

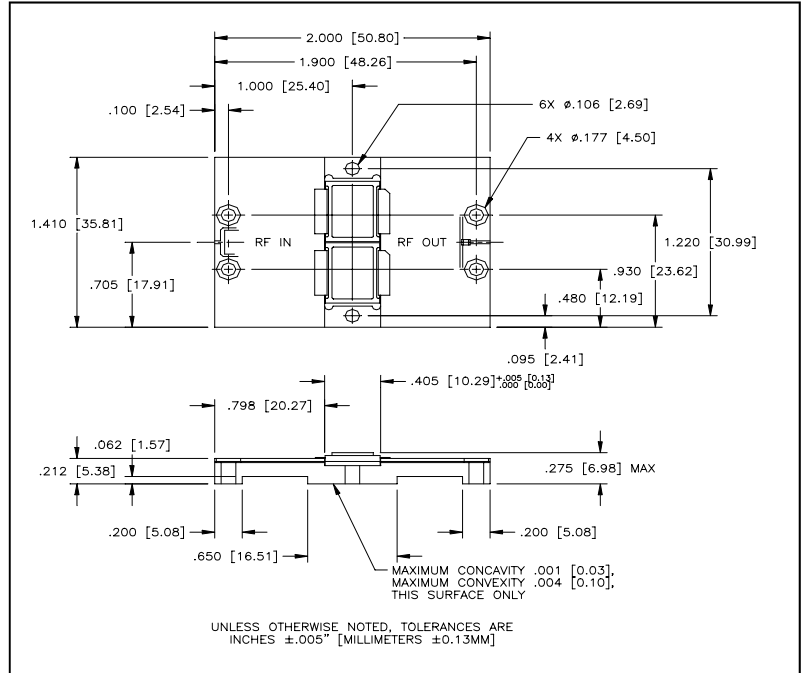
## Radar Pulsed Power Module 300W, 2.7-2.9 GHz, 100 $\mu$ s Pulse, 10%Duty

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 > 1x10<sup>6</sup> hrs @ T<sub>flange</sub>=45 °C

### Outline Drawing



### ABSOLUTE MAXIMUM RATING AT 25°C

Parameter	Symbol	Rating	Units
Junction Temperature	T <sub>j</sub>	200	°C
Thermal Resistance	$\theta_{JC}$	TBD	°C/W
Power Dissipation	P <sub>D</sub>	TBD	W
Operating Flange Temp.	T <sub>C</sub>	-10 to +100	°C
Storage Temp.	T <sub>STG</sub>	-40 to +125	°C

### ELECTRICAL CHARACTERISTICS AT 25°C

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

# PHA2729-300M



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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

Freg (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