

Wireless Bipolar Power Transistor 4W, 1.78-1.90 GHz

M/A-COM Products
Released - Rev. 07.07

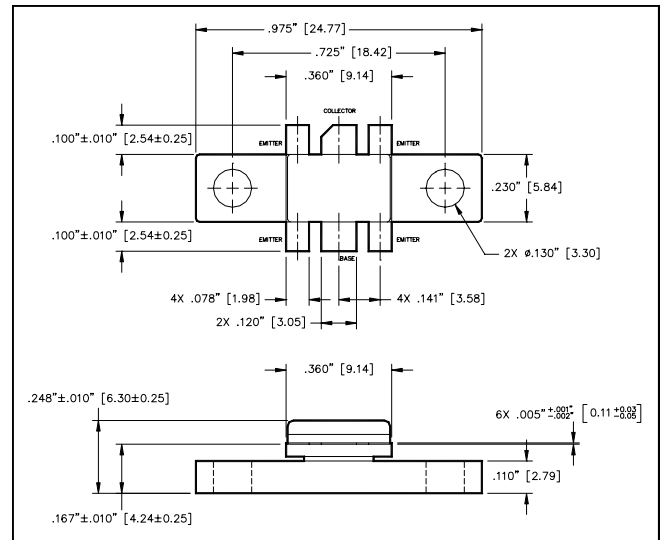
Features

- NPN silicon microwave power transistor
- Designed for linear amplifier applications
- Class AB: -34 dBc typ. 3rd IMD at 4 W PEP
- Class A: +44 dBm typ. 3rd order intercept point -
- Common emitter configuration
- Internal input impedance matching
- Diffused emitter ballasting
- Gold metallization system

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	0.7	A
Power Dissipation	P_D	19.5	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to + 150	°C
Thermal Resistance	θ_{JC}	7.5	°C/W

Outline Drawing

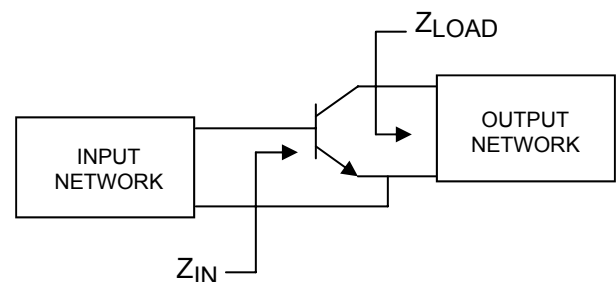


ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	60	-	V	$I_C = 5\text{mA}$
Collector-Emitter Leakage Current	I_{CES}	-	2.0	mA	$V_{CE} = 24\text{V}$
Collector-Emitter Breakdown Voltage	BV_{CEO}	20	-	V	$I_C = 2.5\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	3.0	-	V	$I_B = 5\text{mA}$
DC Forward Current Gain	h_{FE}	15	120	-	$V_{CE} = 5\text{V}, I_C = 0.1\text{A}$
Power Gain	G_P	10	-	dB	$V_{CC} = 26\text{V}, I_{CQ} = 20\text{mA}, P_{out} = 4\text{W}, F = 1850\text{GHz}, \Delta F = 100\text{kHz}$
Collector Efficiency	η_C	25	-	%	$V_{CC} = 26\text{V}, I_{CQ} = 20\text{mA}, P_{out} = 4\text{W}, F = 1850\text{GHz}, \Delta F = 100\text{kHz}$
Input Return Loss	RL	10	-	dB	$V_{CC} = 26\text{V}, I_{CQ} = 20\text{mA}, P_{out} = 4\text{W}, F = 1850\text{GHz}, \Delta F = 100\text{kHz}$
Load Mismatch Tolerance	VSWR	-	10:1	-	$V_{CC} = 26\text{V}, I_{CQ} = 20\text{mA}, P_{out} = 4\text{W}, F = 1850\text{GHz}, \Delta F = 100\text{kHz}$
3rd Order IMD	IMD ₃	-	-30	dBc	$V_{CC} = 26\text{V}, I_{CQ} = 20\text{mA}, P_{out} = 4\text{W}, F = 1850\text{GHz}, \Delta F = 100\text{kHz}$

TYPICAL OPTIMUM DEVICE IMPEDANCES

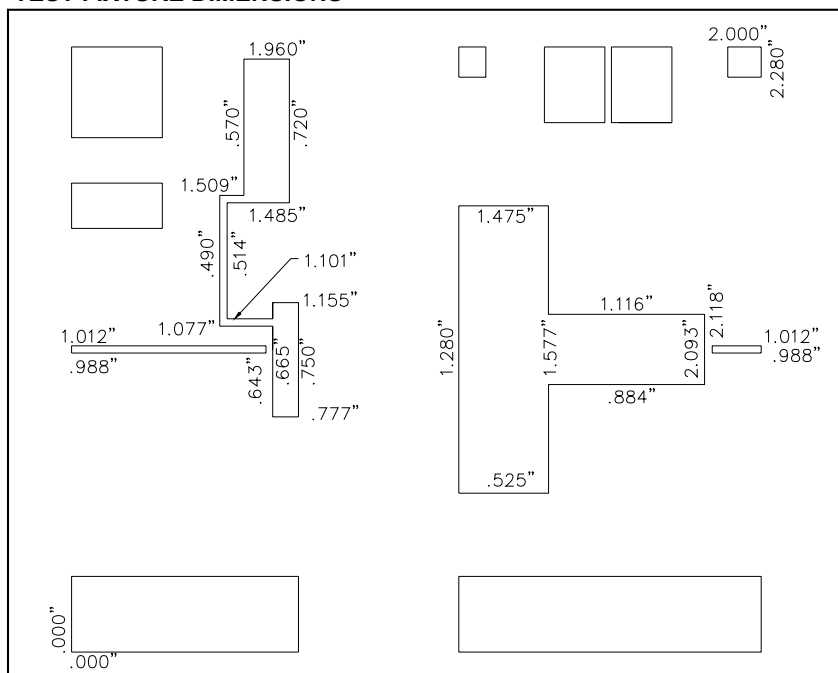
F (GHz)	$Z_{IN} (\Omega)$	$Z_{LOAD} (\Omega)$
1780	3.5+j9.3	3.5+j5.6
1850	3.1+j9.2	4.5+j5.2
1900	3.3+j8.9	4.8+j5.5



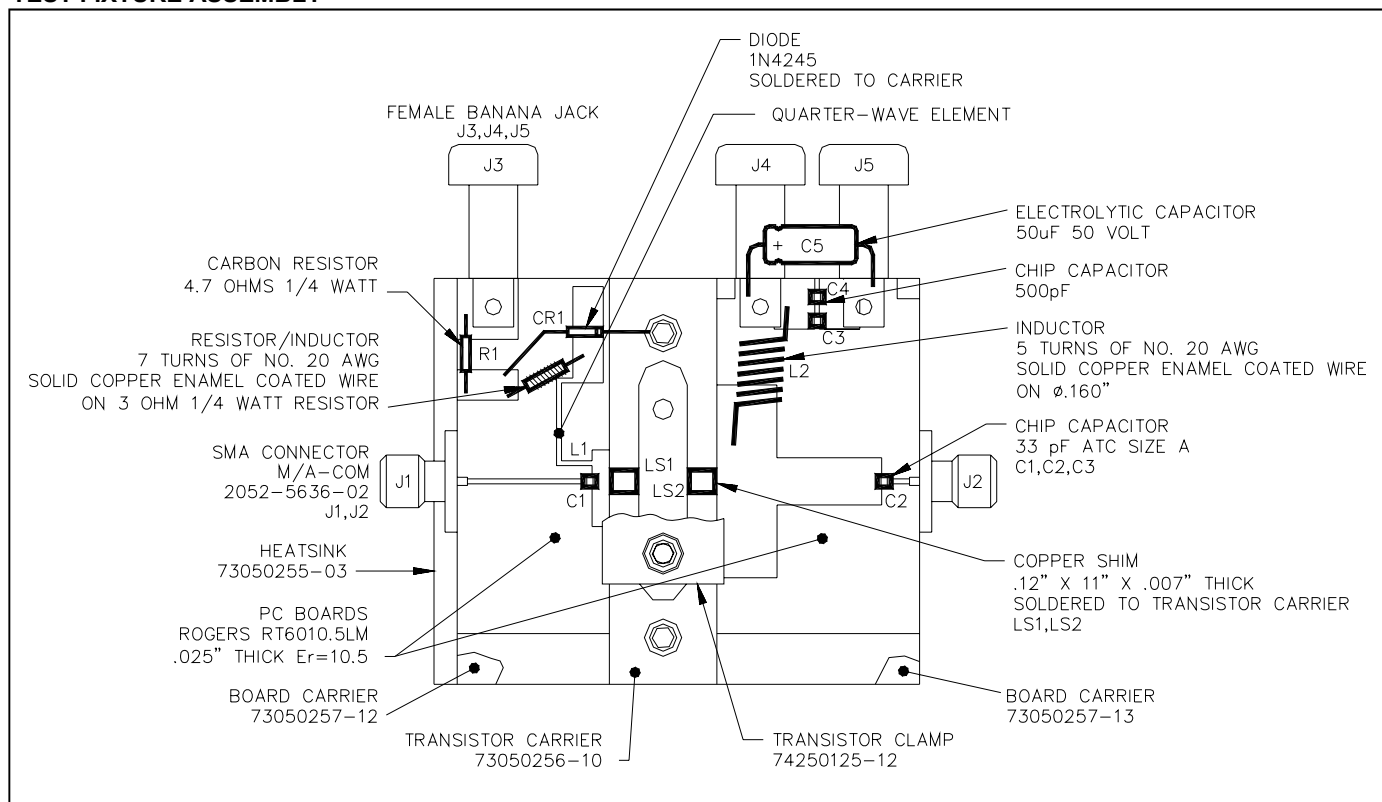
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TEST FIXTURE DIMENSIONS



TEST FIXTURE ASSEMBLY



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Typical Broadband Performance Curves

