

Wireless Bipolar Power Transistor 10W, 1.78-1.90 GHz

M/A-COM Products
Released - Rev. 07.07

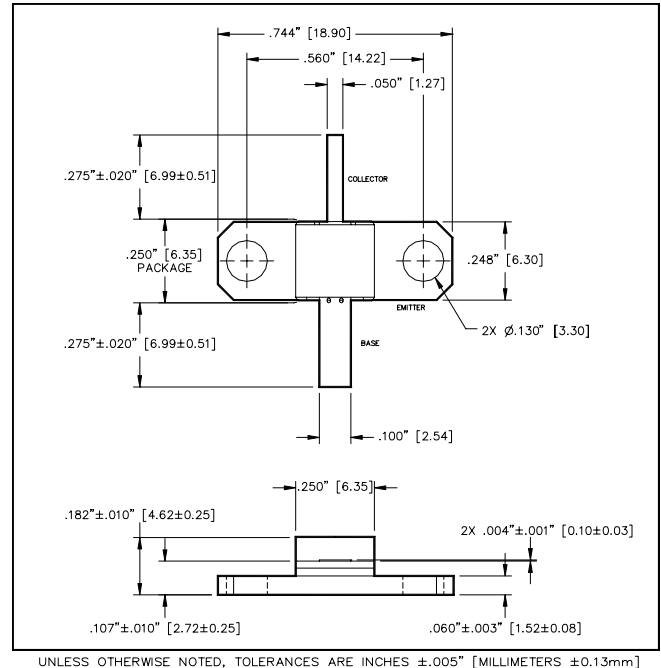
Features

- Designed for cellular base station applications
- -30 dBc typ. 3rd IMD at 10 W PEP
- 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	3.0	A
Power Dissipation	P_D	44	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to + 150	°C
Thermal Resistance	θ_{JC}	4.0	°C/W

Outline Drawing



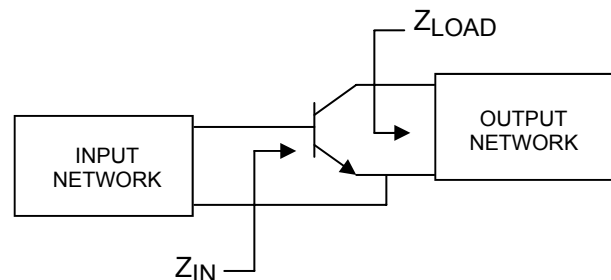
UNLESS OTHERWISE NOTED, TOLERANCES ARE INCHES ±.005" [MILLIMETERS ±0.13mm]

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	65	-	V	$I_C = 10\text{mA}$
Collector-Emitter Leakage Current	I_{CES}	-	2.0	mA	$V_{CE} = 25\text{V}$
Collector-Emitter Breakdown Voltage	BV_{CEO}	20	-	V	$I_C = 10\text{mA}$
Collector-Emitter Breakdown Voltage	BV_{CER}	30	-	V	$I_C = 10\text{mA}, R_{BE} = 220\ \Omega$
Emitter-Base Breakdown Voltage	BV_{EBO}	3.0	-	V	$I_B = 10\text{mA}$
DC Forward Current Gain	h_{FE}	315	120	-	$V_{CE} = 5\text{V}, I_C = 250\text{mA}$
Power Gain	G_P	9.0	-	dB	$V_{CC} = 25\text{V}, I_{CQ} = 100\text{mA}, P_{out} = 10\text{W PEP}, F = 1.78\text{-}1.90\text{GHz}$
Collector Efficiency	η_C	40	-	%	$V_{CC} = 25\text{V}, I_{CQ} = 100\text{mA}, P_{out} = 10\text{W PEP}, F = 1.78\text{-}1.90\text{GHz}$
Input Return Loss	RL	10	-	dB	$V_{CC} = 25\text{V}, I_{CQ} = 100\text{mA}, P_{out} = 10\text{W PEP}, F = 1.78\text{-}1.90\text{GHz}$
Load Mismatch Tolerance	VSWR	-	3.0:1	-	$V_{CC} = 25\text{V}, I_{CQ} = 100\text{mA}, P_{out} = 10\text{W PEP}, F = 1.78\text{-}1.90\text{GHz}$
3rd Order IMD	IMD ₃	-	-28	dBc	$V_{CC} = 25\text{V}, I_{CQ} = 100\text{mA}, P_{out} = 10\text{W PEP}, F = 1.78\text{-}1.90\text{GHz}, \Delta F = 100\text{kHz}$

TYPICAL OPTIMUM DEVICE IMPEDANCES

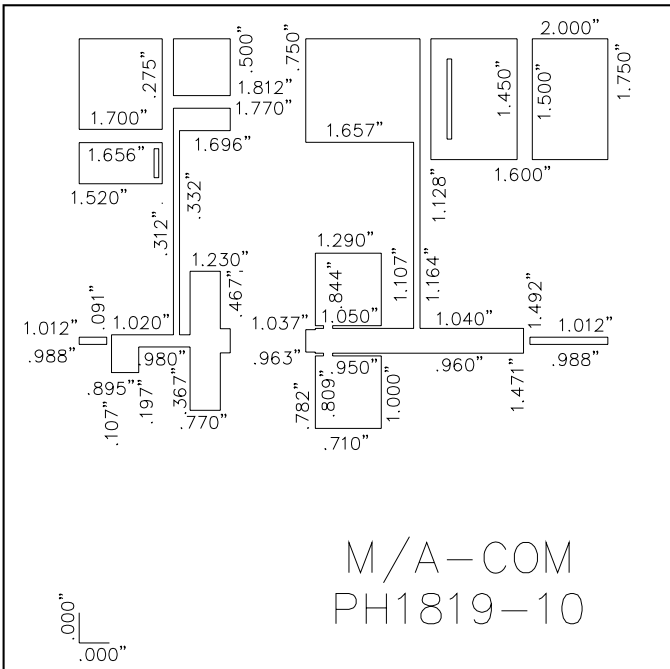
F (GHz)	Z_{IN} (Ω)	Z_{LOAD} (Ω)
1.78	4.5+j7.0	2.5+j0.2
1.85	5.0+j7.3	2.5+j0
1.90	6.0+j6.1	2.6+j0.2



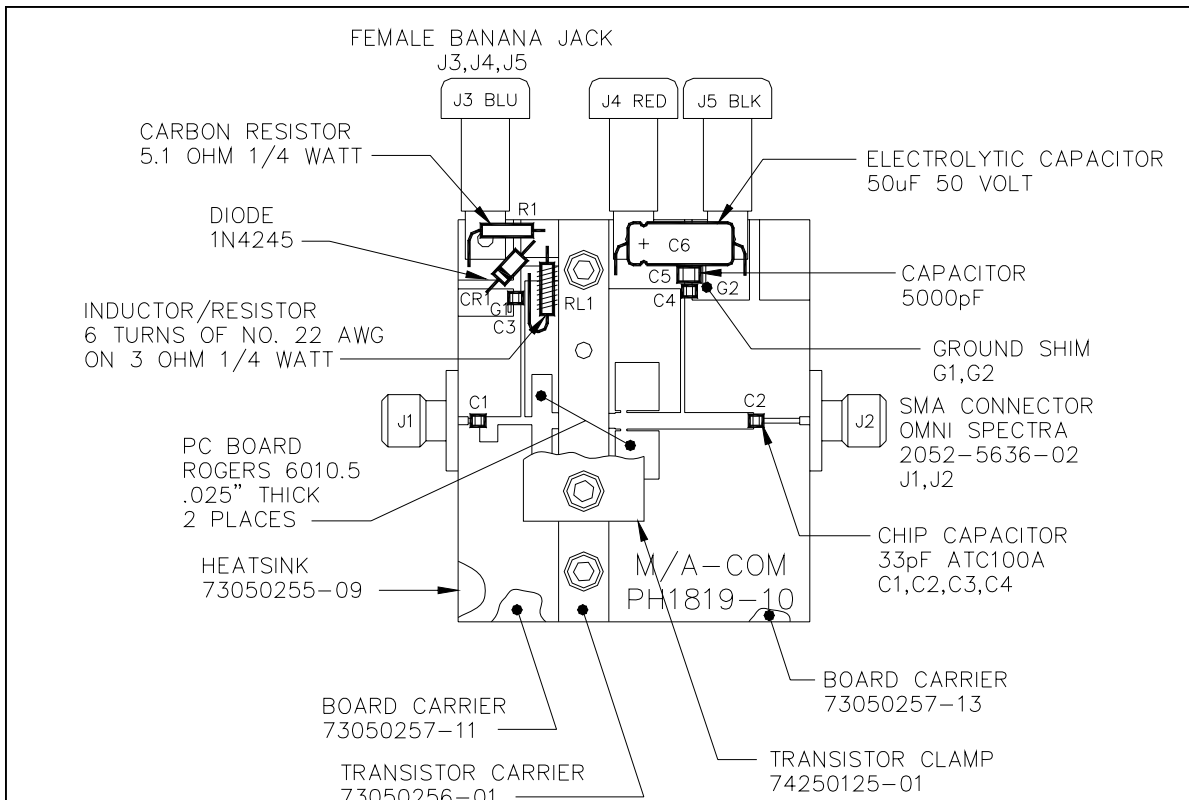
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TEST FIXTURE DIMENSIONS



TEST FIXTURE ASSEMBLY



ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

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Typical Broadband Performance Curves

