

Wireless Bipolar Power Transistor 30W, 16 -1.7 GHz

M/A-COM Products
Released - Rev. 07.07

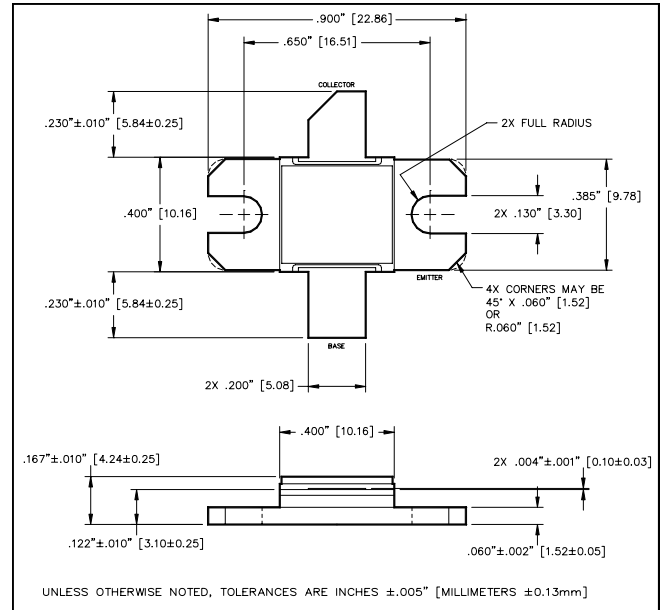
Features

- 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

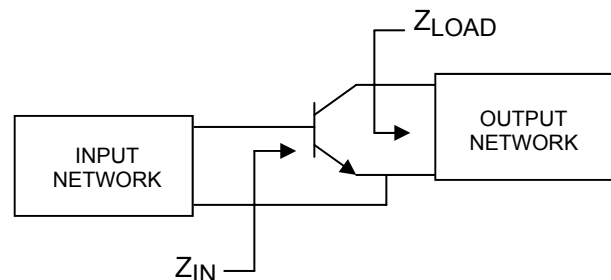


ELECTRICAL SPECIFICATIONS AT 25°C

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

TYPICAL OPTIMUM DEVICE IMPEDANCES

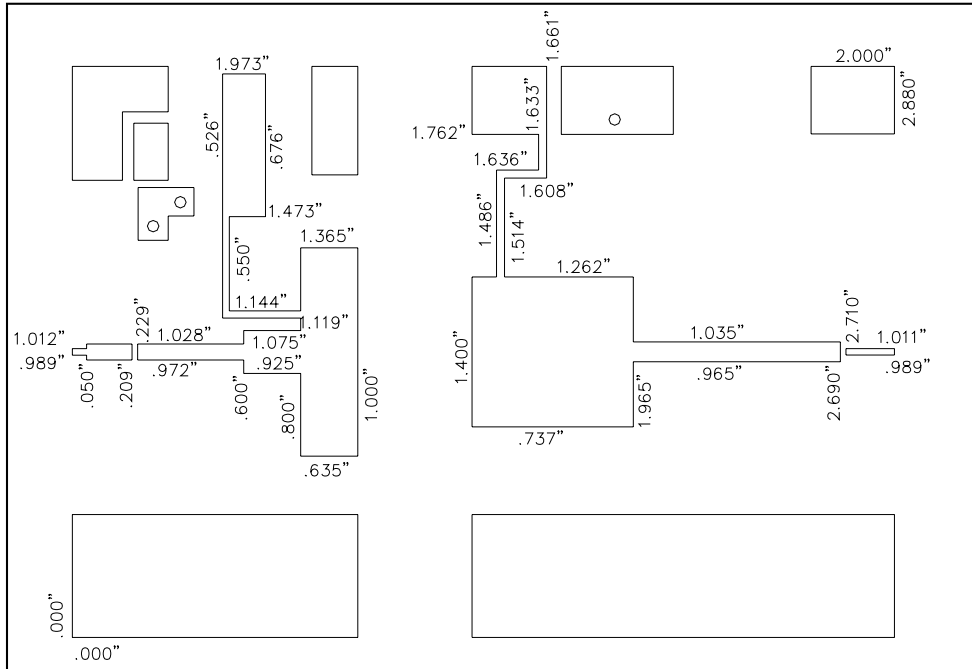
F (GHz)	$Z_{IN} (\Omega)$	$Z_{LOAD} (\Omega)$
1.60	$2.1 + j4.9$	$1.3 - j0.7$
1.65	$3.1 + j3.8$	$1.2 - j0.8$
1.70	$2.1 + j3.5$	$1.2 - j0.9$



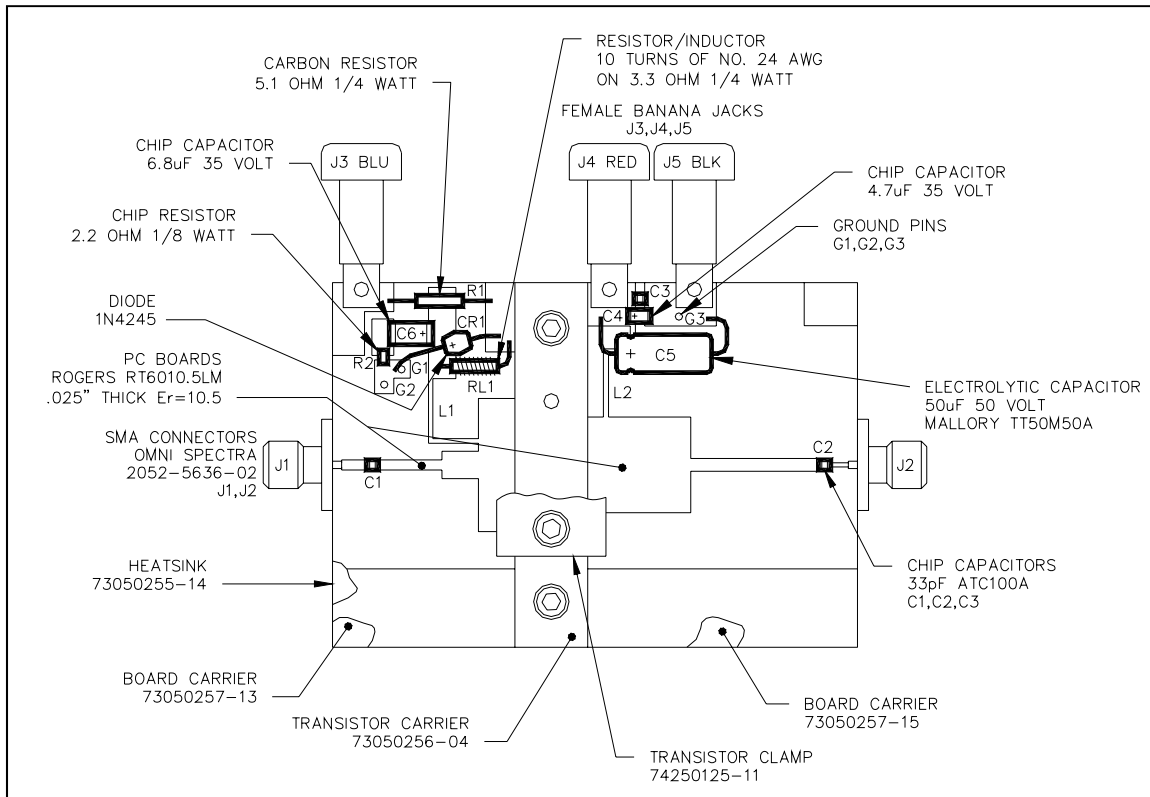
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TEST FIXTURE DIMENSIONS



TEST FIXTURE ASSEMBLY



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Typical Broadband Performance Curves

