

# 2N4123 2N4124

## Features

- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Through Hole TO-92 Package
- Capable of 625mWatts of Power Dissipation
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

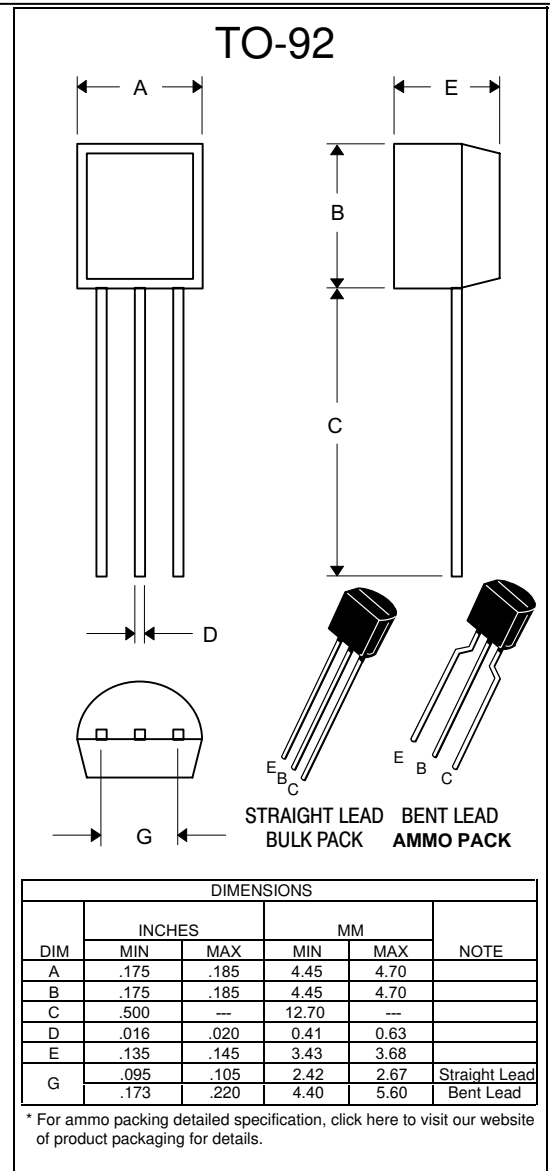
## Mechanical Data

- Case: TO-92, Molded Plastic
- Marking: Part Number

## Maximum Ratings @ 25°C Unless Otherwise Specified

Charateristic	Symbol	Value	Unit
Collector-Emitter Voltage 2N4123 2N4124	$V_{CEO}$	30 25	V
Collector-Base Voltage 2N4123 2N4124	$V_{CBO}$	40 30	V
Emitter-Base Voltage 2N4123 2N4124	$V_{EBO}$	5	V
Collector Current(DC)	$I_C$	200	mA
Power Dissipation@ $T_A=25^\circ C$	$P_d$	625 5.0	mW mW/°C
Power Dissipation@ $T_C=25^\circ C$	$P_d$	1.5 12	W mW/°C
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JA}$	83.3	°C/W
Operating & Storage Temperature	$T_j, T_{STG}$	-55~150	°C

## NPN Silicon General Purpose Transistor 625mW



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

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector–Emitter Breakdown Voltage <sup>(1)</sup> ( $I_C = 1.0\text{ mAdc}$ , $I_E = 0$ )	$V_{(BR)CEO}$	30 25	— —	Vdc
Collector–Base Breakdown Voltage ( $I_C = 10\ \mu\text{Adc}$ , $I_E = 0$ )	$V_{(BR)CBO}$	40 30	— —	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 10\ \mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5.0	—	Vdc
Collector Cutoff Current ( $V_{CB} = 20\text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	—	50	nAdc
Emitter Cutoff Current ( $V_{EB} = 3.0\text{ Vdc}$ , $I_C = 0$ )	$I_{EBO}$	—	50	nAdc

**ON CHARACTERISTICS<sup>(1)</sup>**

DC Current Gain ( $I_C = 2.0\text{ mAdc}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$h_{FE}$	50 120	—	
( $I_C = 50\text{ mAdc}$ , $V_{CE} = 1.0\text{ Vdc}$ )		25 60	—	
Collector–Emitter Saturation Voltage ( $I_C = 50\text{ mAdc}$ , $I_B = 5.0\text{ mAdc}$ )	$V_{CE(sat)}$	—	0.3	Vdc
Base–Emitter Saturation Voltage ( $I_C = 50\text{ mAdc}$ , $I_B = 5.0\text{ mAdc}$ )	$V_{BE(sat)}$	—	0.95	Vdc

**SMALL-SIGNAL CHARACTERISTICS**

Current-Gain-Bandwidth Product ( $I_C = 10\text{ mAdc}$ , $V_{CE} = 20\text{ Vdc}$ , $f = 100\text{ MHz}$ )	$f_T$	250 300	— —	MHz
Input Capacitance ( $V_{EB} = 0.5\text{ Vdc}$ , $I_C = 0$ , $f = 1.0\text{ MHz}$ )	$C_{ibo}$	—	8.0	pF
Collector–Base Capacitance ( $V_{CB} = 5.0\text{ Vdc}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$ )	$C_{cb}$	—	4.0	pF

1 Pulse Test: Pulse Width = 300 $\mu\text{s}$ , Duty Cycle = 2.0%

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Figure 1. Capacitance

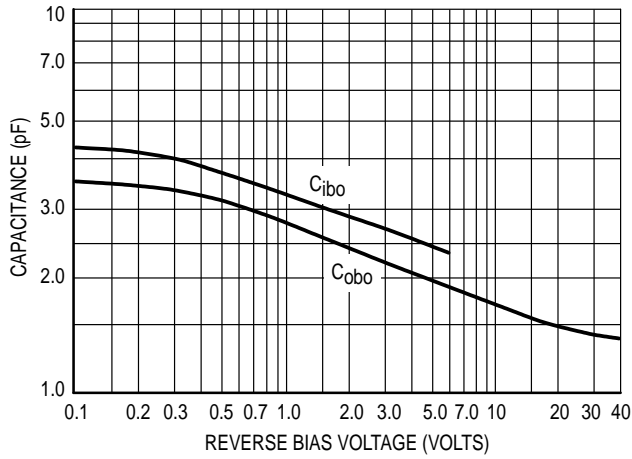


Figure 2. Switching Times

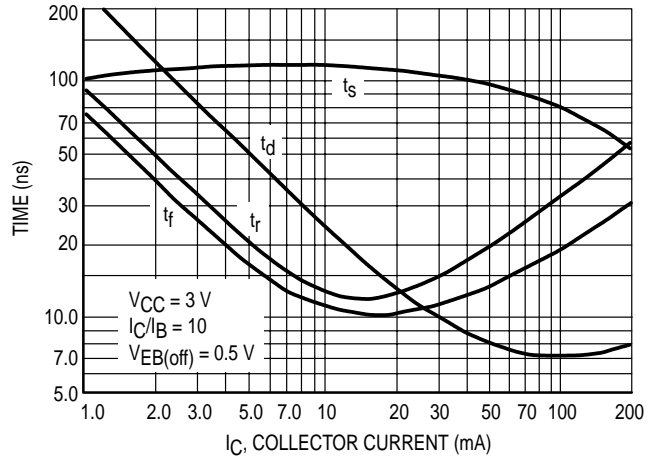


Figure 3. Frequency Variations

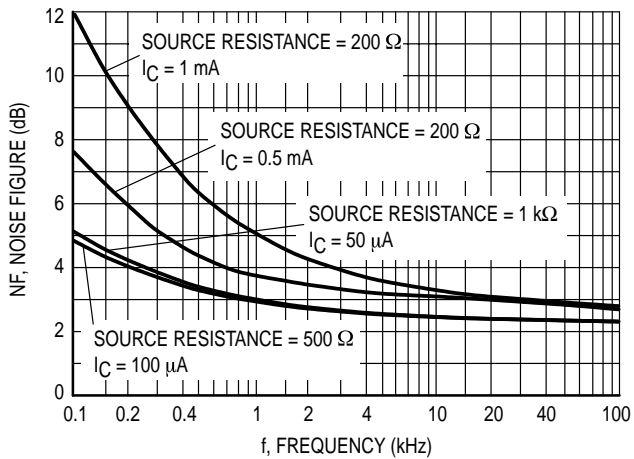


Figure 4. Source Resistance

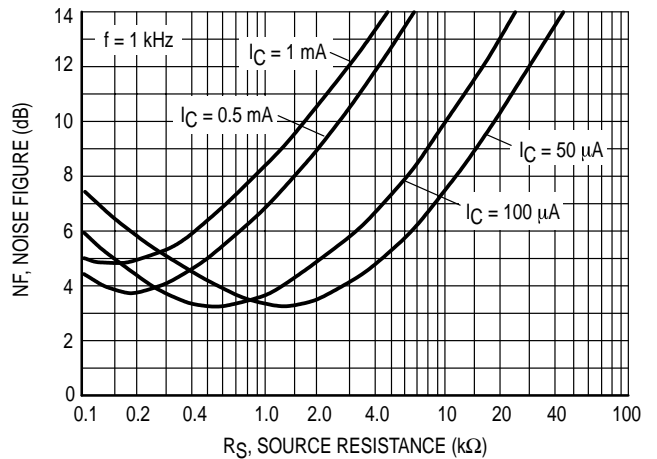


Figure 5. Current Gain

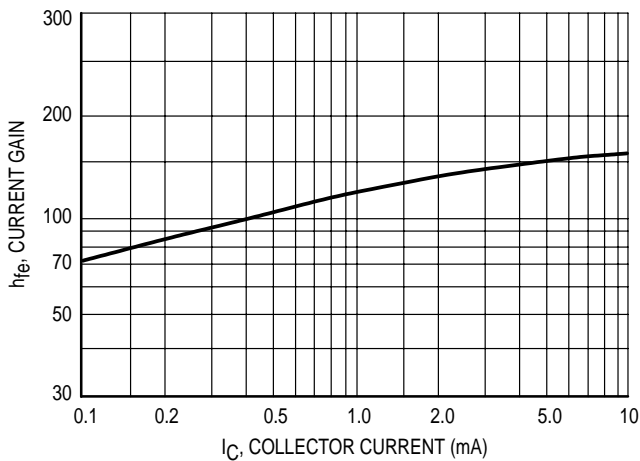
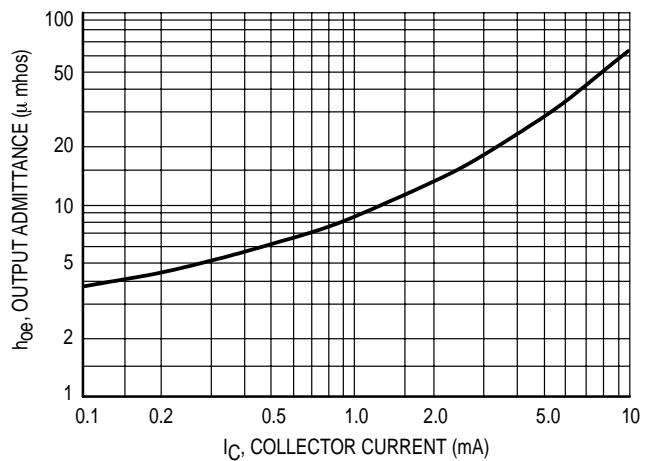


Figure 6. Output Admittance



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Figure 7. Input Impedance

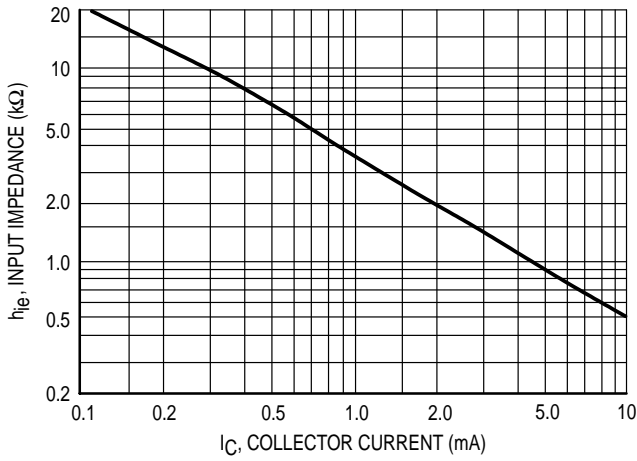


Figure 8. Voltage Feedback Ratio

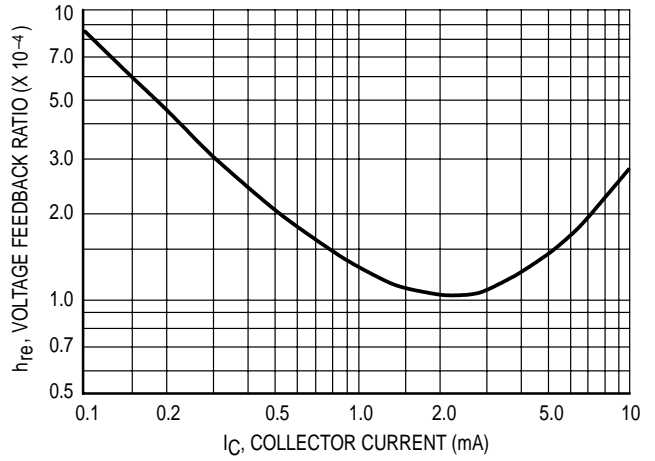


Figure 9. DC Current Gain

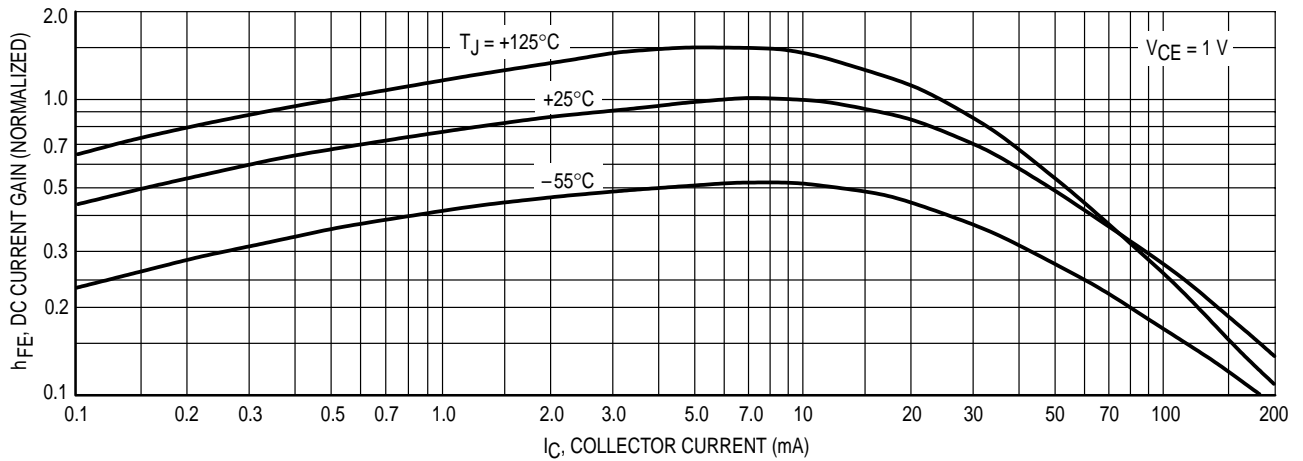
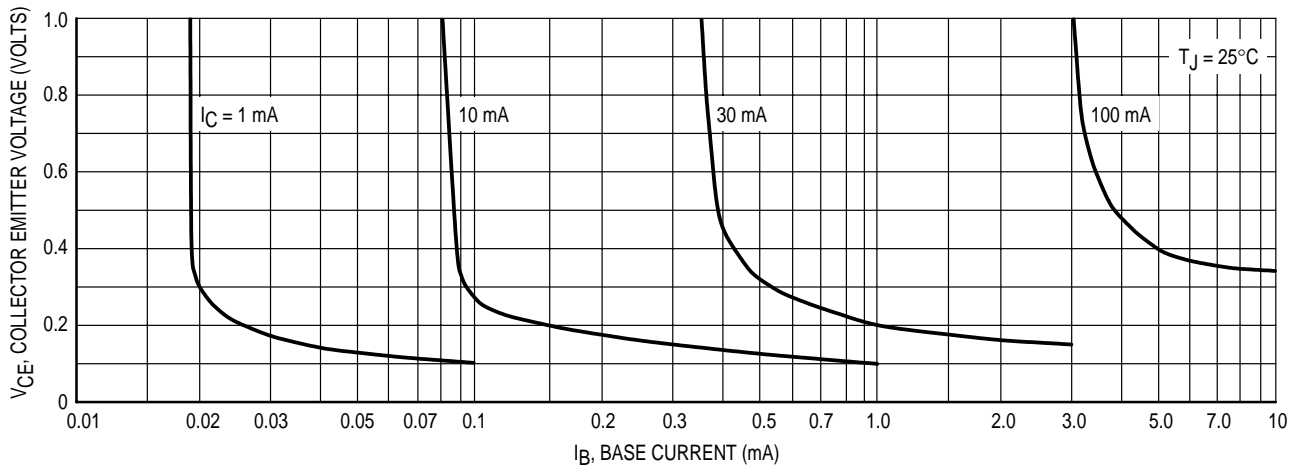


Figure 10. Collector Saturation Region



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Figure 11. "ON" Voltages

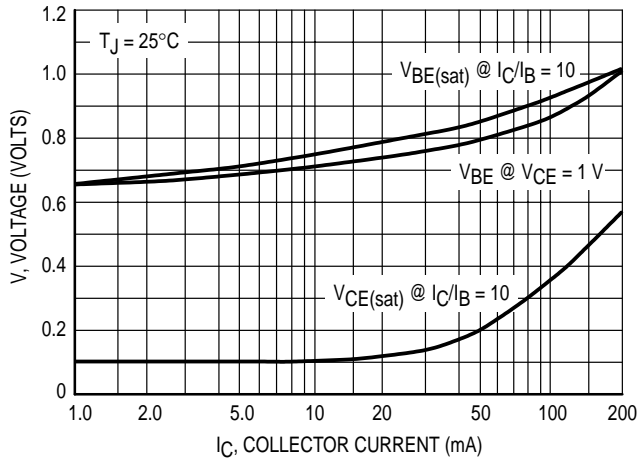
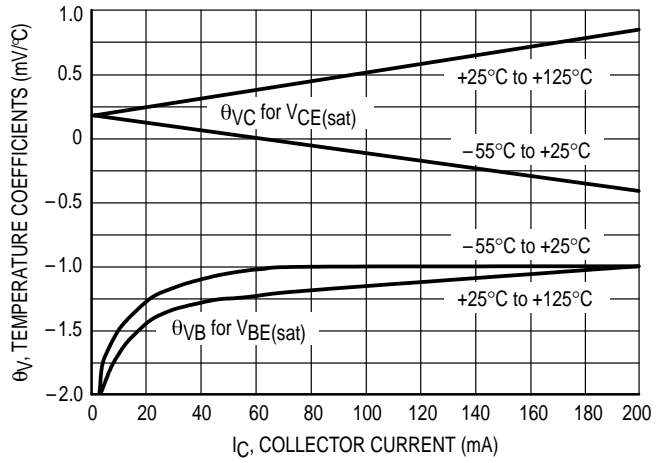


Figure 12. Temperature Coefficients





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### Ordering Information :

Device	Packing
Part Number-AP	Ammo Packing: 20Kpcs/Carton
Part Number-BP	Bulk: 100Kpcs/Carton

Note : Adding "-HF" suffix for halogen free, eg. Part Number-AP-HF

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