

Radar Pulsed Power Pallet 300W, 2.7-2.9 GHz

Rev. V1

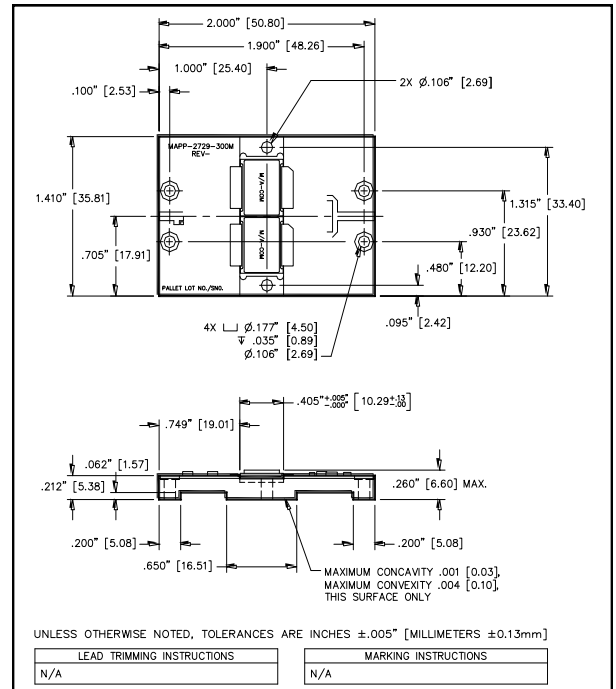
Features

- Input and output matched to 50Ω
- 350W, 46% efficiency; typical RF performance
- 36VCC, 44W nominal input RF drive level
- Includes RC bias filter
- NPN silicon power transistors
- Nickel/Gold plated copper flange
- MTTF>1x10⁶ hrs. @T_{flange}=45°C

Description

The MAPP-002729-300M00 is a common-base, Class-C, S-band pallet amplifier designed to streamline time-to-market. The transistors are DC-isolated to optimize current balance and enable individual current monitoring. A wide-trace Wilkinson combiner maximizes consistency and reduces loss. In addition, the wide traces simplify connection to 50Ω circuits on any PCB material. The pallet includes a gain compensation network at the input for ultra-flat gain vs. frequency response.

Outline Drawing



ELECTRICAL SPECIFICATIONS: @25°C ±5°C (ROOM AMBIENT)

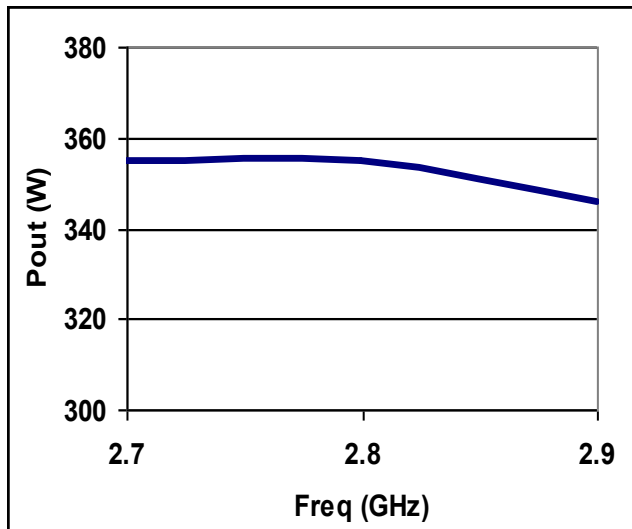
Parameter	Symbol	Min	Max	Units	Test Conditions
Output Power	P _{out}	300	—	Wpk	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Output Power with 1 dB overdrive	P _{out} @1dB OD	315	—	Wpk	V _{CC} = 36 V, P _{in} = 55 Wpk, F=2.7, 2.8, 2.9 GHz
Delta Pout 1dB OD	P _{comp}	0.1	1.0	dB	V _{CC} = 36 V, P _{in} = 55 Wpk, F=2.7, 2.8, 2.9 GHz Given by 10log(Pout 1dB OD /Poutnom)
Power Gain	G _p	8.3	—	dB	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Collector Efficiency	η _c	40	—	%	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Input Return Loss	RL	10	—	dB	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Pulse Amplitude Droop	Droop	—	0.5	dB	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz
2nd Harmonic	2fc	—	-20	dBc	V _{CC} = 36 V, P _{in} = 44Wpk, F=2.7, 2.8, 2.9 GHz
Spurious Level	Spurious	—	-60	dBc	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Insertion Phase Deviation	Δφ	-20	+20	°C	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Rise time	Tr	—	300	nS	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Overdrive stability, all non-harmonically related spurious	OD-S	—	50	dBc	V _{CC} = 36 V, P _{in} = 55.5 Wpk, F=2.7, 2.8, 2.9 GHz
Load Mismatch Stability	VSWR-S	—	1.5:1	—	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Load Mismatch Tolerance	VSWR-T	—	2:1	dB	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Gain Flatness over Frequency	G _p Flat	—	0.8	dB	V _{CC} = 36 V, P _{in} = 44 Wpk, F=2.7, 2.8, 2.9 GHz

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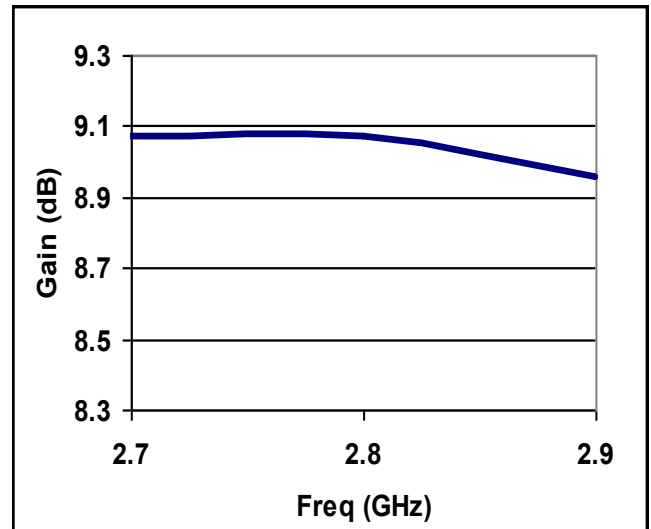
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Typical Performance Curves

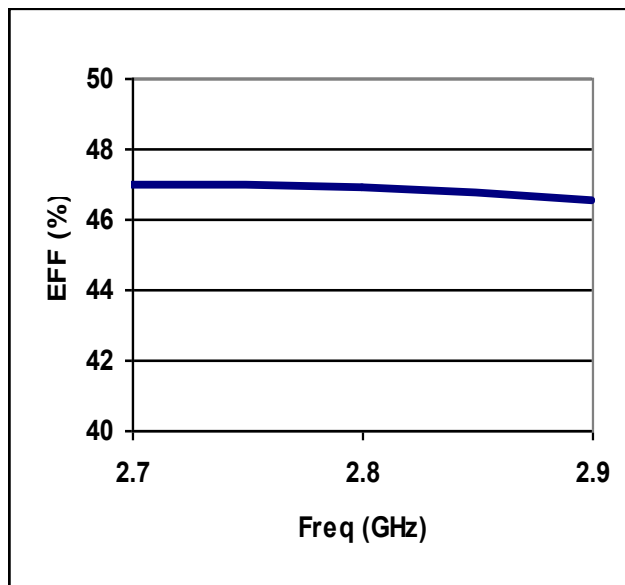
Power Output



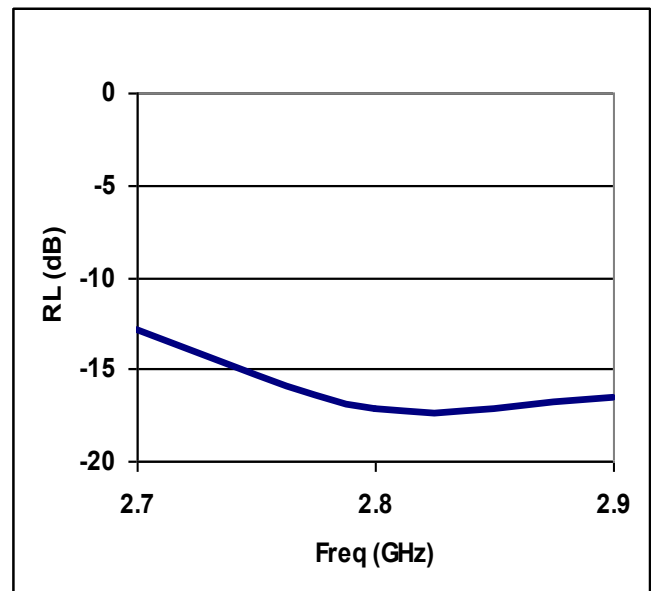
Gain



Efficiency



Return Loss



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