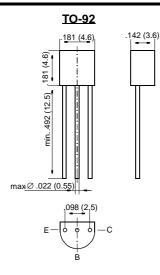
# 2N4124

## **Small Signal Transistors (NPN)**



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

Value	Unit	
25	V	
30	V	
5	V	
200	mA	
800	mA	
50	mA	
625 <sup>1)</sup>	mW	
150	°C	
-65 to +150	°C	
of	-65 to +150 2 mm from case.	



# 2N4124

## **ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified

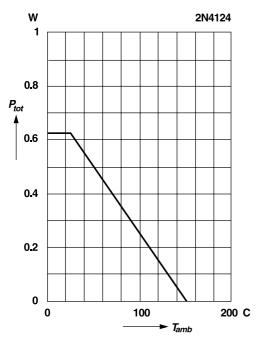
	Symbol	Min.	Тур.	Max.	Unit
DC Current Gain at V <sub>CE</sub> = 1 V, I <sub>C</sub> = 2.0 mA at V <sub>CE</sub> = 1 V, I <sub>C</sub> = 50 mA	h <sub>FE</sub> h <sub>FE</sub>	120 -	_ 60	360 -	
Collector-Base Cutoff Current at $V_{CB} = 20 V$	I <sub>CBO</sub>	-	-	50	nA
Emitter-Base Cutoff Current at $V_{EB} = 3 V$	I <sub>EBO</sub>	-	-	50	nA
Collector Saturation Voltage at $I_{C} = 50$ mA, $I_{B} = 5$ mA	V <sub>CESAT</sub>	-	-	0.3	V
Base Saturation Voltage at $I_{C} = 50$ mA, $I_{B} = 5$ mA	V <sub>BESAT</sub>	-	-	0.95	V
Collector-Emitter Breakdown Voltage at $I_{C} = 1 \text{ mA}$	V <sub>(BR)CEO</sub>	25	-	-	V
Collector-Base Breakdown Voltage at $I_C = 10 \ \mu A$	V <sub>(BR)CBO</sub>	30	-	-	V
Emitter-Base Breakdown Voltage at $I_E = 10 \ \mu A$	V <sub>(BR)EBO</sub>	5	-	-	V
Gain-Bandwidth Product at $V_{CE}$ = 5 V, $I_{C}$ = 10 mA, f = 50 MHz	f <sub>T</sub>	-	200	-	MHz
Collector-Base Capacitance at $V_{CB}$ = 10 V, f = 1 MHz	C <sub>CBO</sub>	-	12	-	pF
	R <sub>thJA</sub>			2001)	K/W



#### **RATINGS AND CHARACTERISTIC CURVES 2N4124**

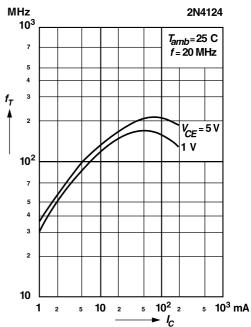
Admissible power dissipation versus ambient temperature

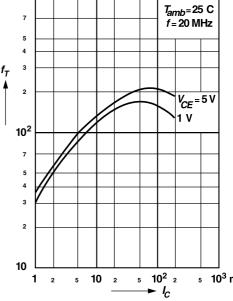
Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



2N4124 mΑ 10<sup>3</sup> 25 C 5 2 150 C -50 C 10<sup>2</sup> I<sub>C</sub> 5 typical limits 2 at T<sub>amb</sub>=25 C 10 5 1 2 1 1 5 t I 2 1 10<sup>-1</sup> 0 1 2 V → V<sub>BE</sub>

> Gain-bandwidth product versus collector current

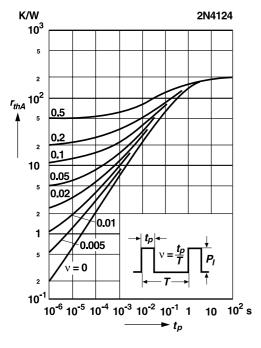


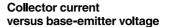




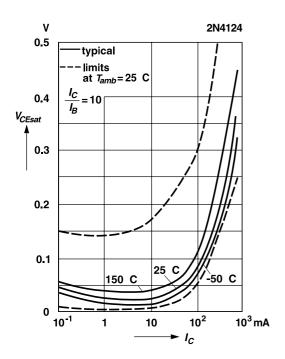
#### **Pulse thermal resistance** versus pulse duration

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



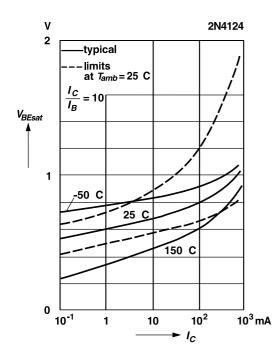


#### **RATINGS AND CHARACTERISTIC CURVES 2N4124**



Collector saturation voltage versus collector current

# Base saturation voltage versus collector current



2N4124 1000  $V_{CE} = 1 \text{ V}$ 700 500 400 h<sub>FE</sub> 300 150 C 200 T<sub>amb</sub> = 25 C -50 C 100 70 50 40 30 20 10

Common emitter collector characteristics

10

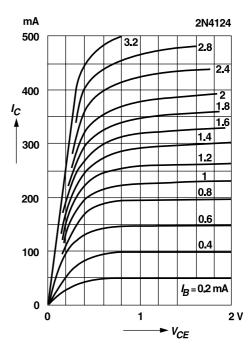
1

10<sup>2</sup>

► I<sub>C</sub>

10<sup>3</sup>

10<sup>-1</sup>

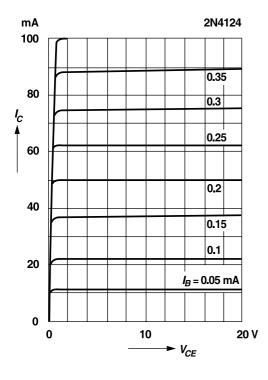


DC current gain versus collector current



### **RATINGS AND CHARACTERISTIC CURVES 2N4124**

Common emitter collector characteristics



mΑ 2N4124 500 /0.9 0.85 400 I<sub>c</sub> 4 300 0.8 200 0.75 100  $V_{BE} = 0.7 \text{ V}$ 0 0 1 2 V → V<sub>CE</sub>

Common emitter collector characteristics

