PHA2731-190M

Radar Pulsed Power Amplifier
190W, 2.7-3.1 GHz, 200μs Pulse, 10% Duty

M/A-COM Products
Released

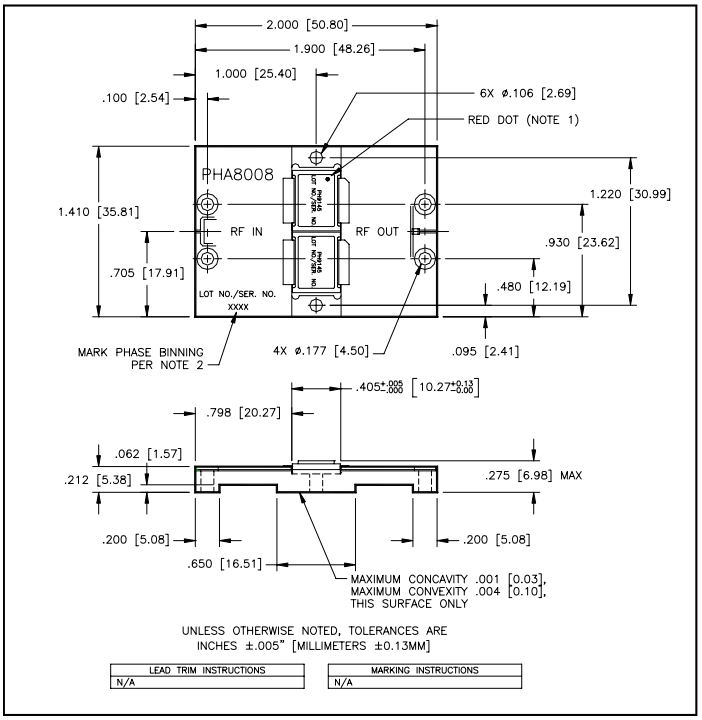
Features

- Input and output matched to 50Ω
- RC bias circuit included
- Dual NPN silicon class C power transistors
- Soft substrate ε_R = 10.5
- Hermetic Package
- Nickel plated copper flange

Description

The PHA2731-190M is a Class C microwave power amplifier module specifically designed for S-Band radar pulsed power applications where high efficiency and saturated power are required. The module incorporates two in-phase combined common base hybrid power transistors and is input and output matched to 50 Ω for unparalleled ease of PA design. The thick copper base and ceramic transistor packaging technology provides for excellent thermal management, which when combined with M/A-COM's mature transistor fabrication technology results in the highest reliability available.

Outline Drawing



ABSOLUTE MAXIMUM RATING AT 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	65	V
Emitter Base Voltage	V_{EBO}	3.0	V
Junction Temperature	T_J	200	°C
Thermal Resistance	θ_{JC}	0.35	°C/W
Operating Case temp.	T_C	-10 to +100	°C
Storage Temperature	T_{STG}	-40 to +125	°C

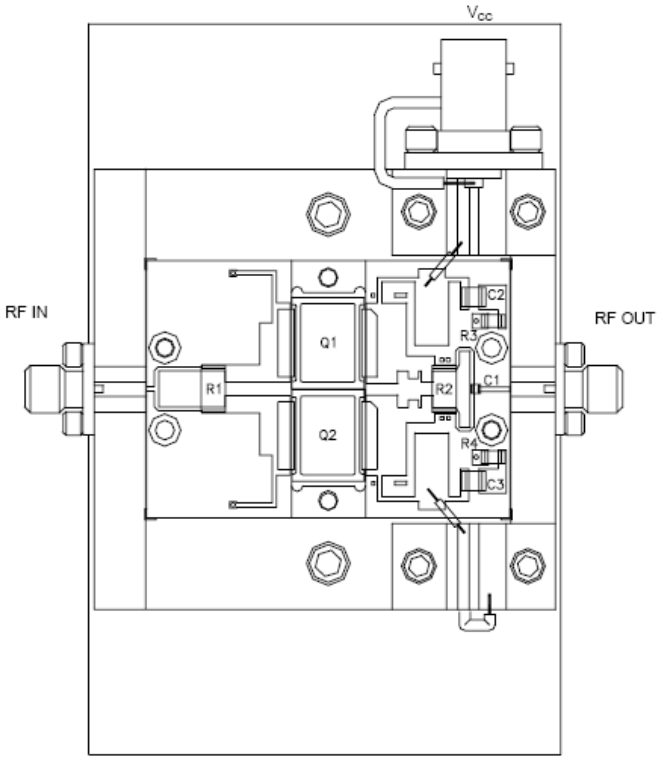
ELECTRICAL SPECIFICATIONS: TA = 25 ± 5° (ROOM AMBIENT)

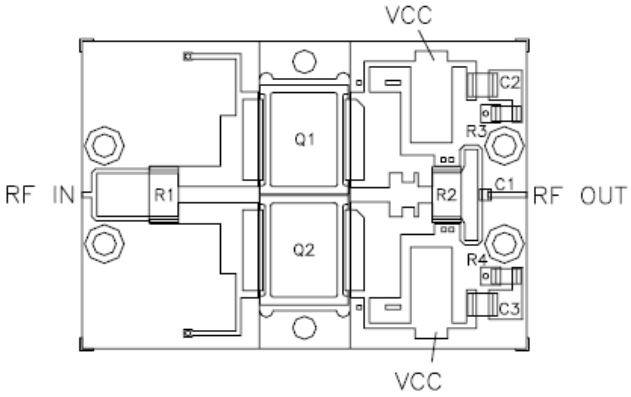
Parameter	Symbol	Min	Max	Units	Typ	Test Conditions
Output Power	P_{OUT}	190		W	205	V_{CC}=38 V, P_{IN}=34W, F=2.7, 2.9, 3.1 GHz
Power Gain	G_P	7.5		dB	8	V_{CC}=38 V, P_{OUT}=190W, F=2.7, 2.9, 3.1 GHz
Collector Efficiency	η_c	33		%	35	V_{CC}=38 V, P_{OUT}=190W, F=2.7, 2.9, 3.1 GHz
Input Return Loss	R_L	10		dB		V_{CC}=38 V, P_{OUT}=190W, F=2.7, 2.9, 3.1 GHz
Pulse Amplitude Droop	Droop		1	dB		V_{CC}=38 V, P_{OUT}=190W, F=2.7, 2.9, 3.1 GHz
2nd Harmonic	2fc	-17		dBc	-20	V_{CC}=38 V, P_{OUT}=190W, F=2.7, 2.9, 3.1 GHz
Spurious Level	Spurious		-50	dBc		V_{CC}=38 V, P_{OUT}=190W, F=2.7, 2.9, 3.1 GHz
Insertion Phase Deviation	Δφ	-20	+20	Deg.		V_{CC}=38 V, P_{OUT}=190W, F=2.7, 2.9, 3.1 GHz
Tolerance and Stability	VSWR-T		1.5:1	VSWR		V_{CC}=38 V, P_{OUT}=190W, F=2.7, 2.9, 3.1 GHz
Stability at Overdrive	OD-STAB					P_{IN}=(P_{IN}@ P_{OUT}=190W) + 1 dB[1]
Gain Flatness over Frequency	GF		1.3	dB	1.0	V_{CC}=38 V, P_{OUT}=190W, F=2.7, 2.9, 3.1 GHz

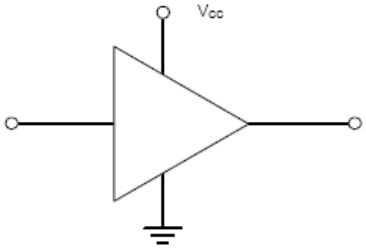
1. No oscillations and no spurs at 1 dB over drive.

• **North America** Tel: 800.366.2266 / Fax: 978.366.2266
• **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
• **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298
Visit www.macomtech.com for additional data sheets and product information.

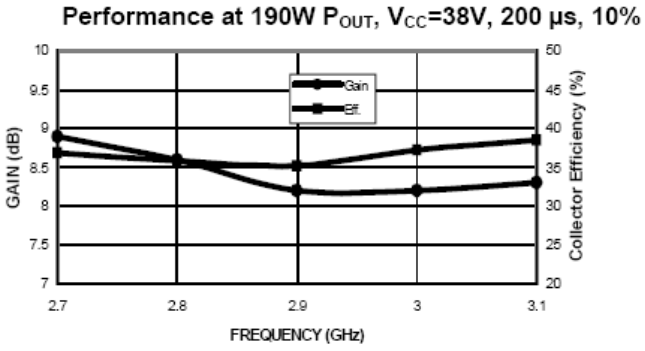
AMPLIFIER IN RF TEST FIXTURE

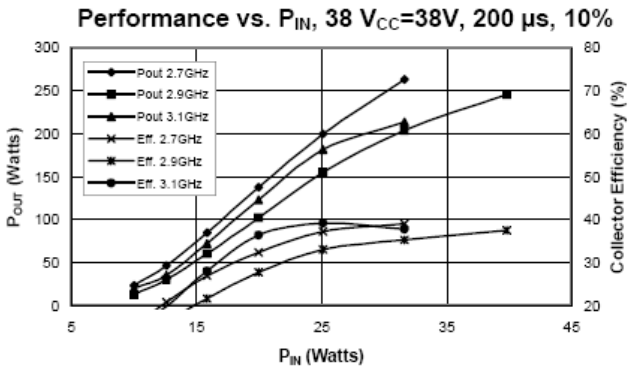






TYPICAL PERFORMANCE CURVES





- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macomtech.com for additional data sheets and product information.