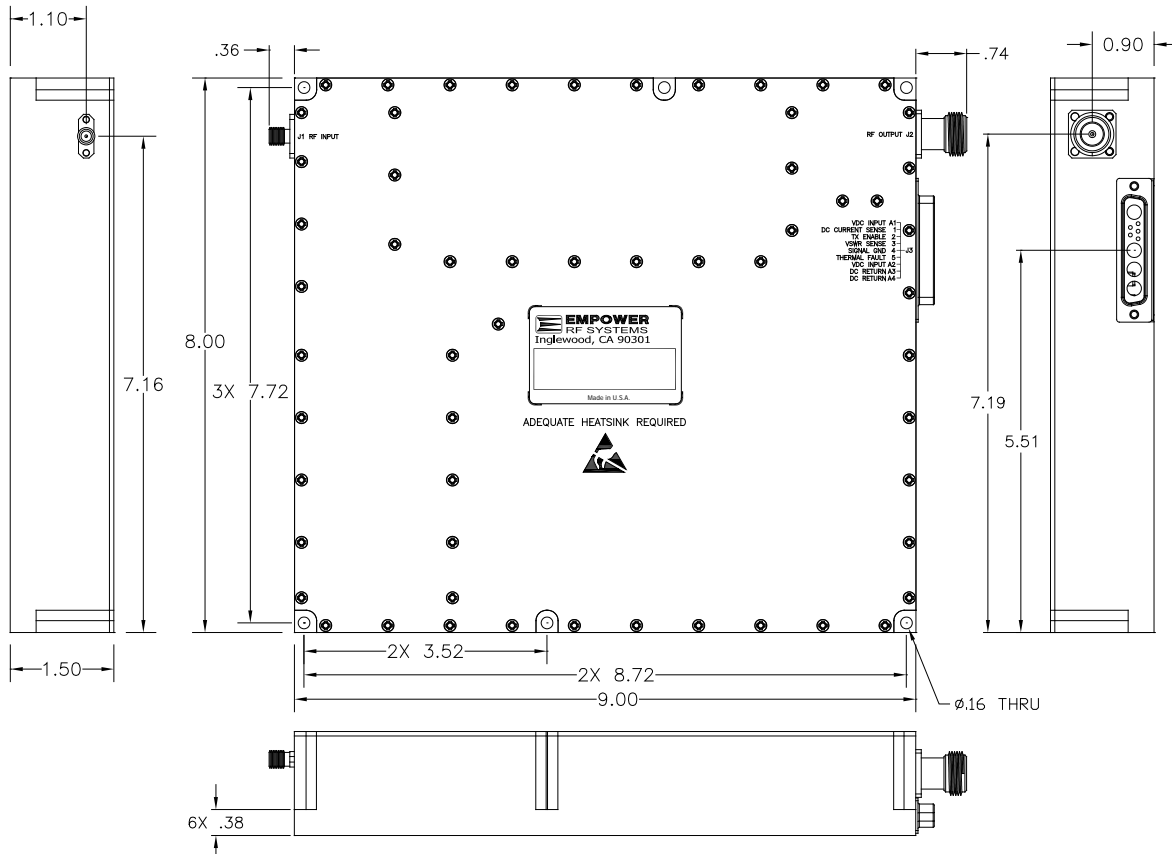
### LIMITS

Input RF level without damage	+10dBm	Max
Load VSWR @ P <sub>OUT</sub> = 200W	5:1 @ all load phase & amplitude continuous	-
Thermal Overload	95°C shutdown	Max

### CONNECTOR Hybrid D-Sub

Pin #	Description	Specifications
A1, A2	VDD	+26.0-30.0V <sub>DC</sub>
A3, A4	GND	Ground
1	Current Monitor	Analog Voltage 1-4V
2	TX Enable	TX Enable: TTL Logic Low (0V) (Internally Pulled-high)
3	VSWR Sense	Analog Voltage 1-4V
4	GND	Ground
5	Thermal Fault	Fault = TTL Logic Low (0V)

### OUTLINE DRAWING



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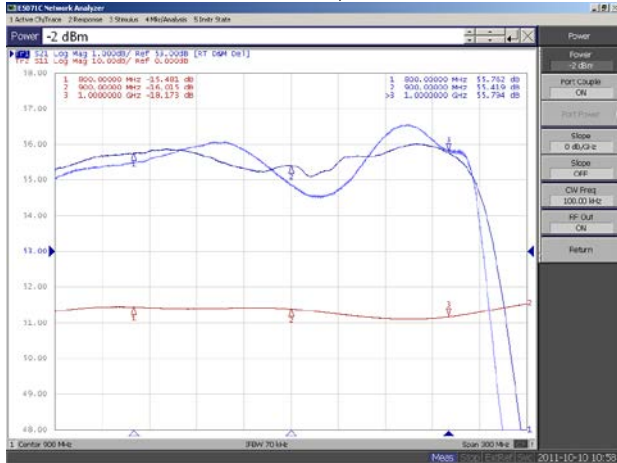
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## PERFORMANCE PLOTS

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

Top Curve: Small Signal Gain @  $P_{IN} = -20dBm$   
 Middle Curve: Power Gain @  $P_{1dB}$ ,  $P_{IN} = -2.0dBm$   
 Reference: 53dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.



### Plot 2 – Small Signal and $P_{SAT}$

Top Curve: Small Signal Gain @  $P_{IN} = -20dBm$   
 Middle Curve: Power Gain @  $P_{SAT}$ ,  $P_{IN} = 0.0dBm$   
 Reference: 54dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.

