

**Radar Pulsed Power Pallet**  
300Wpk, 2.7-2.9GHz, 100µS Pulse, 10% Duty

MAPP-002729-300M00  
Preliminary DS2007-01-03

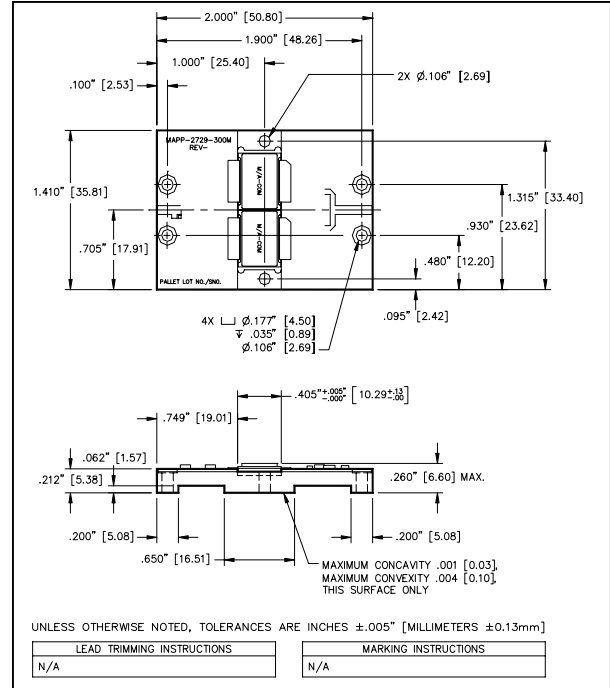
**Features**

- Input and output matched to 50Ω
- 350W, 46% efficiency; typical RF performance
- 36V<sub>CC</sub>, 44W nominal input RF drive level
- Includes RC bias filter
- NPN silicon power transistors
- Nickel/Gold plated copper flange
- MTTF>1x10<sup>6</sup> hrs.@Tflange=45°C

**Description**

The MAPP-002729-300M00 is a common-base, Class-C, S-band pallet designed to streamline design of pulse power amplifier modules for ATC (Air Traffic Control) applications. 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 <sub>out</sub>	300	-	Wpk	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Output Power with 1 dB overdrive	P <sub>out at 1dB OD</sub>	314	-	Wpk	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 55 Wpk, F=2.7, 2.8, 2.9 GHz
Delta Pout 1dB OD	P <sub>comp</sub>	0.2	0.9	dB	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 55 Wpk, F=2.7, 2.8, 2.9 GHz Given by 10log(P <sub>out 1dB OD</sub> / P <sub>outnom</sub> )
Power Gain	G <sub>p</sub>	8.3	-	dB	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Collector Efficiency	h <sub>c</sub>	40	-	%	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Input Return Loss	RL	10	-	dB	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Pulse Amplitude Droop	Droop	-	0.5	dB	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz
2nd Harmonic	2fc	-	-20	dBc	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44Wpk, F=2.7, 2.8, 2.9 GHz
Spurious Level	Spurious	-	-60	dBc	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Insertion Phase Deviation	D <sub>j</sub>	-14	+14	Degrees	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Rise time	Tr	-	300	nS	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Overdrive stability, all non-harmonically related spurious	OD-S	-	50	dBc	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 55.5 Wpk, F=2.7, 2.8, 2.9 GHz
Load Mismatch Stability	VSWR-S	-	1.5:1	-	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Load Mismatch Tolerance	VSWR-T	-	2:1	dB	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz
Gain Flatness over Frequency	G <sub>p Flat</sub>	-	0.8	dB	V <sub>CC</sub> = 36 V, P <sub>in</sub> = 44 Wpk, F=2.7, 2.8, 2.9 GHz

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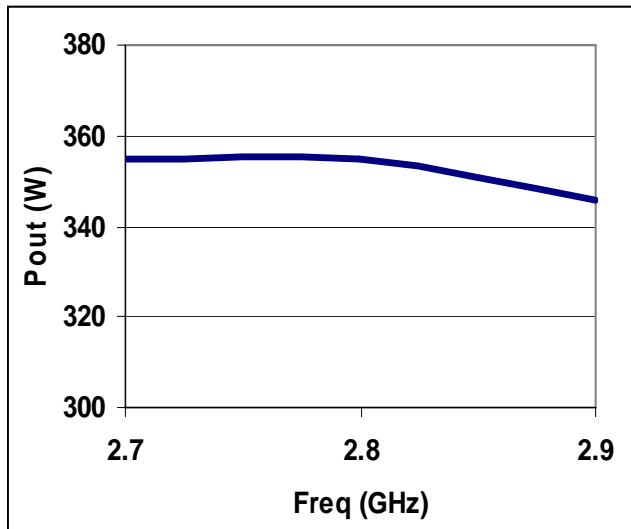
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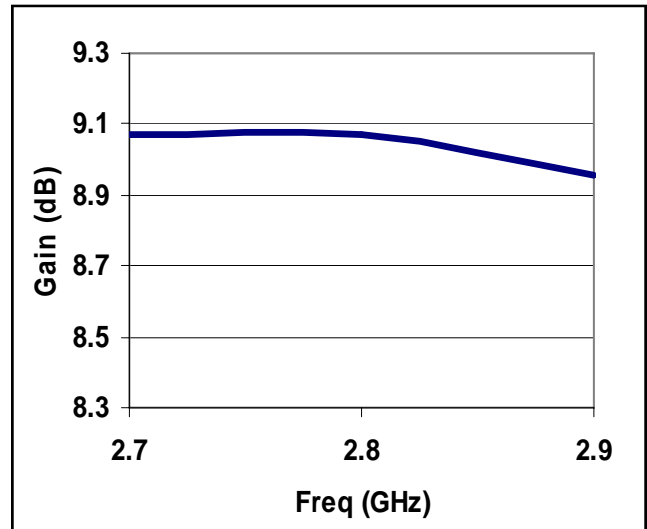
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### Typical Performance Curves

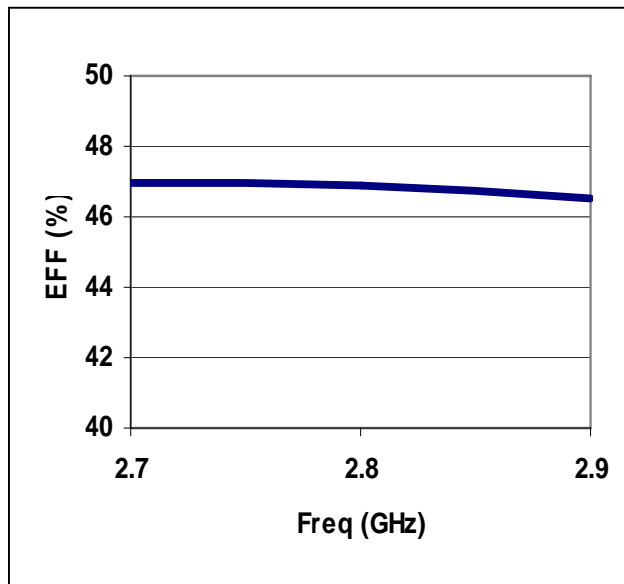
**Power Output**



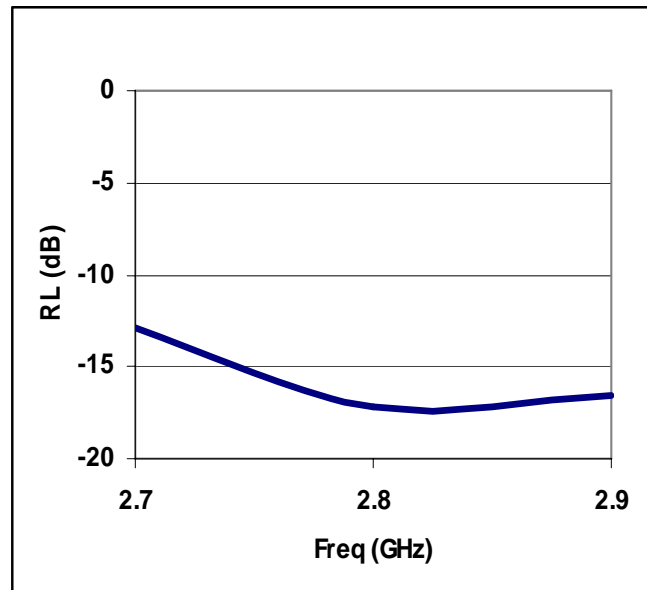
**Gain**



**Efficiency**



**Return Loss**



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