# 2N4124

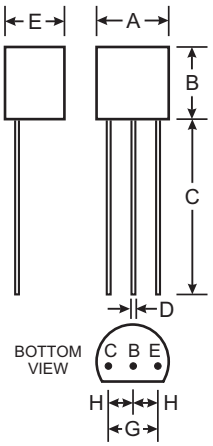
## NPN SMALL SIGNAL TRANSISTOR

## Features

- For General Purpose Switching and Amplifier Applications
- Especially Suitable for AF Driver and Low Power Output Stages

## Mechanical Data

- Case: TO-92, Plastic
- Leads: Solderable per MIL STD 202, Method 208
- Pin Connections: See Diagram
- Approx. Weight: 0.18 grams




| TO-92 | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 4.32 | 4.83 |
| **B** | 4.32 | 4.78 |
| **C** | 12.50 | 15.62 |
| **D** | 0.36 | 0.56 |
| **E** | 3.15 | 3.94 |
| **G** | 2.29 | 2.79 |
| **H** | 1.14 | 1.40 |
| **All Dimensions in mm** | | |

## Maximum Ratings @ $T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Collector-Emitter Voltage | $V_{CEO}$ | 25 | V |
| Collector-Base Voltage | $V_{CBO}$ | 30 | V |
| Emitter Base-Voltage | $V_{EBO}$ | 5 | V |
| Collector Current | $I_C$ | 200 | mA |
| Peak Collector Current | $I_{CM}$ | 800 | mA |
| Base Current | $I_B$ | 50 | mA |
| Power Dissipation ( Note 1) | $P_d$ | 625 | mW |
| Thermal Resistance, Junction to Ambient (Note 1) | $R_{\theta JA}$ | 200 | K/W |
| Operating and Storage Temperature Range | $T_j$, $T_{STG}$ | –65 to +150 | °C |

## Electrical Characteristics @ $T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| DC Current Gain | $h_{FE}$ | 120<br>— | —<br>60 | 360<br>— | — | $V_{CE}$ = 1.0V, $I_C$ = 2.0mA<br>$V_{CE}$ = 1.0V, $I_C$ = 50mA |
| Collector-Base Cutoff Current | $I_{CBO}$ | — | — | 50 | nA | $V_{CB}$ = 20V |
| Emitter-Base Cutoff Current | $I_{EBO}$ | — | — | 50 | nA | $V_{EB}$ = 3.0V |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | — | — | 0.3 | V | $I_C$ = 50mA, $I_B$ = 5.0mA |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | — | — | 0.95 | V | $I_C$ = 50mA, $I_B$ = 5.0mA |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 25 | — | — | V | $I_C$ = 1.0mA |
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 30 | — | — | V | $I_C$ = 10µA |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 5.0 | — | — | V | $I_E$ = 10µA |
| Gain Bandwidth Product | $f_T$ | — | 200 | — | MHz | $V_{CE}$ = 5.0V, $I_C$ = 10mA, f = 50MhZ |
| Collector-Base Capacitance | $C_{CBO}$ | — | — | 12 | pF | $V_{CB}$ = 10V, f = 1.0MHz |

Notes: 1. Valid provided that leads are kept at ambient temperature at a distance of 2.0mm from case.