

DESCRIPTION

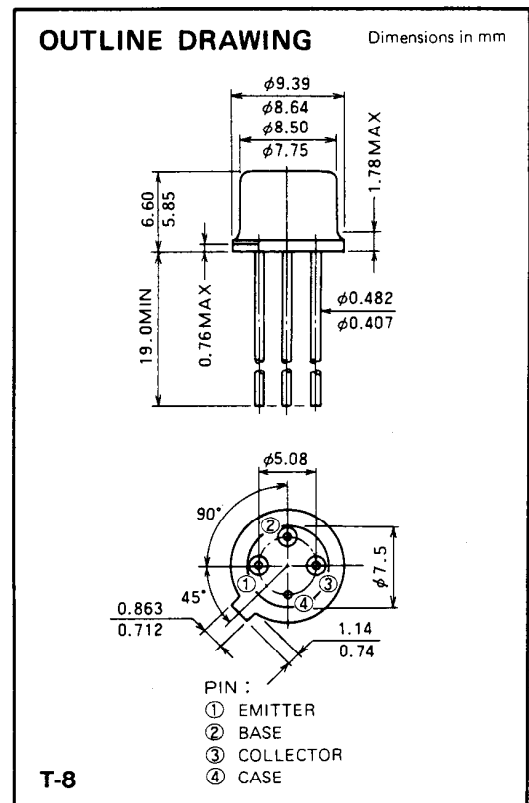
2SC1324 is a silicon NPN epitaxial planar type transistor designed for industrial use RF broadband amplifiers from VHF to UHF band.

FEATURES

- High power gain: $G_{pe} \geq 9\text{dB}$
@ $V_{CC} = 15\text{V}$, $I_C = 30\text{mA}$, $f = 770\text{MHz}$
- TO-12 metal sealed package with case grounded pin for high reliability and good performances.
- All electrodes excepted ground pin are isolated from the case.

APPLICATION

Broadband amplifiers from VHF to UHF band.



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise specified)

| Symbol | Parameter | Conditions | Ratings | Unit |
|------------|------------------------------|--------------------------|------------|---------------------------|
| V_{CBO} | Collector to base voltage | | 35 | V |
| V_{EBO} | Emitter to base voltage | | 4 | V |
| V_{CEO} | Collector to emitter voltage | $R_{BE} = \infty$ | 25 | V |
| I_C | Collector current | | 150 | mA |
| P_C | Collector dissipation | $T_a = 25^\circ\text{C}$ | 0.8 | W |
| | | $T_C = 25^\circ\text{C}$ | 3 | W |
| T_j | Junction temperature | | 175 | $^\circ\text{C}$ |
| T_{stg} | Storage temperature | | -65 to 175 | $^\circ\text{C}$ |
| R_{th-a} | Thermal resistance | Junction to ambient | 187.5 | $^\circ\text{C}/\text{W}$ |
| R_{th-c} | | Junction to case | 50 | $^\circ\text{C}/\text{W}$ |

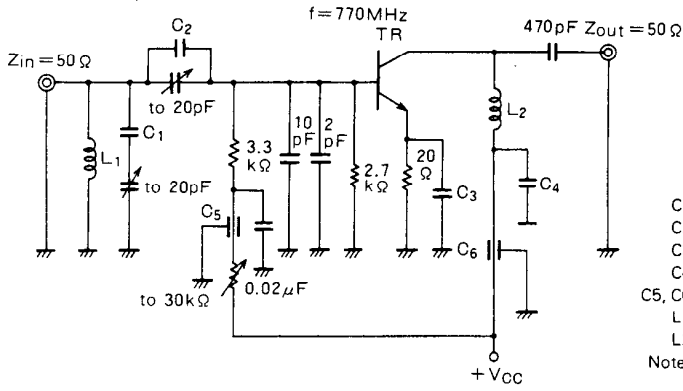
Note. Above parameters are guaranteed independently.

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

| Symbol | Parameter | Test conditions | Limits | | | Unit |
|---------------|--|--|--------|-----|-----|---------------|
| | | | Min | Typ | Max | |
| $V_{(BR)EBO}$ | Emitter to base breakdown voltage | $I_E = 1\text{mA}$, $I_C = 0$ | 4 | | | V |
| $V_{(BR)CBO}$ | Collector to base breakdown voltage | $I_C = 1\text{mA}$, $I_E = 0$ | 35 | | | V |
| $V_{(BR)CEO}$ | Collector to emitter breakdown voltage | $I_C = 10\text{mA}$, $R_{BE} = \infty$ | 25 | | | V |
| I_{CBO} | Collector cutoff current | $V_{CB} = 25\text{V}$, $I_E = 0$ | | | 50 | μA |
| I_{EBO} | Emitter cutoff current | $V_{EB} = 3\text{V}$, $I_C = 0$ | | | 75 | μA |
| h_{FE} | DC forward current gain * | $V_{CE} = 15\text{V}$, $I_C = 30\text{mA}$ | 20 | 70 | 180 | — |
| G_{pe} | Power gain | $V_{CC} = 15\text{V}$, $f = 770\text{MHz}$, $I_C = 30\text{mA}$ | 9 | 10 | | dB |
| f_T | Transition frequency | $V_{CE} = 15\text{V}$, $I_C = 30\text{mA}$ | | 1.7 | | GHz |
| NF | Noise figure | $V_{CC} = 15\text{V}$, $I_C = 30\text{mA}$, $f = 500\text{MHz}$, $R_G = 50\Omega$ | | 5 | | dB |

Note. * Pulse test. $P_W = 150\mu\text{s}$, duty=5%.
Above parameters, ratings, limits and conditions are subject to change.

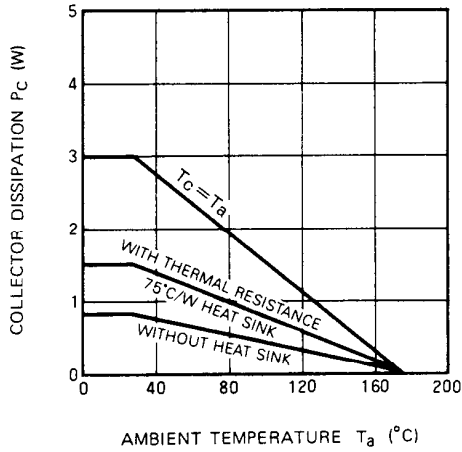
TEST CIRCUIT



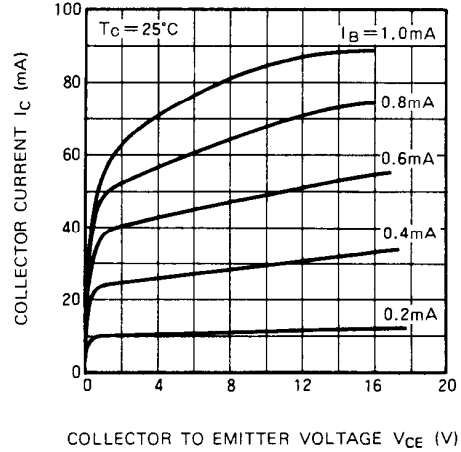
- C1: 2pF, 3pF in parallel
 - C2: 3pF, 4pF in parallel
 - C3: 500pF, 0.02μF in parallel
 - C4: 0.05μF, 0.03μF, 0.01μF in parallel
 - C5, C6: 1500pF
 - L1: 4mm core, 10T, enameled wire
 - L2: Width 2mm, length 20mm ribbon lead (silver plated copper plate)
- Notes: Coil dimensions in milli-meter
 T: Turn number of coil

TYPICAL PERFORMANCE DATA

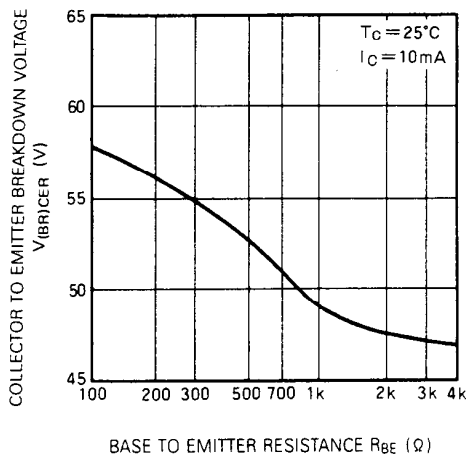
COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE



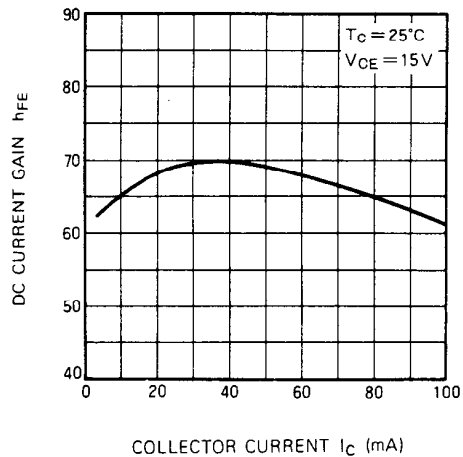
COLLECTOR CURRENT VS. COLLECTOR TO EMITTER VOLTAGE



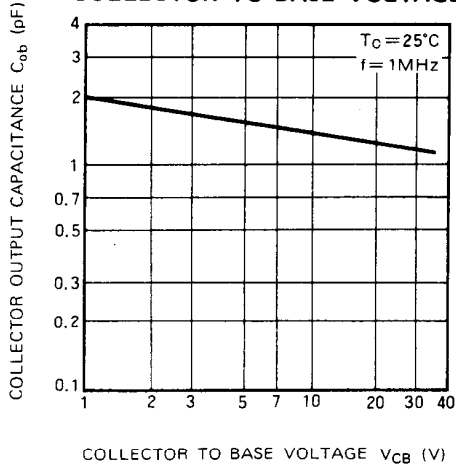
COLLECTOR TO EMITTER BREAKDOWN VOLTAGE VS. BASE TO EMITTER RESISTANCE



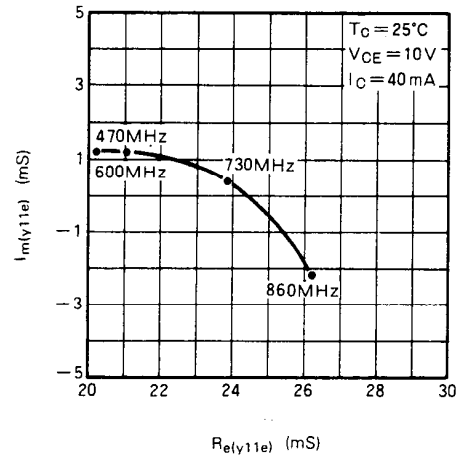
DC CURRENT GAIN VS. COLLECTOR CURRENT



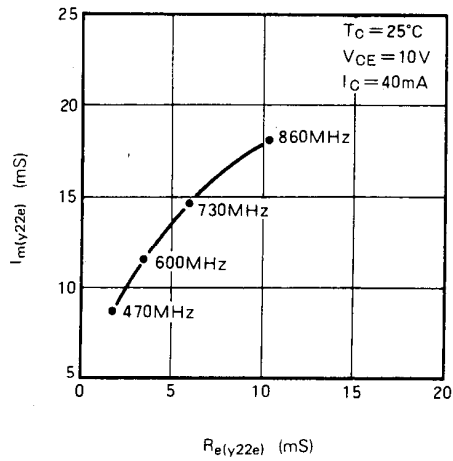
COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



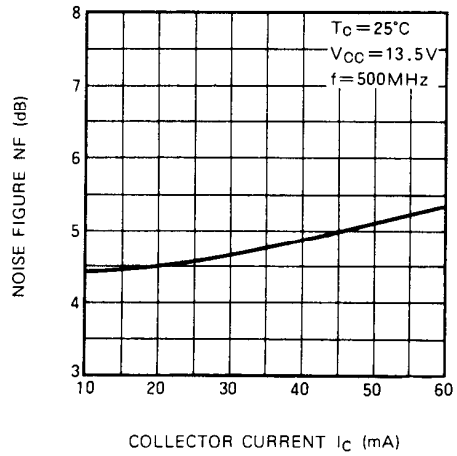
INPUT ADMITANCE VS. FREQUENCY



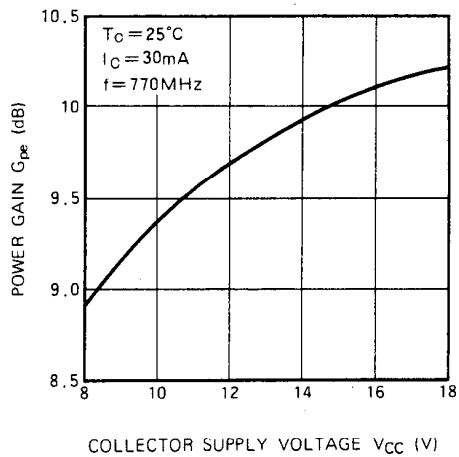
OUTPUT ADMITANCE VS. FREQUENCY



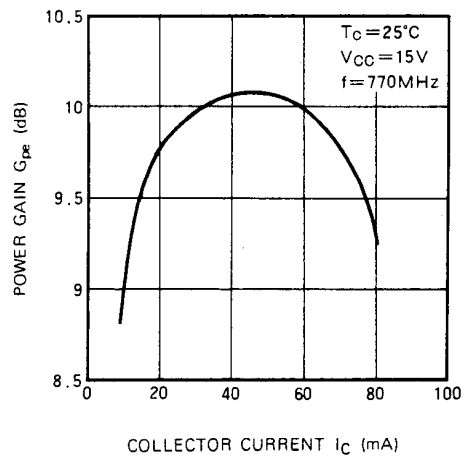
NOISE FIGURE VS. COLLECTOR CURRENT



POWER GAIN VS. COLLECTOR SUPPLY VOLTAGE



POWER GAIN VS. COLLECTOR CURRENT



**THIRD ORDER INTERMODULATION
DISTORTION VS. OUTPUT LEVEL**

