

PH1617-30



Wireless Bipolar Power Transistor 30W, 16 -1.7 GHz

M/A-COM Products
Released - Rev. 07.07

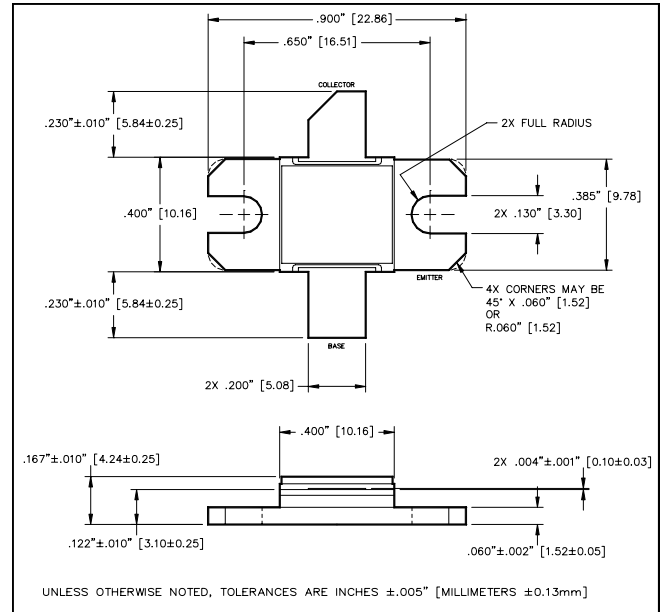
Features

- Designed for linear amplifier applications
- -30 dBc typ. 3rd IMD at 30 W PEP
- Common emitter Class AB operation
- Internal input impedance matching
- Diffused emitter ballasting

ABSOLUTE MAXIMUM RATING AT 25°C

Parameter	Symbol	Rating	Units
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CES}	60	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current	I_C	10	A
Power Dissipation	P_D	109	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to + 150	°C
Thermal Resistance	θ_{JC}	1.6	°C/W

Outline Drawing

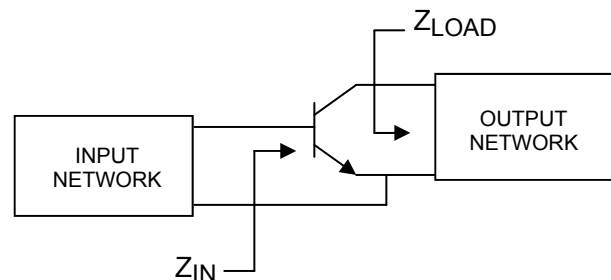


ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	60	-	V	$I_C = 40 \text{ mA}$
Collector-Emitter Leakage Current	I_{CES}	-	4.0	mA	$V_{CE} = 25 \text{ V}$
Collector-Base Breakdown Voltage	BV_{CEO}	20	-	V	$I_C = 40 \text{ mA}$
Collector-Base Breakdown Voltage	BV_{CER}	30	-	V	$I_C = 40 \text{ mA}, R_{BE}=220 \Omega$
Emitter-Base Breakdown Voltage	BV_{EBO}	3.0	-	V	$I_B = 40 \text{ mA}$
DC Forward Current Gain	h_{FE}	15	120	-	$V_{CE} = 5 \text{ V}, I_C = 2 \text{ A}$
Power Gain	G_P	10	-	dB	$V_{CC} = 25\text{V}, I_{CQ} = 200 \text{ mA}, P_{out} = 30 \text{ W PEP}, F = 1.6, 1.65, 1.70 \text{ GHz}$
Collector Efficiency	η_C	40	-	%	$V_{CC} = 25\text{V}, I_{CQ} = 200 \text{ mA}, P_{out} = 30 \text{ W PEP}, F = 1.6, 1.65, 1.70 \text{ GHz}$
Input Return Loss	RL	10	-	dB	$V_{CC} = 25\text{V}, I_{CQ} = 200 \text{ mA}, P_{out} = 30 \text{ W PEP}, F = 1.6, 1.65, 1.70 \text{ GHz}$
Load Mismatch Tolerance	VSWR-T	-	3.0:1	-	$V_{CC} = 25\text{V}, I_{CQ} = 200 \text{ mA}, P_{out} = 30 \text{ W PEP}, F = 1.6, 1.65, 1.70 \text{ GHz}$
3rd Order IMD	IMD ₃	-	-28	dBc	$V_{CC} = 25\text{V}, I_{CQ} = 020 \text{ mA}, P_{out} = 30 \text{ W PEP } F = 1650 \text{ MHz}, \Delta F = 100\text{kHz}$

TYPICAL OPTIMUM DEVICE IMPEDANCES

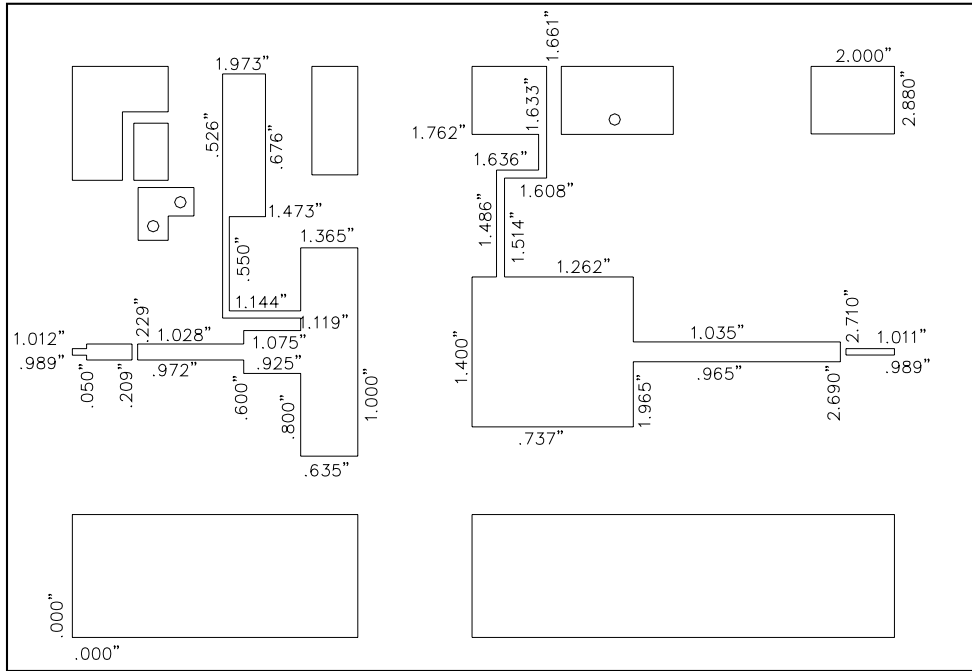
F (GHz)	$Z_{IN} (\Omega)$	$Z_{LOAD} (\Omega)$
1.60	2.1+j4.9	1.3-j0.7
1.65	3.1+j3.8	1.2-j0.8
1.70	2.1+j3.5	1.2-j0.9



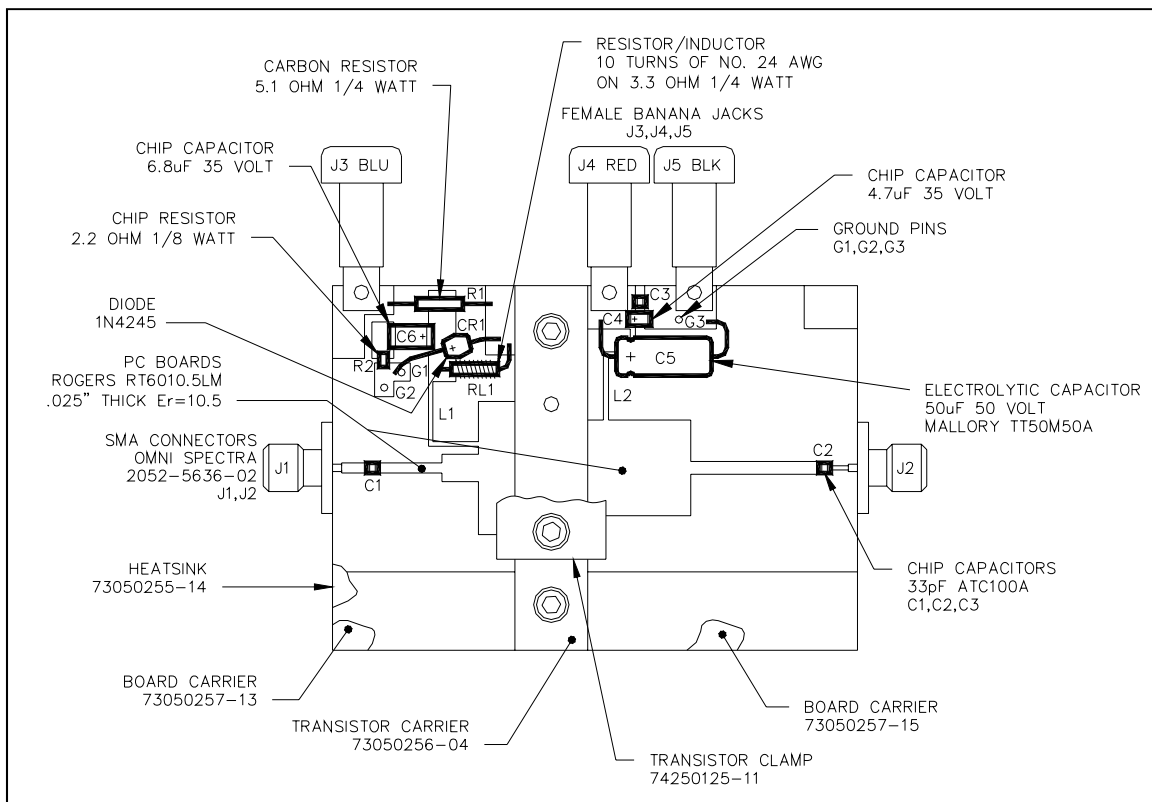
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TEST FIXTURE DIMENSIONS



TEST FIXTURE ASSEMBLY



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Typical Broadband Performance Curves

