

Wireless Bipolar Power Transistor 15W, 1.78-1.90 GHz

M/A-COM Products
Released - Rev. 07.07

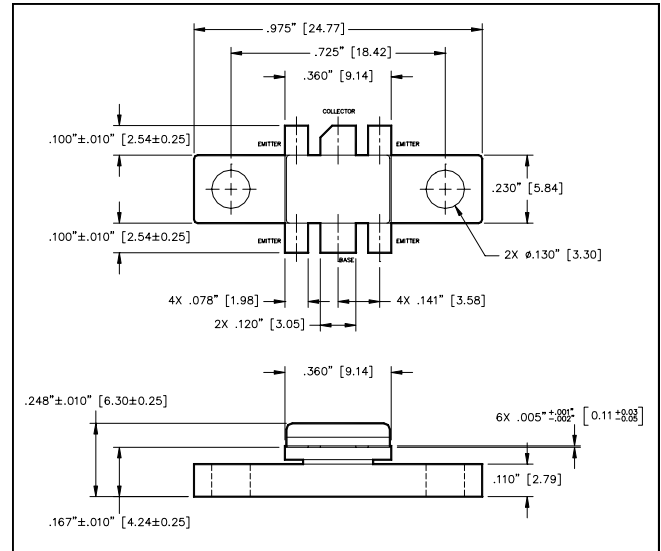
Features

- NPN silicon microwave power transistor
- Designed for linear amplifier applications
- Class AB: -34 dBc typ. 3rd IMD at 15 W PEP
- Class A: +48 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	2.0	A
Power Dissipation	P_D	58	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to + 150	°C
Thermal Resistance	θ_{JC}	3.0	°C/W

Outline Drawing

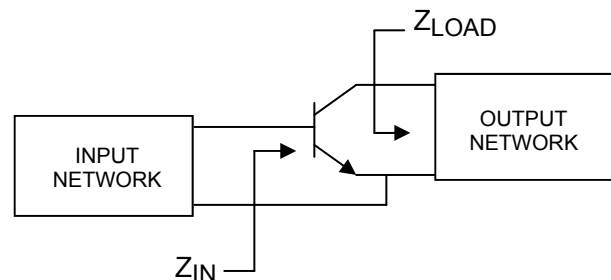


ELECTRICAL SPECIFICATIONS AT 25°C

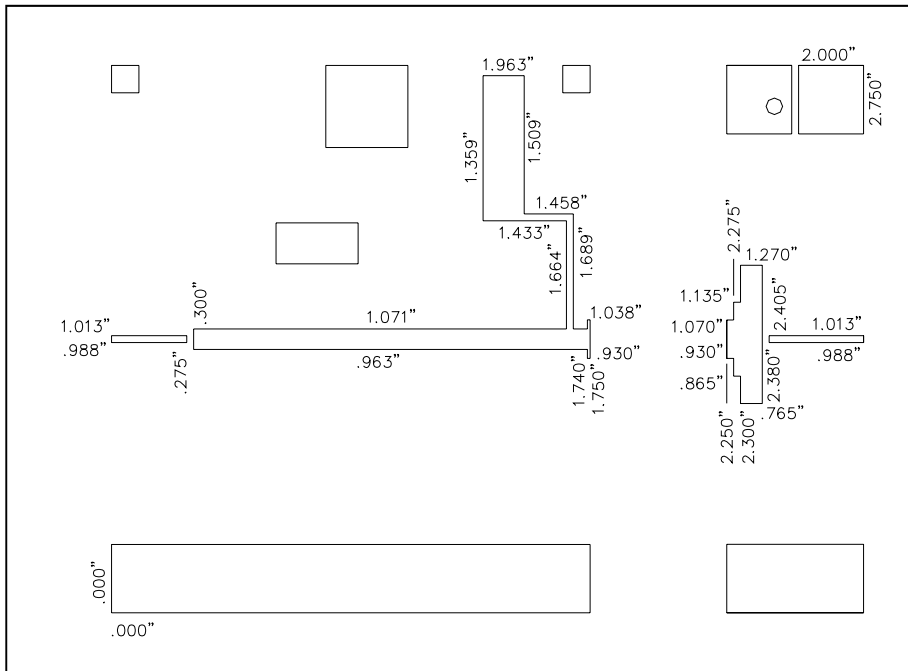
Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	60	-	V	$I_C = 10\text{mA}$
Collector-Emitter Leakage Current	I_{CES}	-	1.0	mA	$V_{CE} = 24\text{V}$
Collector-Emitter Breakdown Voltage	BV_{CEO}	24	-	V	$I_C = 10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	3.0	-	V	$I_B = 10\text{mA}$
DC Forward Current Gain	h_{FE}	15	120	-	$V_{CE} = 5\text{V}, I_C = 0.5\text{mA}$
Power Gain	G_P	7.0	-	dB	$V_{CC} = 26\text{V}, I_{CO} = 25\text{mA}, P_{out} = 15\text{W PEP}, F = 1880\text{GHz}, \Delta F = 100\text{kHz}$
Collector Efficiency	η_C	25	-	%	$V_{CC} = 26\text{V}, I_{CO} = 25\text{mA}, P_{out} = 15\text{W PEP}, F = 1880\text{GHz}, \Delta F = 100\text{kHz}$
Input Return Loss	RL	10	-	dB	$V_{CC} = 26\text{V}, I_{CO} = 25\text{mA}, P_{out} = 15\text{W PEP}, F = 1880\text{GHz}, \Delta F = 100\text{kHz}$
Load Mismatch Tolerance	VSWR	-	10:1	-	$V_{CC} = 26\text{V}, I_{CO} = 25\text{mA}, P_{out} = 15\text{W PEP}, F = 1880\text{GHz}, \Delta F = 100\text{kHz}$
3rd Order IMD	IMD_3	-	-30	dBc	$V_{CC} = 26\text{V}, I_{CO} = 25\text{mA}, P_{out} = 15\text{W PEP}, F = 1880\text{GHz}, \Delta F = 100\text{kHz}$

TYPICAL OPTIMUM DEVICE IMPEDANCES

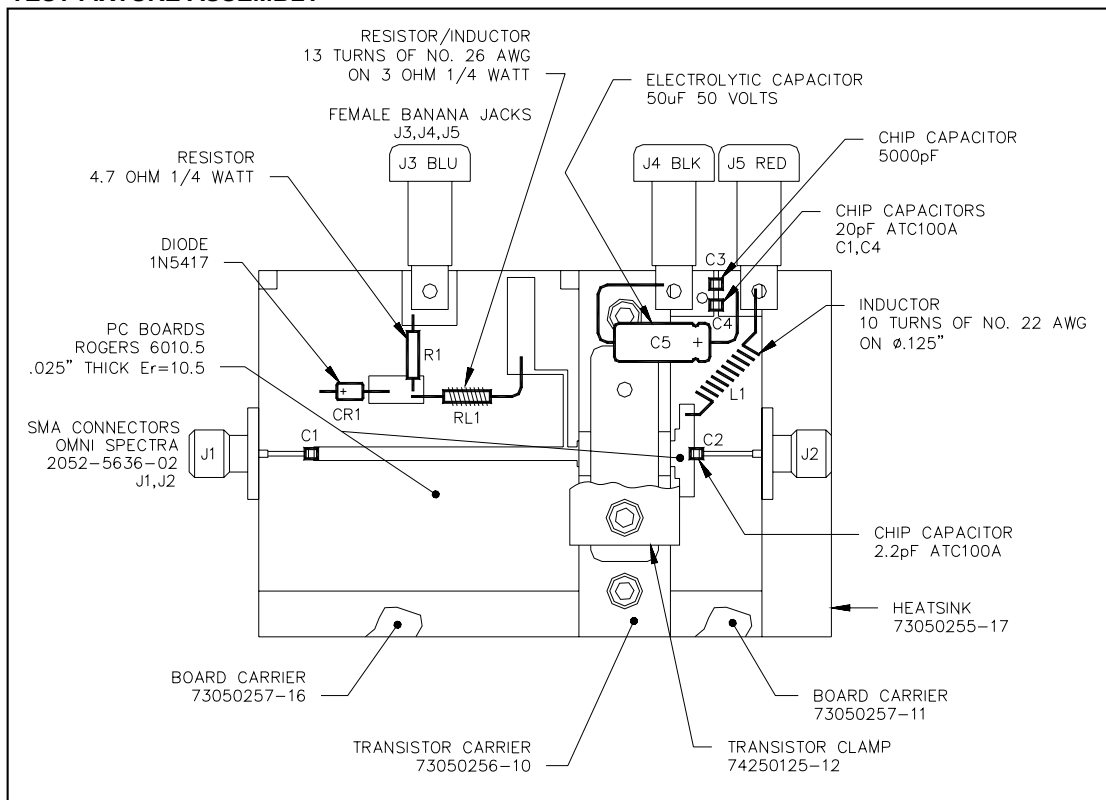
F (MHz)	$Z_{IN} (\Omega)$	$Z_{LOAD} (\Omega)$
1780	10.5+j12.3	1.6-j1.9
1850	11.4+j11	1.6-j2.2
1880	11.9+j6.2	1.6-j2.5
1880	9.9+j3.6	1.6-j2.7
1900	8.8+j1.9	1.4-j2.7



TEST FIXTURE DIMENSIONS



TEST FIXTURE ASSEMBLY



Typical Broadband Performance Curves

