

Radar Pulsed Power Module

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



PHA2729-300M
Rev. V2

Features

- Includes RC Bias Circuit
- In-Phase Combined Pulsed Power Transistors
- Input and Output Matched to 50 Ω
- Soft Substrate eR = 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	—	Wpk	—	53.3
Output Power with 0.5 dB overtime	$P_{IN} = (P_{IN} @ P_{OUT} = 300\text{ W})$	Wpk	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	—	$^\circ$	-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 $^\circ\text{C}$
Operating Temperature	-10 $^\circ\text{C}$ to +100 $^\circ\text{C}$
Storage Temperature	-40 $^\circ\text{C}$ to +125 $^\circ\text{C}$

Radar Pulsed Power Module

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



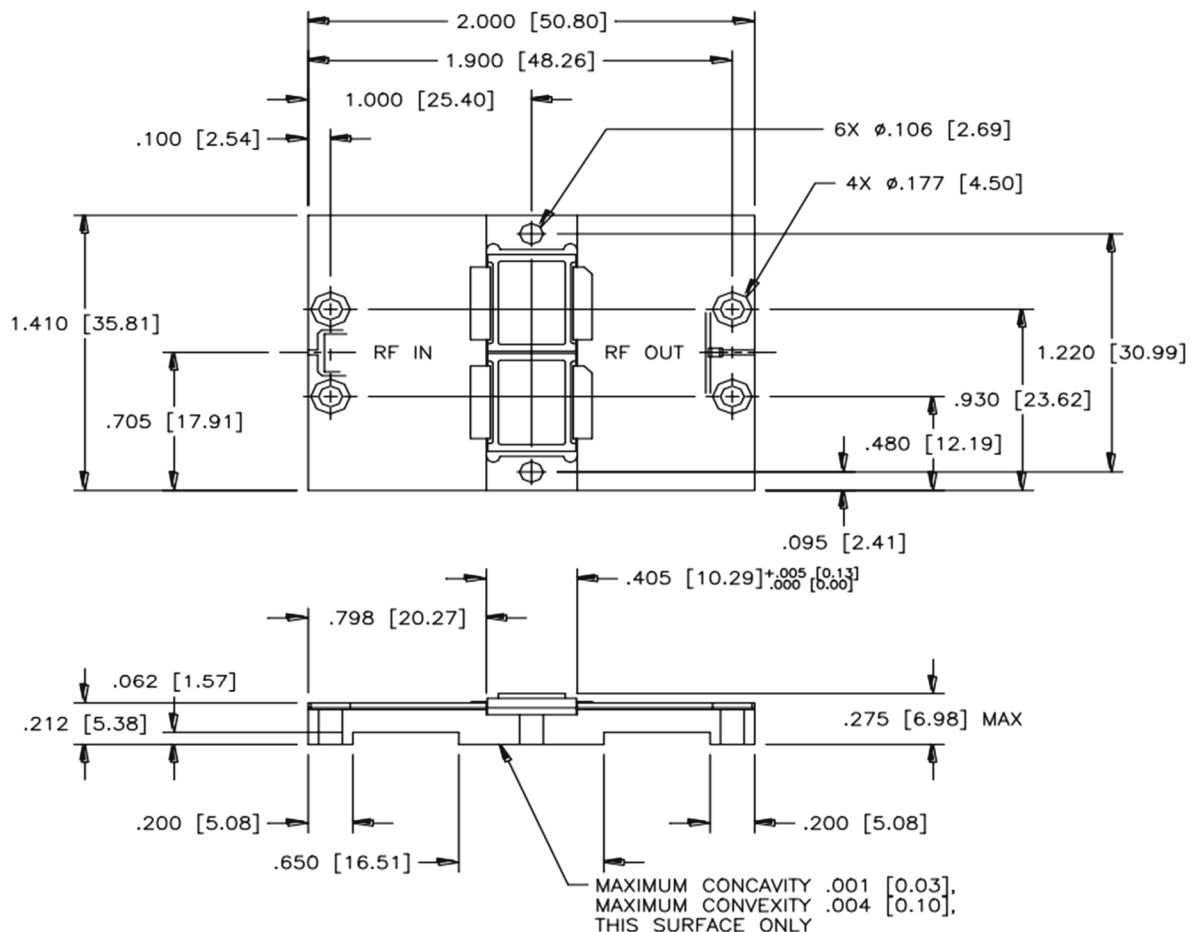
PHA2729-300M
Rev. V2

Sample Test Data:

$T_{FLANGE} = +50^{\circ}\text{C}$, $V_{CC} = 38\text{ V}_{DC}$, $P_{OUT} = 300\text{ W}_{PK}$, 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



UNLESS OTHERWISE NOTED, TOLERANCES ARE
INCHES \pm .005" [MILLIMETERS \pm 0.13MM]

Radar Pulsed Power Module

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



PHA2729-300M
Rev. V2

MACOM Technology Solutions Inc. ("MACOM"). All rights reserved.

These materials are provided in connection with MACOM's products as a service to its customers and may be used for informational purposes only. Except as provided in its Terms and Conditions of Sale or any separate agreement, MACOM assumes no liability or responsibility whatsoever, including for (i) errors or omissions in these materials; (ii) failure to update these materials; or (iii) conflicts or incompatibilities arising from future changes to specifications and product descriptions, which MACOM may make at any time, without notice. These materials grant no license, express or implied, to any intellectual property rights.

THESE MATERIALS ARE PROVIDED "AS IS" WITH NO WARRANTY OR LIABILITY, EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHT, ACCURACY OR COMPLETENESS, OR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.