

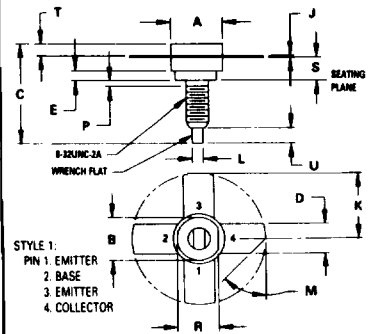
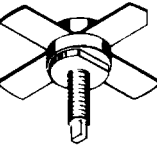
**2N5642**

**The RF Line**

**NPN SILICON RF POWER TRANSISTOR**

... designed primarily for wideband large-signal amplifier stages in the 125-175 MHz frequency range.

- Specified 28 Volt, 175 MHz Characteristics –  
 Output Power = 20 Watts  
 Minimum Gain = 8.2 dB  
 Efficiency = 60%
- Characterized from 125 to 175 MHz
- Includes Series Equivalent Impedances



- 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	$V_{CEO}$	35	Vdc
Collector-Base Voltage	$V_{CB}$	65	Vdc
Emitter-Base Voltage	$V_{EB}$	4.0	Vdc
Collector Current – Continuous	$I_C$	3.0	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	30 171	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200	$^\circ\text{C}$

\*Indicates JEDEC Registered Data.

**\*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 (Note 1) ( $I_C = 200\text{ mA dc}$ , $I_B = 0$ )	$V_{(BR)CEO}$	35	—	—	Vdc
Collector-Emitter Breakdown Voltage ( $I_C = 200\text{ mA dc}$ , $V_{BE} = 0$ )	$V_{(BR)CES}$	65	—	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10\text{ mA dc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	4.0	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 30\text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	..	—	1.0	mA dc
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 200\text{ mA dc}$ , $V_{CE} = 5.0\text{ Vdc}$ )	$h_{FE}$	5.0	—	—	—
<b>DYNAMIC CHARACTERISTICS</b>					
Output Capacitance ( $V_{CB} = 30\text{ Vdc}$ , $I_E = 0$ , $f = 0.1$ to $1.0\text{ MHz}$ )	$C_{ob}$	—	22	35	pF
<b>FUNCTIONAL TEST</b>					
Common Emitter Amplifier Power Gain (Figure 1) ( $P_{out} = 20\text{ Watts}$ , $V_{CE} = 28\text{ Vdc}$ , $f = 175\text{ MHz}$ )	$G_{PE}$	8.2	10.2	—	dB
Collector Efficiency (Figure 1) ( $P_{out} = 20\text{ Watts}$ , $V_{CE} = 28\text{ Vdc}$ , $f = 175\text{ MHz}$ )	$\eta$	60	..	—	%

Note 1: Pulsed through 25 mH inductor.

\*Indicates JEDEC Registered Data.

FIGURE 1 - 175 MHz TEST CIRCUIT SCHEMATIC

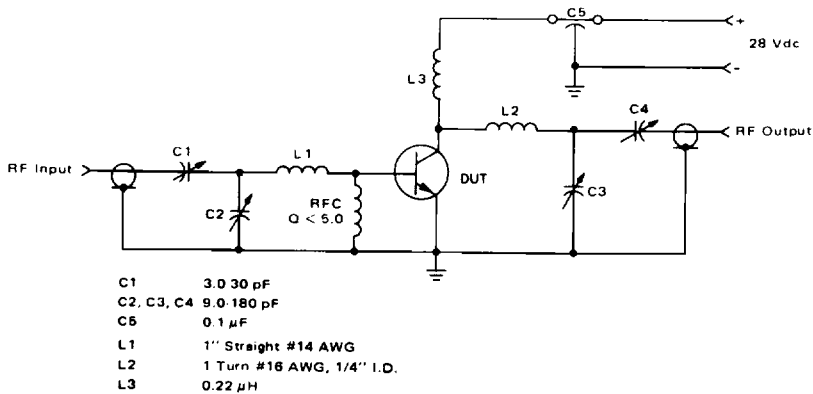


FIGURE 2 - OUTPUT POWER versus FREQUENCY

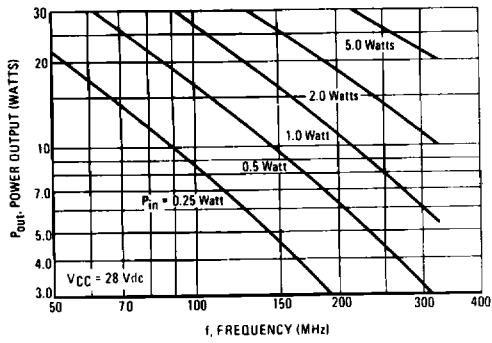


FIGURE 3 - OUTPUT POWER versus FREQUENCY

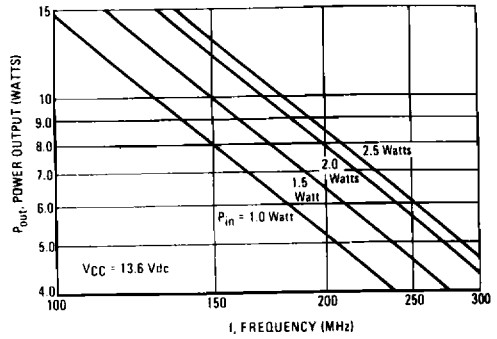
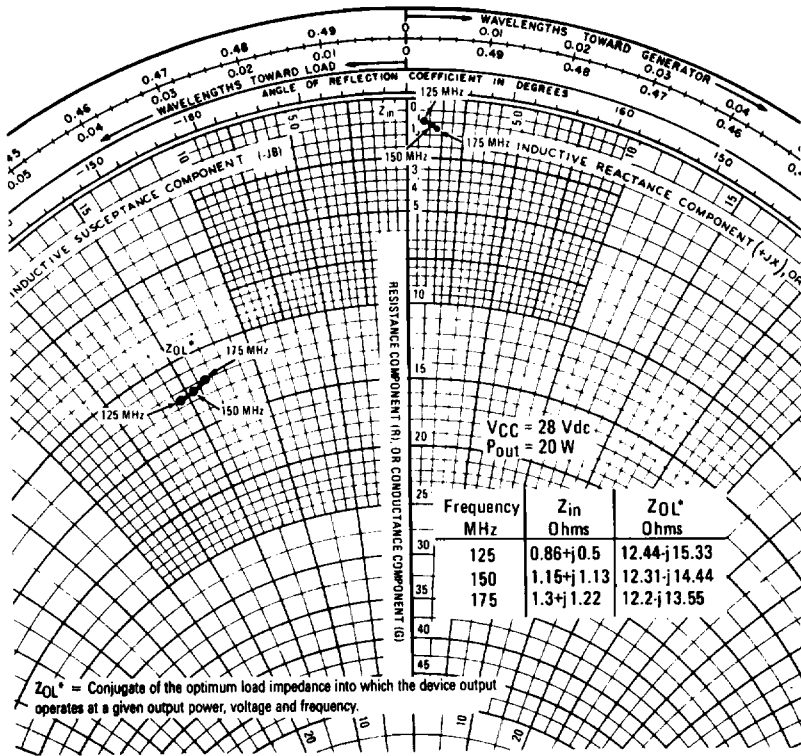


FIGURE 4 - SERIES EQUIVALENT IMPEDANCE



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