PHA3135-130M

Radar Pulsed Power Module
115, 130, 145W, 3.1-3.5 GHz, 100µs Pulse, 10% Duty

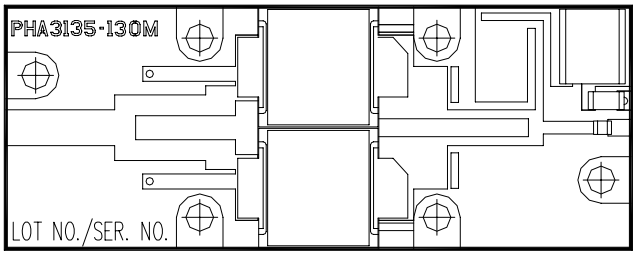
M/A-COM Products
Released, 04 Feb 08

Features

- NPN silicon bipolar transistor
- Input and output matched to 50Ω
- Duroid circuit board
- Easily combined for high power transmitters
- Plated copper flange

.

Outline Drawing



Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector Current (Peak)	I_C	23	A
Power Dissipation @ +25°C	P_{TOT}	730	W
Operating Temperature	T_{OP}	-30 to +100	°C
Storage Temperature	T_{STG}	-40 to +125	°C
Junction Temperature	T_J	200	°C

Electrical Specifications: T_C = 25 ± 5°C (Room Ambient)

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Thermal Resistance	Vcc = 36V, Pin = 21W	F = 3.1, 3.3, 3.5 GHz	$R_{TH(JC)}$	-	0.24	°C/W
Output Power	Vcc = 36V, Pin = 21W	F = 3.1 GHz	$P_{OUT, 3.1GHz}$	145	-	W
Output Power	Vcc = 36V, Pin = 21W	F = 3.3 GHz	$P_{OUT, 3.3GHz}$	130	-	W
Output Power	Vcc = 36V, Pin = 21W	F = 3.5 GHz	$P_{OUT, 3.5GHz}$	115	-	W
Power Gain	Vcc = 36V, Pin = 21W	F = 3.1 GHz	$G_{P, 3.3GHz}$	8.4	-	dB
Power Gain	Vcc = 36V, Pin = 21W	F = 3.3 GHz	$G_{P, 3.5GHz}$	7.9	-	dB
Power Gain	Vcc = 36V, Pin = 21W	F = 3.5 GHz	G_P	7.4	-	dB
Collector Efficiency	Vcc = 36V, Pin = 21W	F = 3.1, 3.3, 3.5 GHz	η_C	35	-	%
Input Return Loss	Vcc = 36V, Pin = 21W	F = 3.1, 3.3, 3.5 GHz	RL	-	-6	dB
Pulse Droop	Vcc = 36V, Pin = 21W	F = 3.1, 3.3, 3.5 GHz	Droop	-	0.5	dB
Load Mismatch Tolerance	Vcc = 36V, Pin = 21W	F = 3.1, 3.3, 3.5 GHz	VSWR-T	-	3:1	-
Load Mismatch Stability	Vcc = 36V, Pin = 21W	F = 3.1, 3.3, 3.5 GHz	VSWR-S	-	2:1	-

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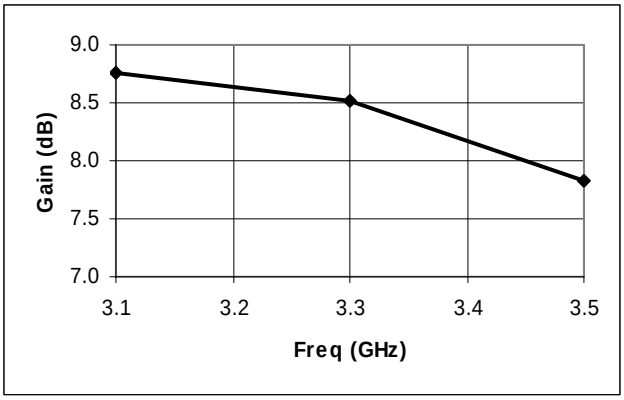
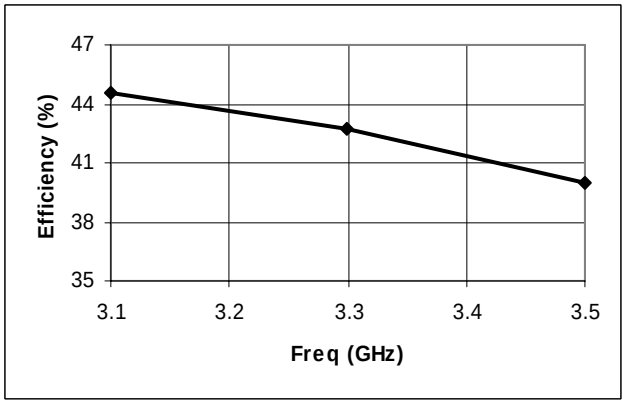
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	ΔGain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (2:1)	VSWR-T (3:1)
3.1	21	158	8.76	-	10.3	44.6	-12.3	S	P
3.3	21	149	8.51	-	9.7	42.7	-11.0	S	P
3.5	21	127	7.82	0.96	8.7	40.0	-14.7	S	P

Gain vs. Frequency



Collector Efficiency vs. Frequency



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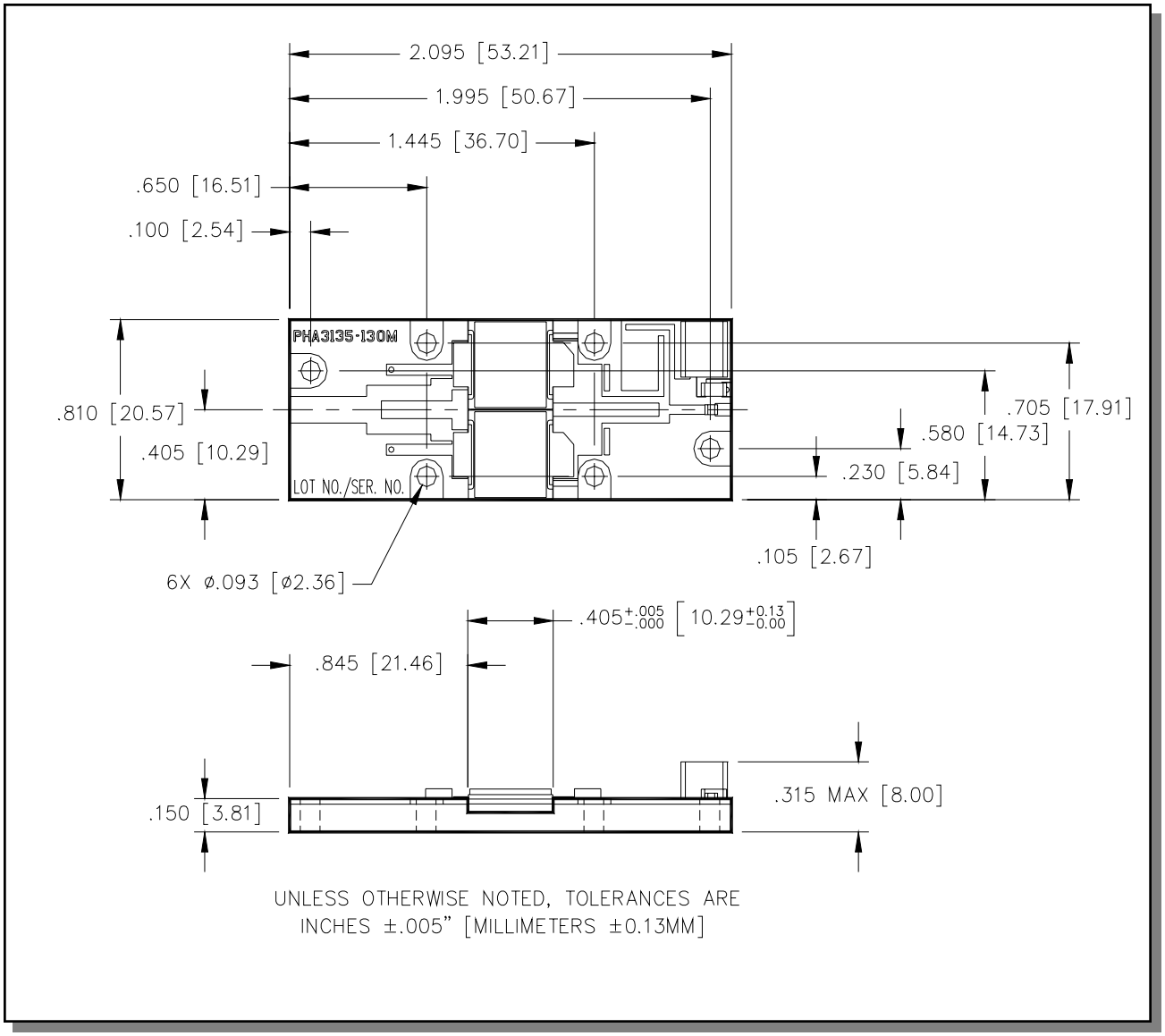
Power Module Dimensions



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