

**2N6082**

**The RF Line**

**NPN SILICON RF POWER TRANSISTORS**

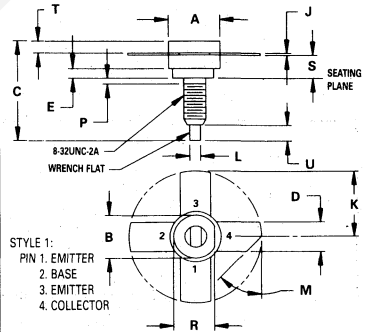
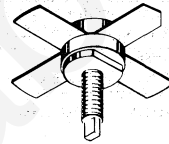
... designed for 12.5 Volt VHF large-signal amplifier applications required in commercial and industrial equipment operating to 300 MHz.

- Specified 12.5 Volt, 175 MHz Characteristics –
  - Output Power = 25 W
  - Minimum Gain = 6.2 dB
  - Efficiency = 65%



Island Labs

**25 W – 175 MHz**  
**RF POWER**  
**TRANSISTOR**  
 NPN SILICON



NOTES:  
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.40	9.78	0.370	0.385
B	8.13	8.38	0.320	0.330
C	17.02	20.07	0.670	0.790
D	5.46	5.97	0.215	0.235
E	1.78	—	0.070	—
J	0.08	0.18	0.003	0.007
K	12.45	—	0.490	—
L	1.40	1.78	0.055	0.070
M	45°	NOM	45°	NOM
P	—	1.27	—	0.050
R	7.59	7.80	0.299	0.307
S	4.01	4.52	0.158	0.178
T	2.11	2.54	0.083	0.100
U	2.49	3.35	0.098	0.132

CASE 145A-09

**\*MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	18	Vdc
Collector-Base Voltage	V <sub>CB0</sub>	36	Vdc
Emitter-Base Voltage	V <sub>EB0</sub>	4.0	Vdc
Collector Current — Continuous	I <sub>C</sub>	5.0	Adc
Total Device Dissipation @ T <sub>C</sub> = 25°C(2) Derate above 25°C	P <sub>D</sub>	65 .37	Watts W/°C
Storage Temperature Range	T <sub>stg</sub>	-65 to +200	°C
Stud Torque(1)	—	6.5	in.lb.

\*Indicates JEDEC Registered Data for 2N6082.

(1) For Repeated Assembly Use 5 in. lb.

(2) These devices are designed for RF operation. The total device dissipation rating applies only when the devices are operated as RF amplifiers.

# 2N6082

\*ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$  unless otherwise noted).

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Emitter Breakdown Voltage ( $I_C = 100 \text{ mAdc}$ , $I_B = 0$ )	$V_{(BR)CEO}$	18	—	—	Vdc
Collector-Emitter Breakdown Voltage ( $I_C = 15 \text{ mAdc}$ , $V_{BE} = 0$ )	$V_{(BR)CES}$	36	—	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 5.0 \text{ mAdc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	4.0	—	—	Vdc
Collector Cutoff Current ( $V_{CE} = 15 \text{ Vdc}$ , $V_{BE} = 0$ , $T_C = +55^\circ\text{C}$ )	$I_{CES}$	—	—	10	mAdc
Collector Cutoff Current ( $V_{CB} = 15 \text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	—	—	1.0	mAdc
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 1.0 \text{ Adc}$ , $V_{CE} = 5.0 \text{ Vdc}$ )	$h_{FE}$	5.0	—	—	—
<b>DYNAMIC CHARACTERISTICS</b>					
Output Capacitance ( $V_{CB} = 15 \text{ Vdc}$ , $I_E = 0$ , $f = 0.1 \text{ MHz}$ )	$C_{ob}$	—	110	130	pF
<b>FUNCTIONAL TEST</b>					
Common-Emitter Amplifier Power Gain ( $P_{out} = 25 \text{ W}$ , $V_{CC} = 12.5 \text{ Vdc}$ , $f = 175 \text{ MHz}$ )	$G_{PE}$	6.2	—	—	dB
Collector Efficiency ( $P_{out} = 25 \text{ W}$ , $V_{CC} = 12.5 \text{ Vdc}$ , $f = 175 \text{ MHz}$ )	$\eta$	65	—	—	%

\*Indicates JEDEC Registered Data for 2N6082.

FIGURE 1 — 175 MHz TEST CIRCUIT

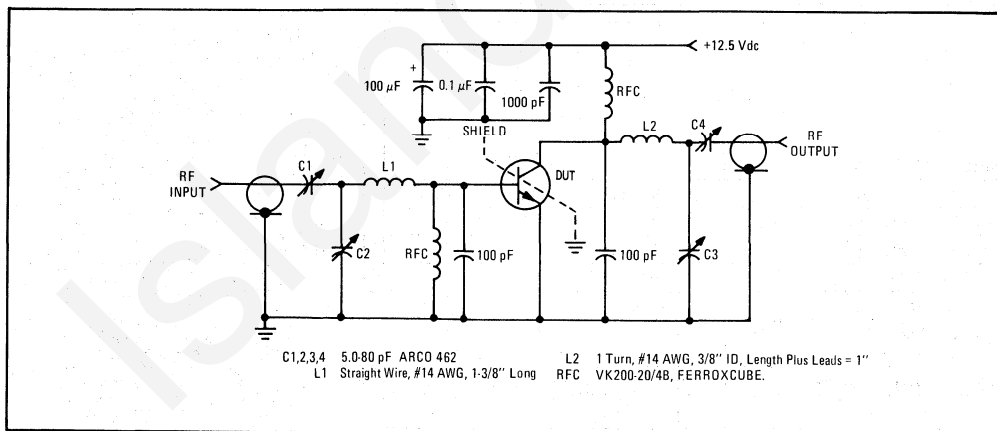


FIGURE 2 – OUTPUT POWER versus INPUT POWER

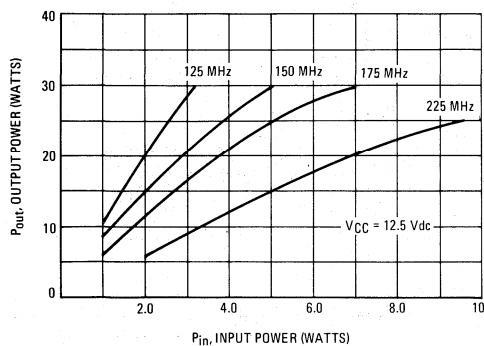


FIGURE 3 – OUTPUT POWER versus SUPPLY VOLTAGE

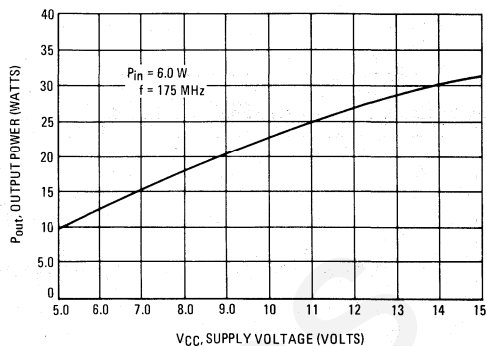


FIGURE 4 – SERIES EQUIVALENT IMPEDANCE

