

Wireless Bipolar Power Transistor 2W, 16 -1.7 GHz

M/A-COM Products
Released - Rev. 07.07

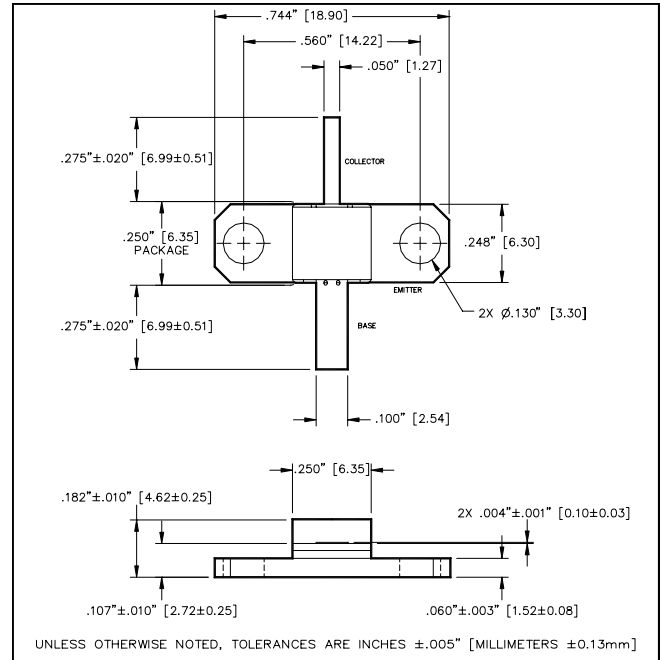
Features

- Designed for linear amplifier applications
- Class AB: -33 dBc typ. 3rd IMD at 2 W PEP
- Class A: +44 dBm typ. 3rd order intercept point
- Common emitter configuration
- Internal input impedance matching
- Diffused emitter ballasting

ABSOLUTE MAXIMUM RATING AT 25°C

Parameter	Symbol	Rating	Units
Collector-Base Voltage	V_{CBO}	65	V
Collector-Emitter Voltage	V_{CES}	65	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current	I_C	2.0	A
Power Dissipation	P_D	13.5	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to + 150	°C
Thermal Resistance	θ_{JC}	13	°C/W

Outline Drawing



Notes: (unless otherwise specified)

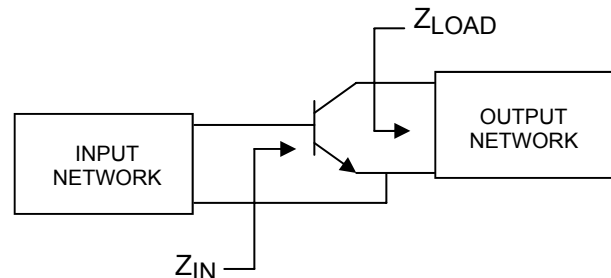
1. Tolerances are: inches $\pm .005$ " (millimeters ± 0.13 mm)

ELECTRICAL SPECIFICATIONS AT 25°C

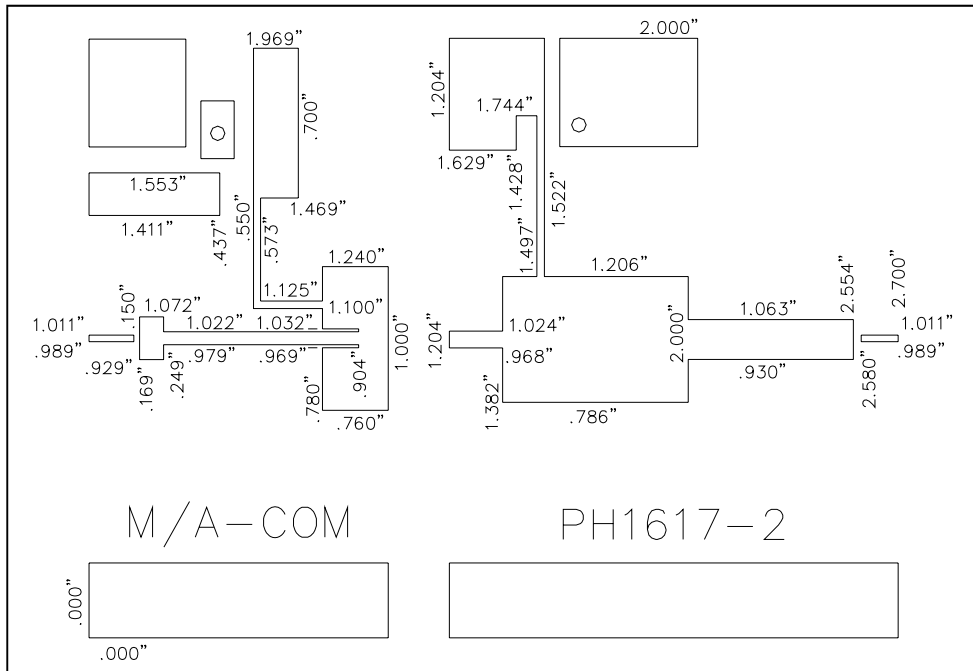
Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	65	-	V	$I_C = 5 \text{ mA}$
Collector-Emitter Leakage Current	I_{CES}	-	1.0	mA	$V_{CE} = 25 \text{ V}$
Collector-Base Breakdown Voltage	BV_{CEO}	22	-	V	$I_C = 5 \text{ mA}$
Collector-Base Breakdown Voltage	BV_{CER}	30	-	V	$I_C = 5 \text{ mA}, R_{BE} = 220 \Omega$
Emitter-Base Breakdown Voltage	BV_{EBO}	3.0	-	V	$I_B = 5 \text{ mA}$
DC Forward Current Gain	h_{FE}	15	120	-	$V_{CE} = 5 \text{ V}, I_C = 200 \text{ A}$
Power Gain	G_P	10	-	dB	$V_{CC} = 25 \text{ V}, I_{CQ} = 25 \text{ mA}, P_{out} = 2.0 \text{ W}, F = 1.60, 1.65, 1.70 \text{ GHz}$
Collector Efficiency	η_C	35	-	%	$V_{CC} = 25 \text{ V}, I_{CQ} = 25 \text{ mA}, P_{out} = 2.0 \text{ W}, F = 1.60, 1.65, 1.70 \text{ GHz}$
Input Return Loss	RL	10	-	dB	$V_{CC} = 25 \text{ V}, I_{CQ} = 25 \text{ mA}, P_{out} = 2.0 \text{ W}, F = 1.60, 1.65, 1.70 \text{ GHz}$
Load Mismatch Tolerance	VSWR-T	-	5:1	-	$V_{CC} = 25 \text{ V}, I_{CQ} = 25 \text{ mA}, P_{out} = 2.0 \text{ W}, F = 1.60, 1.65, 1.70 \text{ GHz}$
3rd Order IMD	IMD ₃	-	-32	dBc	$V_{CC} = 25 \text{ V}, I_{CQ} = 25 \text{ mA}, P_{out} = 2.0 \text{ W PEP } F = 1650 \text{ MHz}, \Delta F = 100 \text{ kHz}$

TYPICAL OPTIMUM DEVICE IMPEDANCES

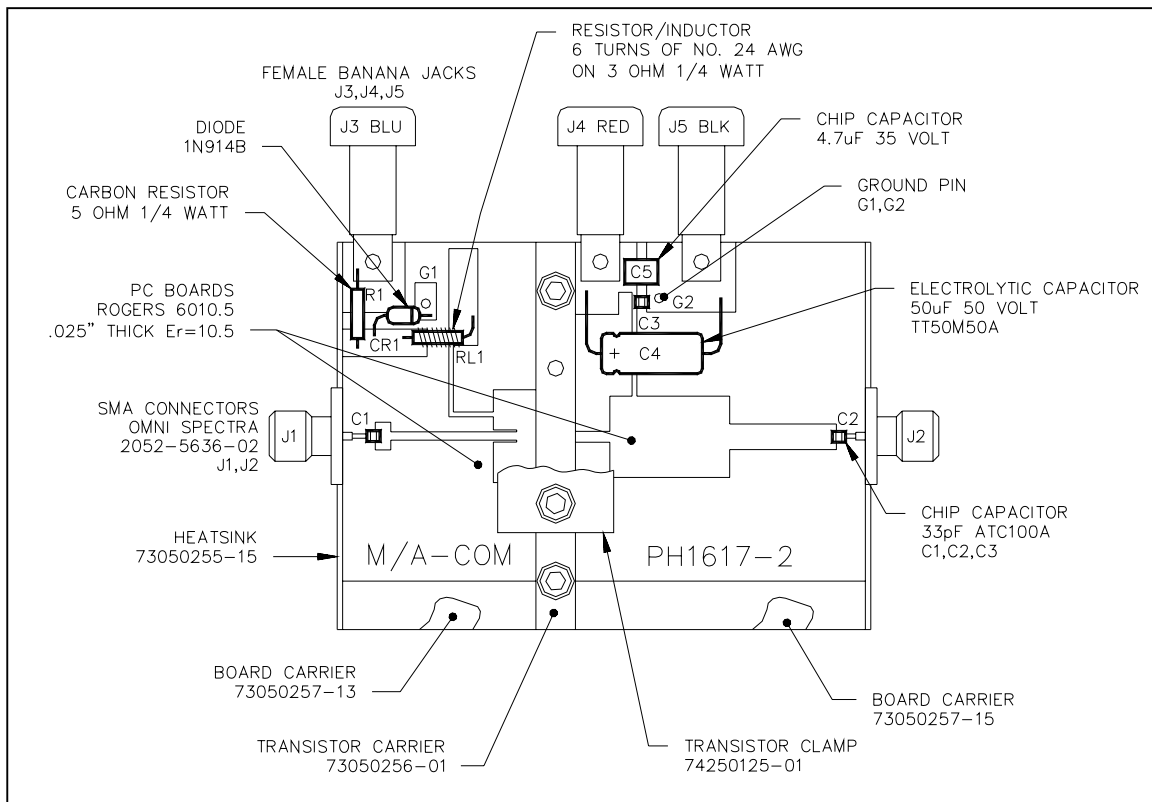
F (GHz)	$Z_{IN} (\Omega)$	$Z_{LOAD} (\Omega)$
1.60	$3.5 + j8.2$	$6.6 - j13.5$
1.65	$2.0 + j5.0$	$6.4 - j13.1$
1.70	$4.2 + j8.7$	$6.3 - j12.8$



TEST FIXTURE DIMENSIONS



TEST FIXTURE ASSEMBLY



Typical Broadband Performance Curves

