

# Wireless Power Transistor

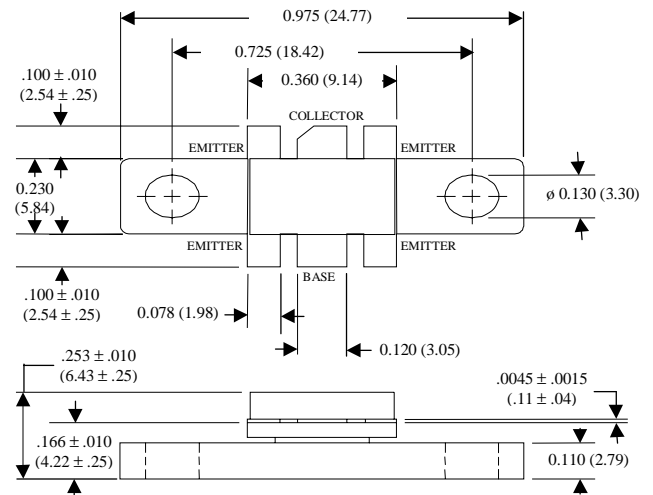
## 15 Watts, 850 - 960 MHz



### 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<sup>1</sup>

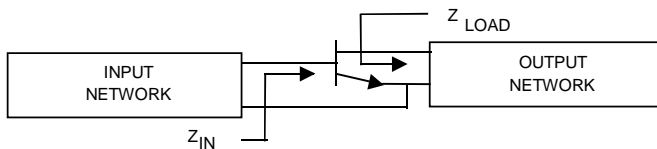


Notes: (unless otherwise specified)

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	$\theta_{jc}$	3.5	°C/W



### Typical Optimum Device Impedance

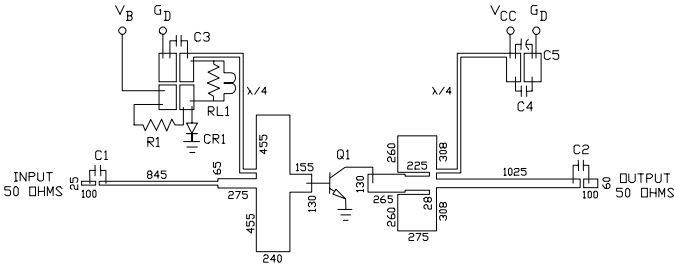
F (MHz)	$Z_{in} (\Omega)$	$Z_{load} (\Omega)$
850	$2.5 + j3.6$	$4.3 + j2.6$
900	$2.9 + j2.4$	$4.4 + j3.4$
960	$1.5 + j2.0$	$4.3 + j3.9$

### 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	$V_{CC}=24 V, I_{CQ}=100 mA, P_{out}= 15W, f=900 MHz$	12	-	dB
$\eta$	Collector Efficiency	$V_{CC}=24 V, I_{CQ}=100 mA, P_{out}= 15W, f=900 MHz$	50	-	%
$R_L$	Input Return Loss	$V_{CC}=24 V, I_{CQ}=100 mA, P_{out}=15W, f=900 MHz$	10	-	dB
VSWR	Load Mismatch Tolerance	$V_{CC}=24 V, I_{CQ}=100 mA, P_{out}=15W PEP, f=900 MHz, \Delta f=100 kHz$	-	10:1	-
IMD <sub>3</sub>	3rd Order IMD	$V_{CC}=24 V, I_{CQ}=100 mA, P_{out}=15W PEP, f=900 MHz, \Delta f=100 kHz$	-	-30	dBc

V2.00

**Electrical Schematic<sup>1</sup>**



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 <sub>R</sub> = 10.5