MACOM an AMP company

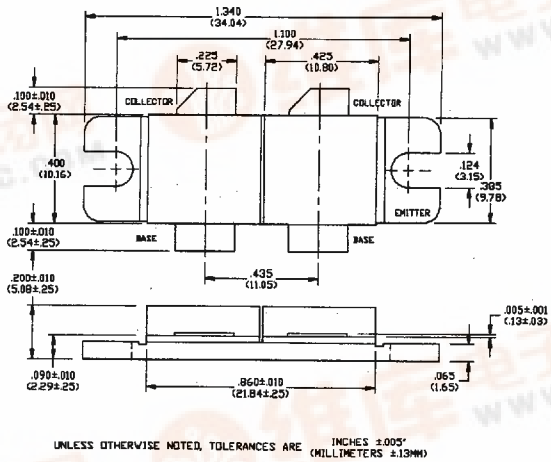
Wireless Bipolar Power Transistor, 150W 850 - 960 MHz

PH0810-150

V2.01

Features

- Designed for Linear Amplifier Applications
- Class AB: -32 dBc Typ 3rd IMD at 150 Watts PEP
- Common Emitter Configuration
- Internal Input and Output Impedance Matching
- Diffused Emitter Ballasting



Absolute Maximum Ratings 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	25	A
Total Power Dissipation	P_{TOT}	250	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to +150	°C
Thermal Resistance	θ_{JC}	0.7	°C/W

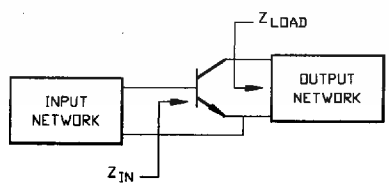
Electrical Characteristics at 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	60	-	V	I_C=50 mA*
Collector-Emitter Leakage Current	I_{CES}	-	10.0	mA	V_{CE}=26.0 V*
Collector-Emitter Breakdown Voltage	BV_{CEO}	24	-	V	I_C=100 mA*
Emitter-Base Breakdown Voltage	BV_{EBO}	3.0	-	V	I_B=50 mA*
DC Forward Current Gain	h_{FE}	15	120	-	V_{CE}=5.0 V, IC=1.0 A*
Power Gain	G_P	10	-	dB	V_{CC}=26 V, I_{CQ}=300 mA, P_{OUT}=150 W PEP, F=900 MHz, ΔF=100 kHz
Collector Efficiency	η_C	35	-	%	V_{CC}=26 V, I_{CQ}=300 mA, P_{OUT}=150 W PEP, F=900 MHz, ΔF=100 kHz
Input Return Loss	RL	10	-	dB	V_{CC}=26 V, I_{CQ}=300 mA, P_{OUT}=150 W PEP, F=900 MHz, ΔF=100 kHz
Load Mismatch Tolerance	VSWR-T	-	5.0:1	-	V_{CC}=26 V, I_{CQ}=300 mA, P_{OUT}=150 W PEP, F=900 MHz, ΔF=100 kHz
3rd Order IMD	IMD_3	-	-28	dBc	V_{CC}=26 V, I_{CQ}=300 mA, P_{OUT}=150 W PEP, F=900 MHz, ΔF=100 kHz

* Per Side

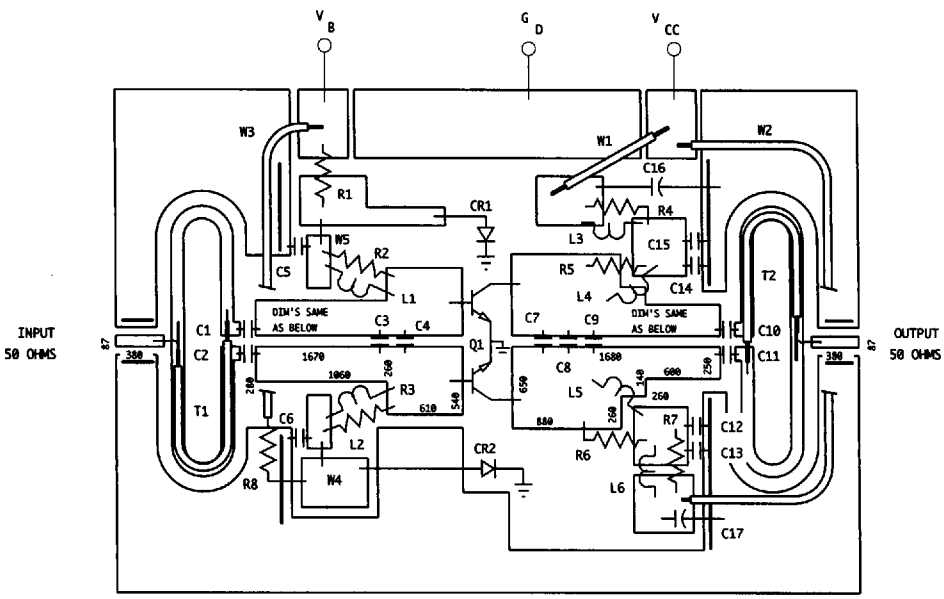
Typical Optimum Device Impedances

F(MHz)	Z_{IN}(Ω)	Z_{LOAD}(Ω)
850	2.2 + j6.0	3.3 - j5.4
900	3.5 + j5.6	3.4 - j5.0
960	3.6 + j4.0	2.3 - j5.2



North America: Tel. (800) 366-2266 ■ Asia/Pacific: Tel. +81 (03) 3226-1671 ■ Europe: Tel. +44 (1344) 869 595

RF Test Fixture



PARTS LIST

C9	.7pF 100 VDC CHIP ATC TYPE B
C7 C8	3.6pF 100 VDC CHIP ATC TYPE B
C4	6.2pF 100 VDC CHIP ATC TYPE B
C3	26pF 100 VDC CHIP ATC TYPE B
C1 C2 C10 C11	43pF 100 VDC CHIP ATC TYPE B
C5 C6 C12 C14	100pF 100 VDC CHIP ATC TYPE B
C13 C15	5000pF 100 VDC CHIP ATC TYPE B
C16 C17	50uF 50 VOLTS
CR1 CR2	DIODE JX5417
L3 L6	7 TURNS OF NO. 18 AWG ON .150" DIA
L1 L2	11 TURNS OF NO. 18 AWG ON .150" DIA
L4 L5	11 TURNS OF NO. 18 AWG ON .100" DIA
Q1	PH0810-150
R2 R3 R4 R7	.47 OHM .5 WATT
R1 R5 R6 R8	47 OHM 1 WATT
T1 T2	50 OHM SEMI RIGID COAX 2.20" X .088" OD
W1 W2 W3	NO. 16 AWG TEFLON WIRE
W4, W5	NO. 16 AWG JUMPER
BOARD MATERIAL	TEFLON GLASS, .031" THICK, Er = 2.54