

Solid State General Communication Power Amplifier

3042 - GCM2E3DNP
20 - 150 MHz / 200 Watts

The GCM2E3DNP (SKU 3042) is suitable for VHF & UHF high power linear applications; this amplifier utilizes push-pull MOSFET power devices that provide high gain, wide dynamic range, low distortions and good 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 AB linear design
- Instantaneous broadband
- Built-in control circuit
- Small and lightweight
- Suitable for CW, AM, and FM (Contact factory for other modulation types)
- 50 ohm input/output impedance
- High reliability and ruggedness

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	20		150	MHz
Power Output CW	P _{SAT}	200			Watt
Power Output @ 1dB Gain Compression	P _{1dB}	150			Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	52			dB
Input Power for Rated P _{OUT}	P _{IN}		0		dBm
Small Signal Gain Flatness	ΔG		±1.0	±1.5	dB
Input Return Loss	S ₁₁			-10	dB
Harmonics @ P _{OUT} = 150W	2 ND / 3 RD		-30/-20		dBc
Third Order Intercept Point (IMD)	IP3		+55		dBm
2-Tone @ 40dBm/Tone, 500kHz Spacing					
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DD}	26	28	30	Volt
Current Consumption @ P _{OUT} = 200W CW	I _{DD}			25	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	9.8 x 6.4 x 1.0	Inch	Max
Weight without	6.0	lb.	Max
RF Connectors Input / Output	Type-SMA Female / Type-N Female		
DC Interface Connector	Hybrid D-sub 7-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 (non-condensing)	RH	95			%
Altitude (MIL-STD-810F 500.4)	ALT			30,000	Feet
Vibration /Shock MIL-STD-810F - Method 514.5/516.5 – Proc I	VI / SH		Airborne		

LIMITS

Input RF drive level without damage	+6 dBm	Max
Load VSWR @ P _{OUT} = 150W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase and amplitude continuous	-
Thermal Overload	85°C shutdown	Max

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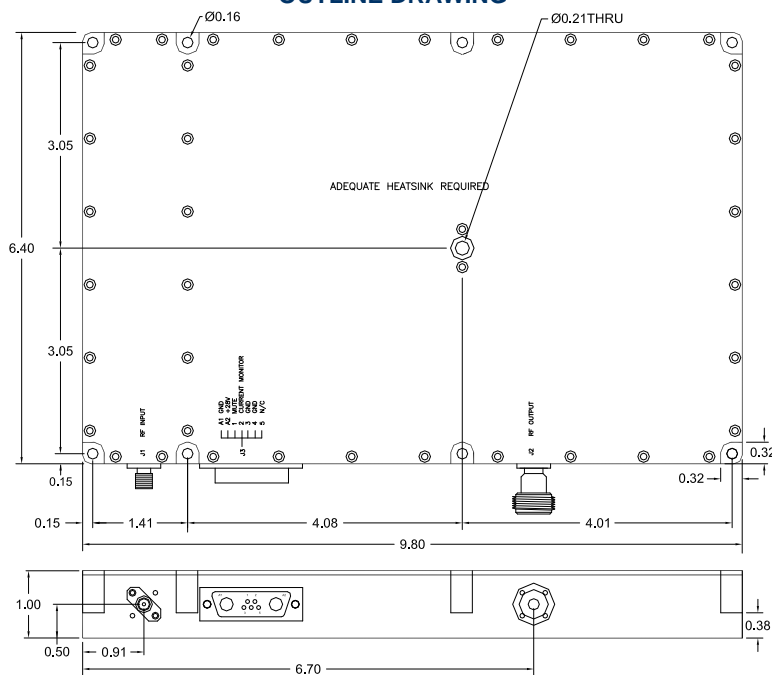
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DC INTERFACE CONNECTOR – Hybrid, D-sub 7-pin, Male

Pin #	Description	Specifications
A1	GND	Ground
A2	+28V _{DC}	+26.0-30.0V _{DC}
1	Mute	Amplifier Disable = TTL Logic Low (0V)
2	Current Monitor	Analog voltage 0-5V _{DC} relative to module's current consumption
3	GND	Ground
4	GND	Ground
5	N/C	No Connection

OUTLINE DRAWING



PERFORMANCE PLOTS

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

Top Curve: Small Signal Gain @ P_{IN} = -20dBm
 Middle Curve: Power Gain @ P_{1dB}, P_{IN} = -3.0dBm
 Reference: 55dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.



Plot 2 – Small Signal Gain and P_{SAT}

Top Curve: Small Signal Gain @ P_{IN} = -20dBm
 Middle Curve: Power Gain @ P_{SAT}, P_{IN} = -1.0dBm
 Reference: 55dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

