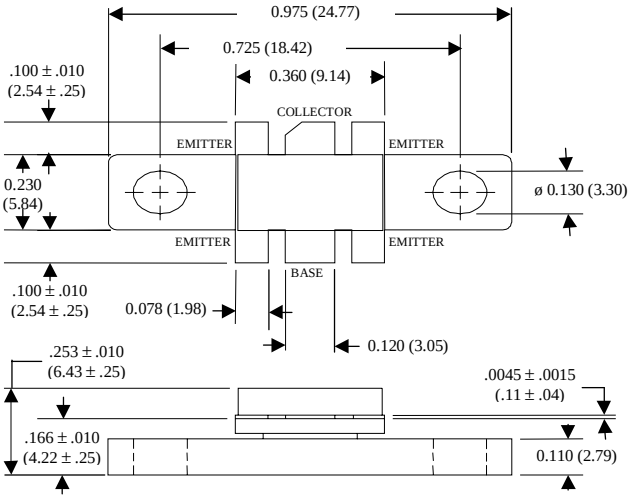
M/A-COM

Wireless Power Transistor
15 Watts, 850 - 960 MHz

Features

- Designed for Linear Amplifier Applications
- Class AB: -30 dBc Typ 3rd IMD at 15 Watts PEP
- Common Emitter Configuration
- Internal Input Impedance Matching
- Diffused Emitter Ballasting

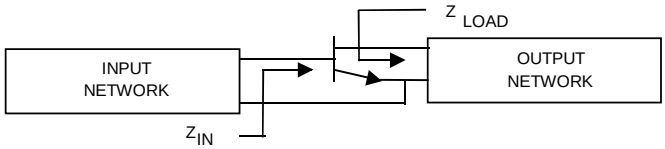
Outline Drawing[1]



Notes: (unless otherwise specified)
1. Tolerances are: inches ± .005" (millimeters ± 0.13mm)

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	1.8	A
Dissipation @ 25°C	P_D	43	W
Storage Temperature	T_{stg}	-55 to +150	°C
Junction Temperature	T_j	200	°C
Thermal Resistance	θj_c	3.5	°C/W



Typical Optimum Device Impedance

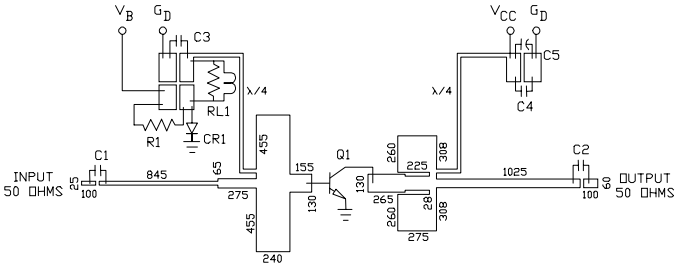
F (MHz)	Z_{in} (Ω)	Z_{load} (Ω)
850	2.5 + j3.6	4.3 + j2.6
900	2.9 + j2.4	4.4 + j3.4
960	1.5 + j2.0	4.3 + j3.9

Electrical Specifications at 25°C

Symbol	Parameter	Test Conditions	Min	Max	Units
BV_{CES}	Collector-Emitter Breakdown	I_C=15mA	60	-	V
I_{CES}	Collector-Emitter Leakage	V_{CE}=24.0 V	-	2.0	mA
BV_{CEO}	Collector-Emitter Breakdown	I_C=40 mA	24	-	V
BV_{EBO}	Emitter-Base Breakdown	I_B=2.5 mA	3.0	-	V
h_{FE}	DC Forward Current Gain	V_{CE}=5.0 V, I_C=0.5 A	15	120	-
G_P	Power Gain	V_{CC}=24 V, I_{CQ}=100 mA, Pout= 15W, f=900 MHz	12	-	dB
η	Collector Efficiency	V_{CC}=24 V, I_{CQ}=100 mA, Pout= 15W, f=900 MHz	50	-	%
R_L	Input Return Loss	V_{CC}=24 V, I_{CQ}=100 mA, Pout=15W, f=900 MHz	10	-	dB
VSWR	Load Mismatch Tolerance	V_{CC}=24 V, I_{CQ}=100 mA, Pout=15W PEP, f=900 MHz, Δf=100 kHz	-	10:1	-
IMD_3	3rd Order IMD	V_{CC}=24 V, I_{CQ}=100 mA, Pout=15W PEP, f=900 MHz, Δf=100 kHz	-	-30	dBc

V2.00

Electrical Schematic[1]



Notes:
1. Dimensions are in mils.

Electrical Schematic Parts List

C1, C2, C3	100 pF ATC Size A
C4	5000 pF ATC Size B
C5	50 uF 50 Volts
CR1	Diode cathode tied to flange (Harris 1N4245)
Q1	PH0810-15
R1	5 Ohms ¼ W
RL1	10T / No. 22 AWG on 3.1 Ohm ¼ Watt
Board Type	Rogers 6010.5 .025" thick, E_R = 10.5

M/A-COM Division of AMP Incorporated n North America: Tel. (800) 366-2266, Fax (800) 618-8883 n Asia/Pacific: Tel.+85 2 2111 8088, Fax +85 2 2111 8087
n Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020