

2N5641

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 = 7.0 Watts
 Minimum Gain = 8.4 dB
 Efficiency = 60%
- Characterized from 125 to 175 MHz
- Includes Series Equivalent Impedances



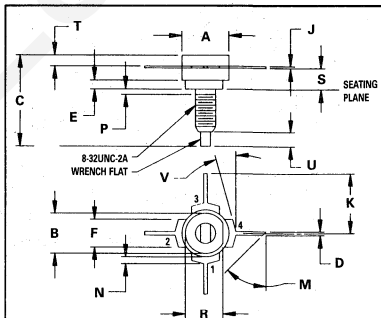
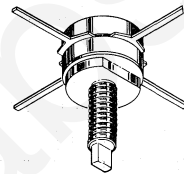
Island Labs

***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	1.0	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	15 86	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.

7.0 W – 175 MHz
RF POWER
TRANSISTOR
NPN SILICON



STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. EMITTER
 4. COLLECTOR

- 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	0.64	0.89	0.025	0.035
E	1.78	—	0.070	—
F	5.46	5.97	0.215	0.235
J	0.08	0.18	0.003	0.007
K	12.45	—	0.490	—
M	45° NOM		45° NOM	
N	1.27	1.52	0.050	0.060
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
V	10°	20°	10°	20°

CASE 144B-05

2N5641

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
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 ($I_E = 5.0\text{ mA dc}$, $I_C = 0$)	$V_{(BR)EBO}$	4.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 30\text{ Vdc}$, $I_E = 0$)	I_{CBO}	—	—	1.0	mA dc
ON CHARACTERISTICS					
DC Current Gain ($I_C = 100\text{ mA dc}$, $V_{CE} = 5.0\text{ Vdc}$)	h_{FE}	5.0	—	—	—
DYNAMIC CHARACTERISTICS					
Output Capacitance ($V_{CB} = 30\text{ Vdc}$, $I_E = 0$, $f = 0.1$ to 1.0 MHz)	C_{ob}	—	8.5	15	pF
FUNCTIONAL TEST					
Common-Emitter Amplifier Power Gain (Figure 1) ($P_{out} = 7.0\text{ Watts}$, $V_{CE} = 28\text{ Vdc}$, $f = 175\text{ MHz}$)	G_{pE}	8.4	12.5	—	dB
Collector Efficiency (Figure 1) ($P_{out} = 7.0\text{ Watts}$, $V_{CE} = 28\text{ Vdc}$, $f = 175\text{ MHz}$)	η	60	—	—	%

Note 1: Pulsed through 25 mH inductor.

*Indicates JEDEC Registered Data.

FIGURE 1 — 175 MHz TEST CIRCUIT SCHEMATIC

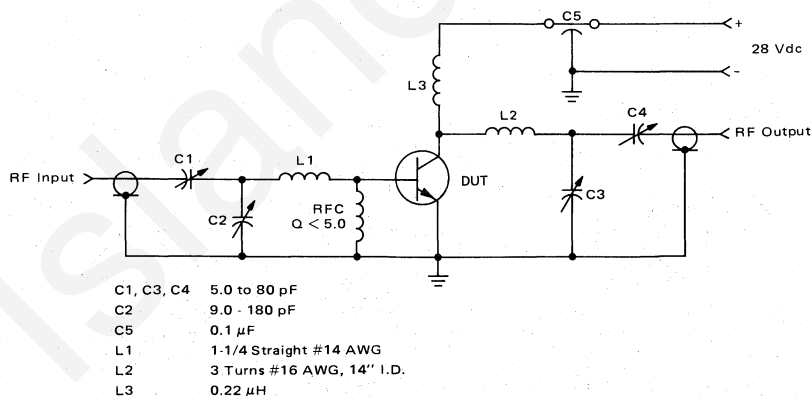


FIGURE 2 – OUTPUT POWER versus FREQUENCY

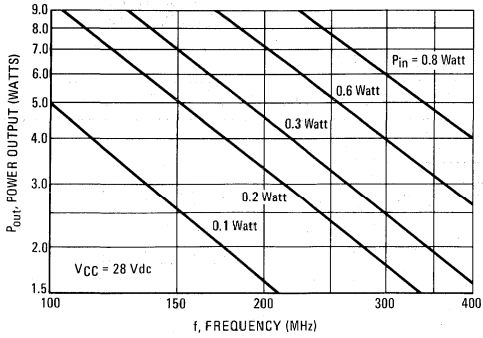


FIGURE 3 – OUTPUT POWER versus FREQUENCY

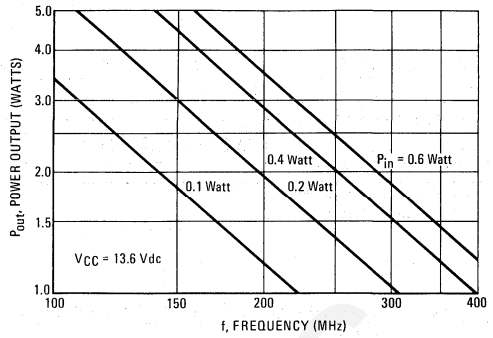
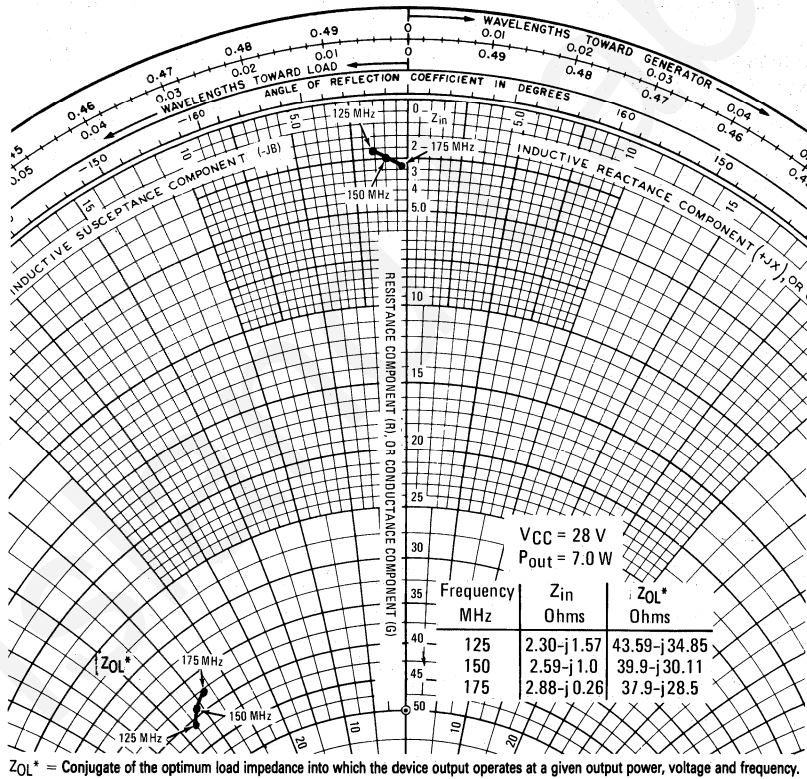


FIGURE 4 – SERIES EQUIVALENT IMPEDANCE



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