

Radar Pulsed Power Module

2.7 - 2.9 GHz, 300 W, 100 μ s Pulse, 10% Duty

MACOM[®]

PHA2729-300M

Rev. V2

Features

- Includes RC Bias Circuit
- In-Phase Combined Pulsed Power Transistors
- Input and Output Matched to 50 W
- Soft Substrate $\epsilon R = 10.5$ Circuit Board
- Nickel Plated Copper Flange
- MTTF > 1×10^6 hrs @ $T_{FLANGE} = 45^\circ\text{C}$

Applications

- Aerospace & Defense
- ISM

Electrical Specifications: Freq. = 2.7 - 2.9 GHz, $T_A = +25^\circ\text{C}$, $V_{CC} = 38 \text{ V}$, $P_{OUT} = 300 \text{ W}_{PK}$

Parameter	Test Conditions	Units	Min.	Max.
Input Power	—	W _{pk}	—	53.3
Output Power with 0.5 dB overtime	$P_{IN} = (P_{IN} @ P_{OUT} = 300 \text{ W})$	W _{pk}	315	—
Power Gain	—	dB	7.5	—
Collector Efficiency	—	%	36	—
Input Return Loss	—	dB	—	-10
Pulse Amplitude Droop	—	dB	—	0.5
2nd Harmonic	—	dBc	—	-20
Spurious Level	—	dBc	—	-60
Insertion Phase Deviation	—	°	-20	+20
Rise Time	—	ns	—	200
Load Miss Match Stability	—	-	—	1.5:1
Load Miss Tolerance	—	dB	—	2:1
Gain Flatness over Frequency	—	dB	—	0.8

Absolute Maximum Ratings

Parameter	Absolute Maximum
Junction Temperature	+200°C
Operating Temperature	-10°C to +100°C
Storage Temperature	-40°C to +125°C

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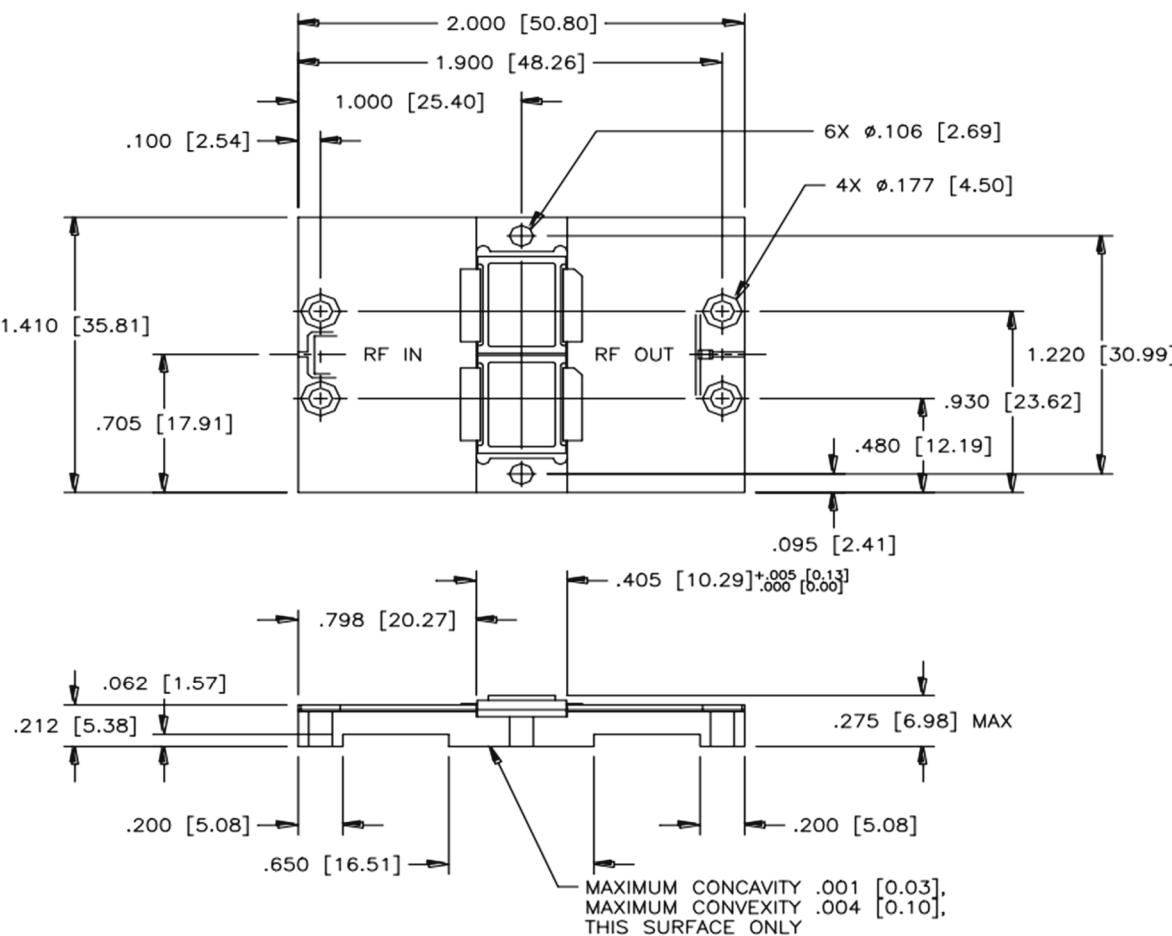
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Sample Test Data:

$T_{FLANGE} = +50^\circ\text{C}$, $V_{CC} = 38 \text{ V}_{\text{DC}}$, $P_{\text{OUT}} = 300 \text{ W}_{\text{PK}}$, Pulse Width = 100 ms, Duty Cycle = 10%

Frequency	Input Power	Current	Return Loss	Pulse Amplitude Droop	Power Gain	Efficiency	P0.1dB	Comp.	Gain Flatness	1.5:1 VSWR	2.0:1 VSWR
(GHz)	(Wpk)	(A)	(dB)	(dB)	(dB)	(%)	(dB)	(dB)	(dB)	(S,D,L,B)	(P,F)
2.7	36.4	16.43	16.9	0.0	9.16	48.1	351	0.68	0.73	S	P
2.8	39.4	16.95	18.2	0.0	8.82	46.6	359	0.78	0.73	S	P
2.9	43.1	17.33	14.5	0.0	8.43	45.6	337	0.51	0.73	S	P

Outline Drawing



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