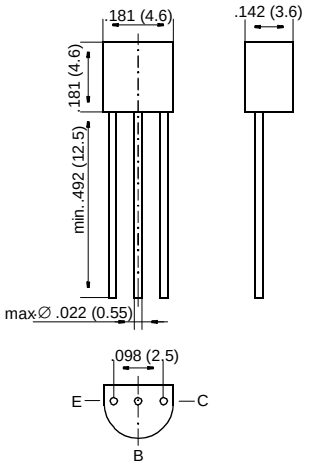
# 2N4124

## Small Signal Transistors (NPN)

**TO-92**




*Dimensions in inches and (millimeters)*

## FEATURES

- NPN Silicon Epitaxial Transistor for switching and amplifier applications.
- Especially suitable for AF-driver and low-power output stages.
- As complementary type, the PNP transistor 2N4126 is recommended.

## MECHANICAL DATA

**Case:** TO-92 Plastic Package
**Weight:** approx. 0.18 g

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

| | 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 at $T_{amb}$ = 25 °C | $P_{tot}$ | 625[1)] | mW |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature Range | $T_S$ | –65 to +150 | °C |

[1)] Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case.



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# 2N4124

## ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

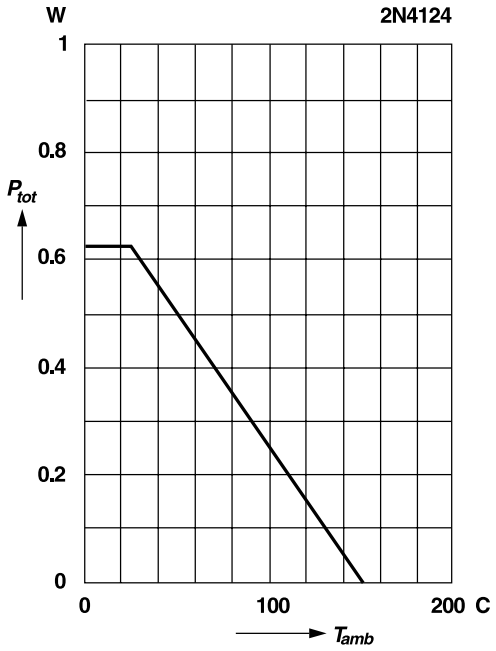
| | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| DC Current Gain<br>at $V_{CE}$ = 1 V, $I_C$ = 2.0 mA<br>at $V_{CE}$ = 1 V, $I_C$ = 50 mA | <br>$h_{FE}$<br>$h_{FE}$ | <br>120<br>– | <br>–<br>60 | <br>360<br>– | <br>–<br>– |
| Collector-Base Cutoff Current<br>at $V_{CB}$ = 20 V | $I_{CBO}$ | – | – | 50 | nA |
| Emitter-Base Cutoff Current<br>at $V_{EB}$ = 3 V | $I_{EBO}$ | – | – | 50 | nA |
| Collector Saturation Voltage<br>at $I_C$ = 50 mA, $I_B$ = 5 mA | $V_{CESAT}$ | – | – | 0.3 | V |
| Base Saturation Voltage<br>at $I_C$ = 50 mA, $I_B$ = 5 mA | $V_{BESAT}$ | – | – | 0.95 | V |
| Collector-Emitter Breakdown Voltage<br>at $I_C$ = 1 mA | $V_{(BR)CEO}$ | 25 | – | – | V |
| Collector-Base Breakdown Voltage<br>at $I_C$ = 10 µA | $V_{(BR)CBO}$ | 30 | – | – | V |
| Emitter-Base Breakdown Voltage<br>at $I_E$ = 10 µA | $V_{(BR)EBO}$ | 5 | – | – | V |
| Gain-Bandwidth Product<br>at $V_{CE}$ = 5 V, $I_C$ = 10 mA, f = 50 MHz | $f_T$ | – | 200 | – | MHz |
| Collector-Base Capacitance<br>at $V_{CB}$ = 10 V, f = 1 MHz | $C_{CBO}$ | – | 12 | – | pF |
| Thermal Resistance Junction to Ambient Air | $R_{thJA}$ | – | – | 200[1)] | K/W |

[1)] Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

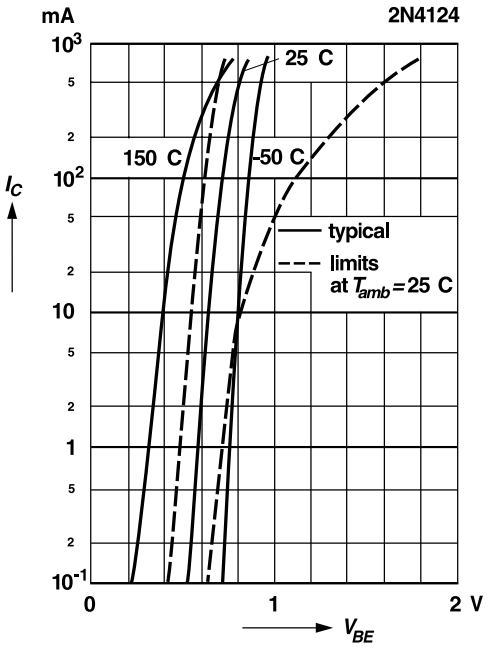
# RATINGS AND CHARACTERISTIC CURVES 2N4124

**Admissible power dissipation versus ambient temperature**

Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

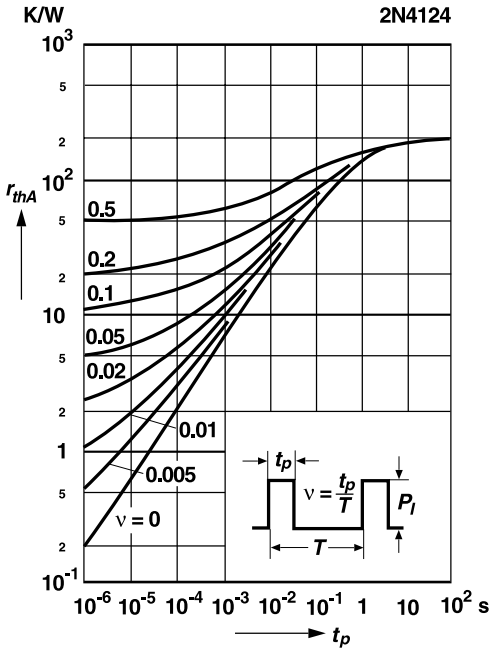



**Collector current versus base-emitter voltage**

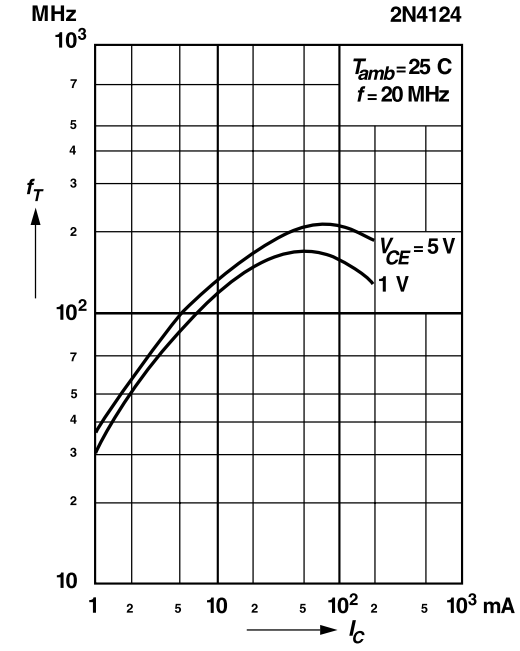



**Pulse thermal resistance versus pulse duration**

Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case




**Gain-bandwidth product versus collector current**

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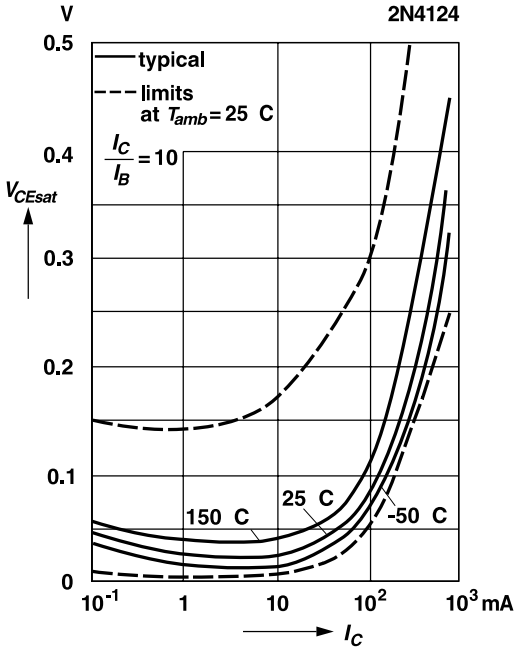
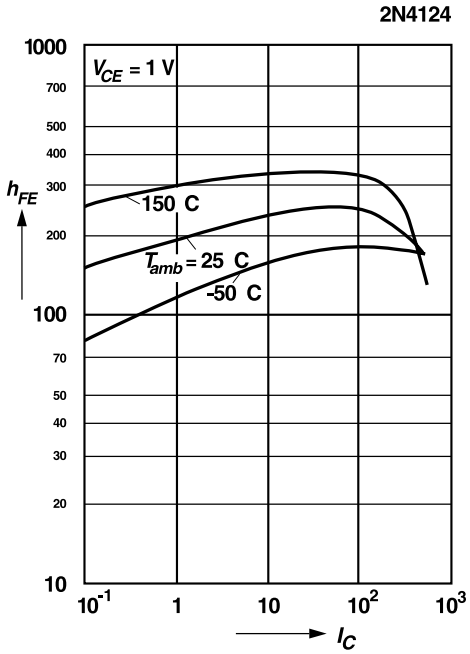
# RATINGS AND CHARACTERISTIC CURVES 2N4124

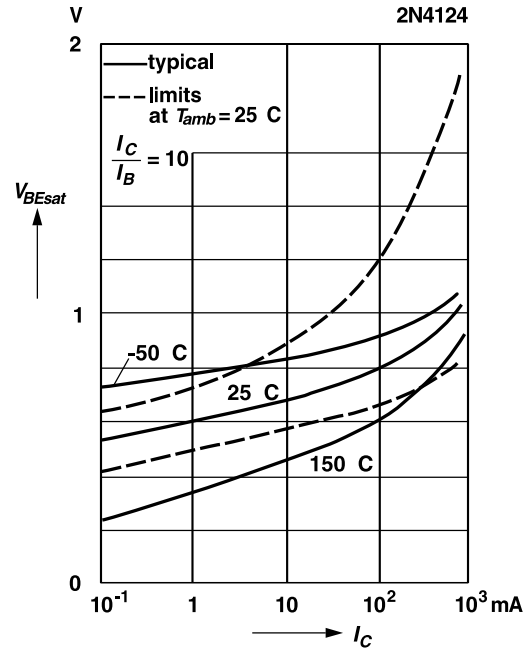
**Collector saturation voltage versus collector current**



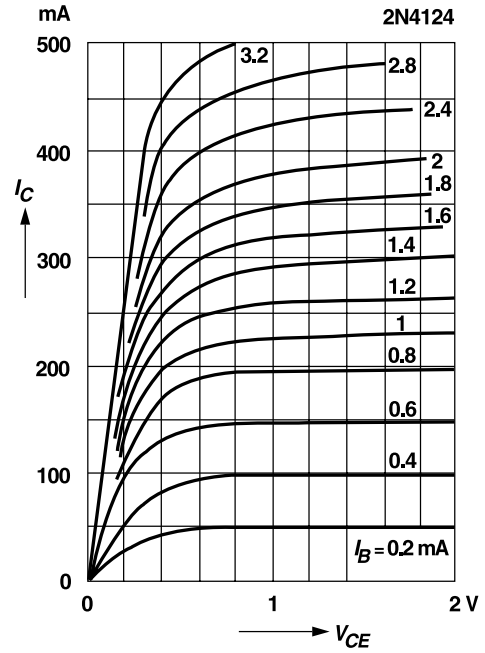

**DC current gain versus collector current**




**Base saturation voltage versus collector current**




**Common emitter collector characteristics**

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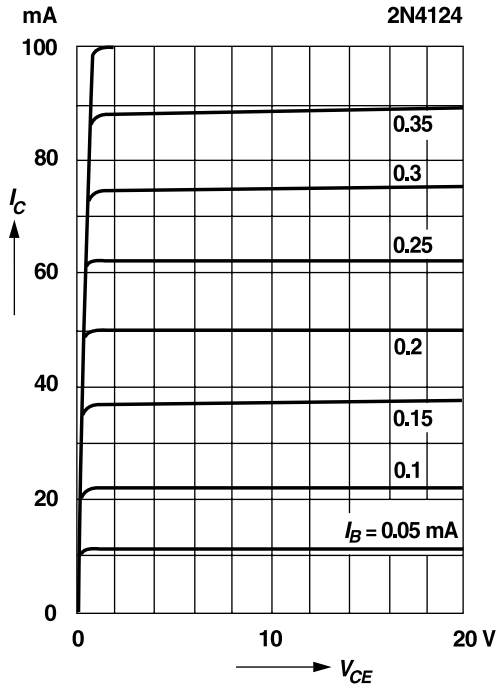
**Common emitter collector characteristics**




**Common emitter collector characteristics**