

# PHA2729-300M



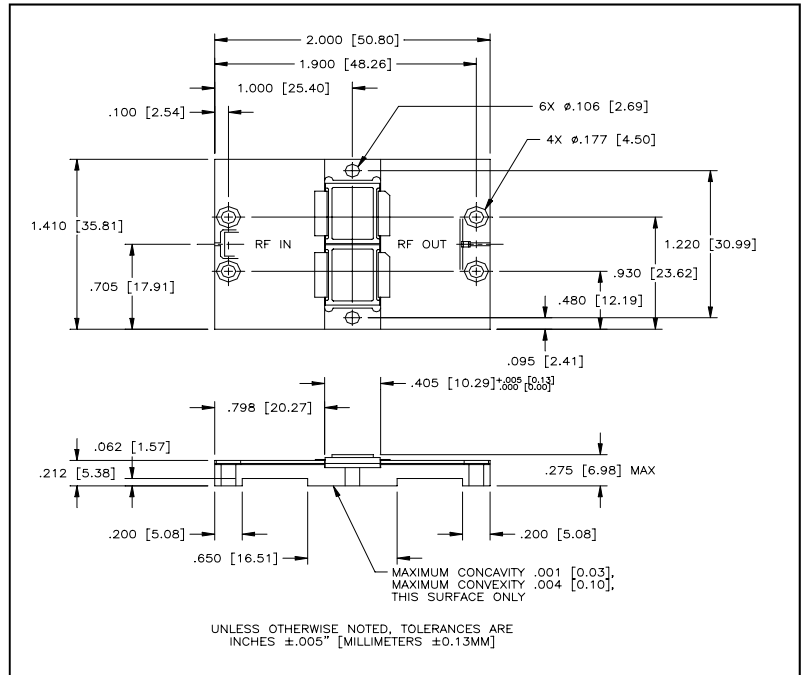
**Radar Pulsed Power Module**  
**300W, 2.7-2.9 GHz, 100μs Pulse, 10%Duty**

**M/A-COM Products**  
**Released; RoHS Compliant**

## 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 >  $1 \times 10^6$  hrs @  $T_{flange}=45^\circ\text{C}$

## Outline Drawing



## ABSOLUTE MAXIMUM RATING AT 25°C

Parameter	Symbol	Rating	Units
Junction Temperature	$T_j$	200	°C
Thermal Resistance	$\theta_{JC}$	TBD	°C/W
Power Dissipation	$P_D$	TBD	W
Operating Flange Temp.	$T_C$	-10 to +100	°C
Storage Temp.	$T_{STG}$	-40 to +125	°C

## ELECTRICAL CHARACTERISTICS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Input Power	$P_{IN}$	-	53.3	Wpk	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Output Power with .5 dB overtime	$P_{OUT}$	315	-	Wpk	$V_{CC} = 38V, P_{IN}=(P_{IN@Pout} = 300 \text{ W}) + 0.5 \text{ dB}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Power Gain	$G_P$	7.5	-	dB	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Collector Efficiency	$\eta_C$	36	-	%	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Input Return Loss	$R_L$	10	-	dB	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Pulse Amplitude Droop	$D_{ROOP}$	-	-	dB	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
2nd Harmonic	2FC	-	.5	dBc	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Spurious Level	Spurious	-	-20	dBc	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Insertion Phase Deviation	$\Delta\phi$	-14	-60	Degrees	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Rise time	$T_R$	-	+14	nS	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Load Miss Match Stability	VSWR-S	-	1.5:1	-	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Load Miss Tolerance	VSWR-T	-	2:1	dB	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$
Gain Flatness over Frequency	$G_P \text{ Flat}$	-	.8	dB	$V_{CC} = 38V, P_{out} = 300 \text{ Wpk}, F = 2.7, 2.8, 2.9 \text{ GHz}$

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## SAMPLE TEST DATA

TEST CONDITIONS:  $V_{CC}=38V_{DC}$ , PULSE WIDTH: 100 µS, DUTY CYCLE : 10%, POUT: 300 W<sub>PK</sub>, TFLANGE: 50° C

Freq (GHz)	P <sub>IN</sub> (Wpk)	I <sub>C</sub> (A)	R.Loss (dB)	P.Drp. (dB)	G <sub>P</sub> (dB)	Nc (%)	Po 1 DB (dB)	Comp. (dB)	G <sub>P</sub> Flat (dB)	1.5:1 VSWR (S,D,L,B)	2.0:1 VSWR (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		s	P
2.9	43.1	17.33	14.5	0.0	8.43	45.6	337	0.51		s	P

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