

# 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

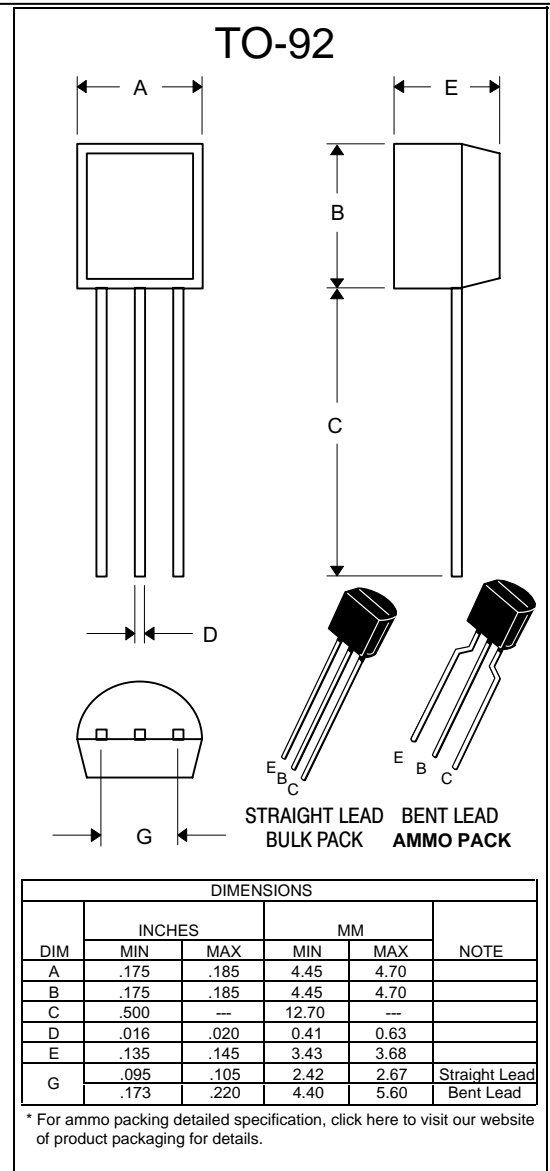
## Mechanical Data

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

### Maximum Ratings @ 25°C Unless Otherwise Specified

Charateristic	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CE0}$	30	V
Collector-Base Voltage	$V_{CBO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current(DC)	$I_C$	200	mA
Power Dissipation@ $T_A=25^\circ\text{C}$	$P_d$	625	mW
Power Dissipation@ $T_C=25^\circ\text{C}$	$P_d$	5.0	$\text{mW}/^\circ\text{C}$
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	1.5	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JA}$	12	$\text{mW}/^\circ\text{C}$
Operating & Storage Temperature	$T_j, T_{STG}$	-55~150	$^\circ\text{C}$

## NPN Silicon General Purpose Transistor 625mW



2N4123  
2N4124

**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 ( $I_C = 10\text{ }\mu\text{Adc}$ , $I_E = 0$ )	$V_{(BR)CBO}$	40 30	— —	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 10\text{ }\mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	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%

2N4123

2N4124

Figure 1. Capacitance

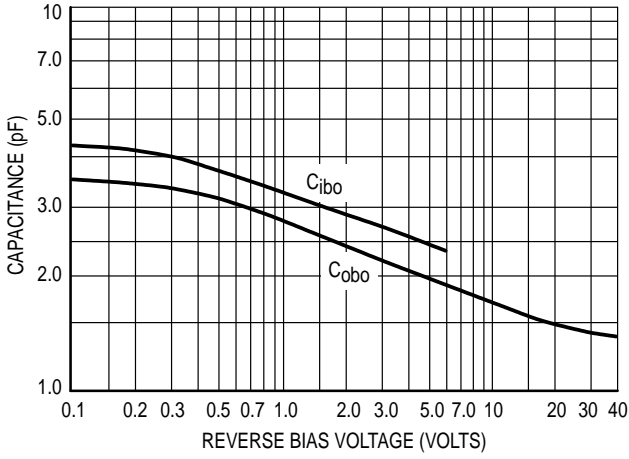


Figure 2. Switching Times

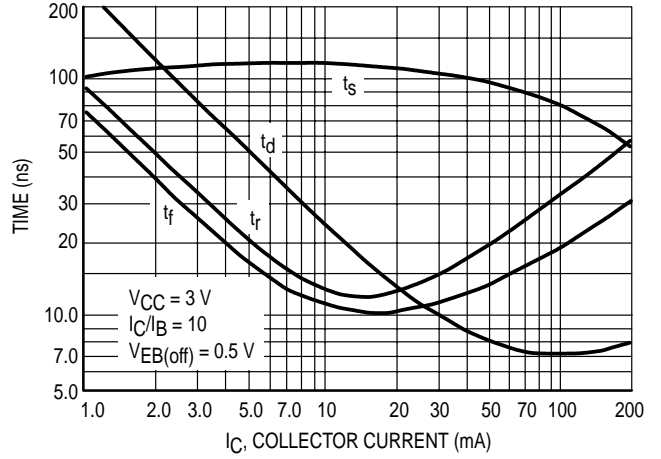


Figure 3. Frequency Variations

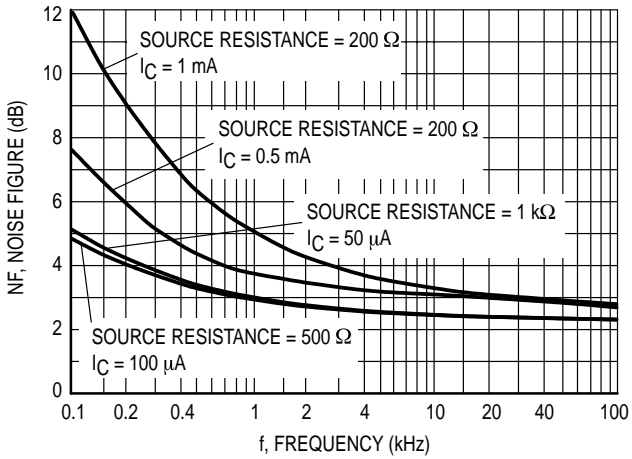


Figure 4. Source Resistance

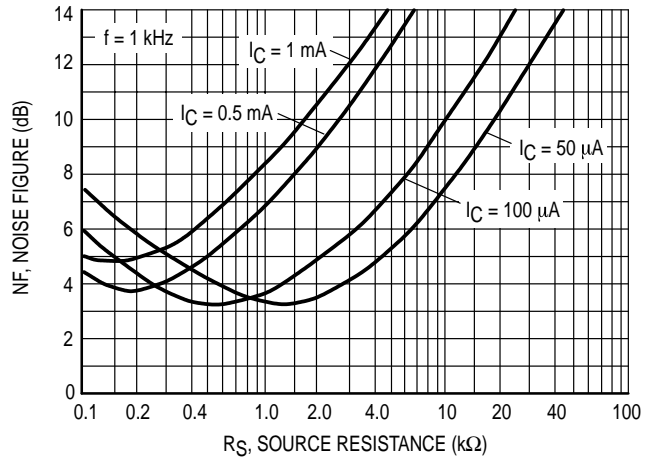


Figure 5. Current Gain

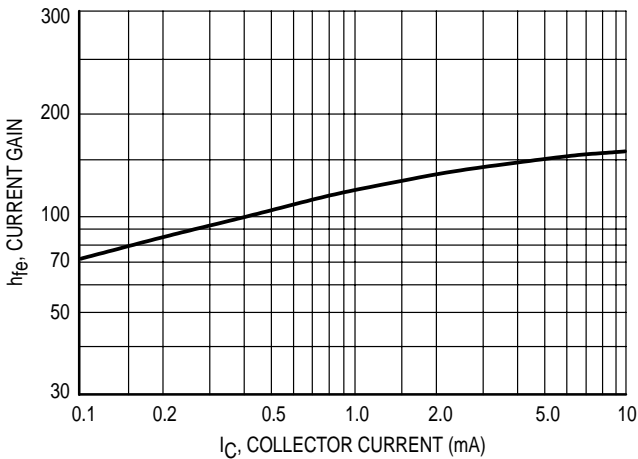
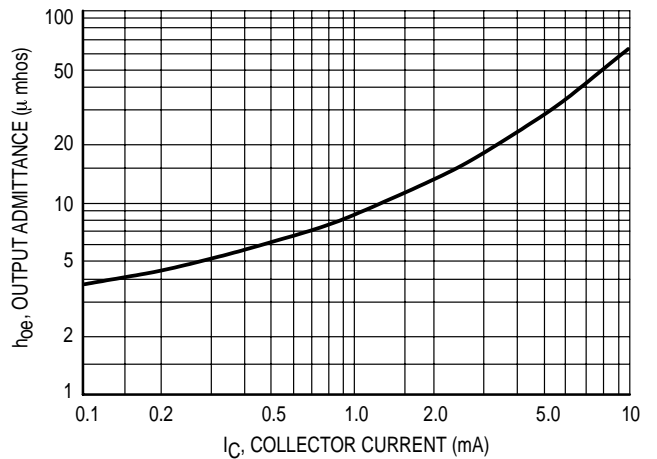


Figure 6. Output Admittance



2N4123  
2N4124

Figure 7. Input Impedance

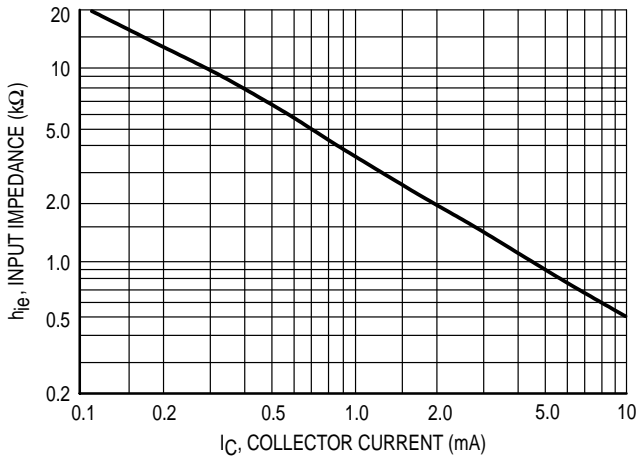


Figure 8. Voltage Feedback Ratio

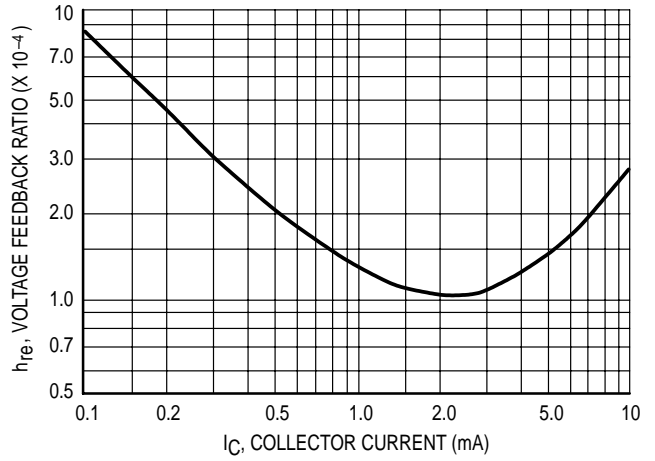


Figure 9. DC Current Gain

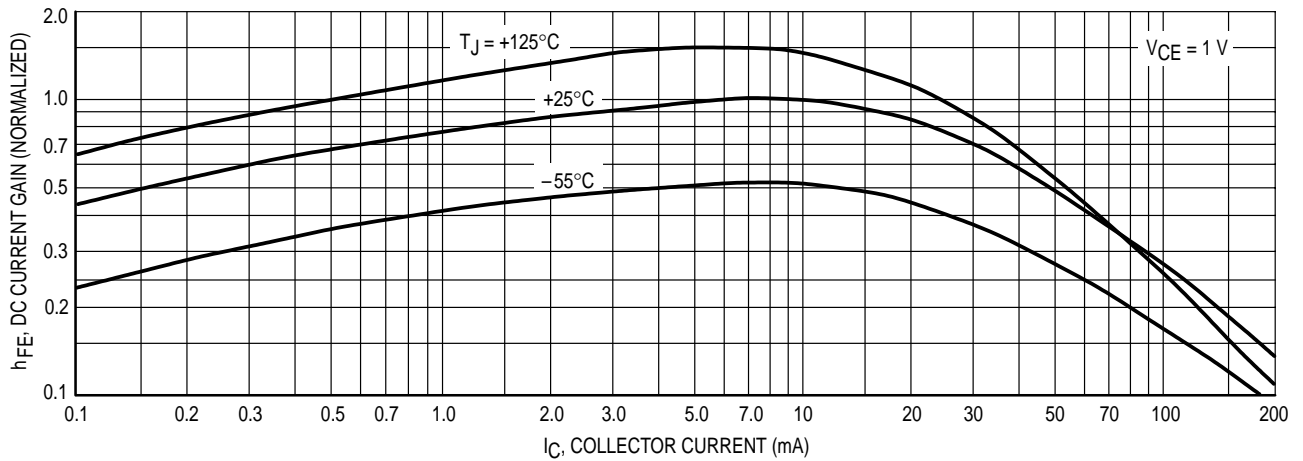
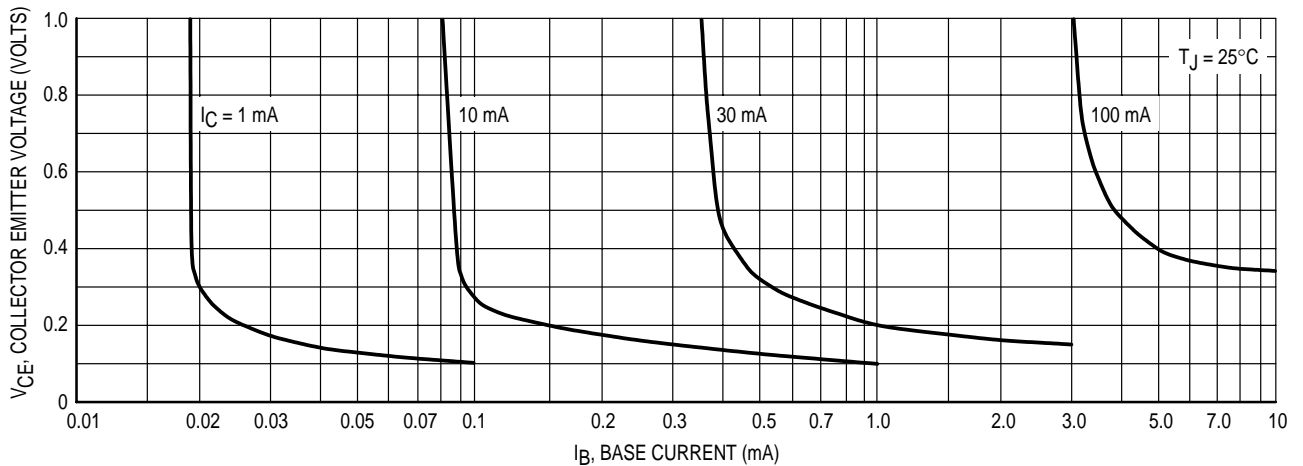


Figure 10. Collector Saturation Region



2N4123  
2N4124

Figure 11. "ON" Voltages

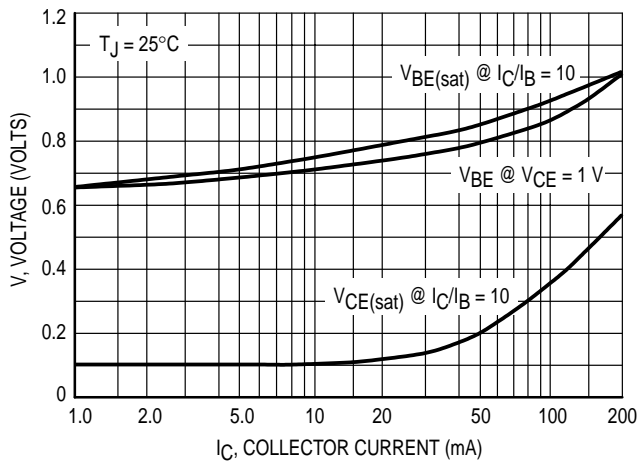
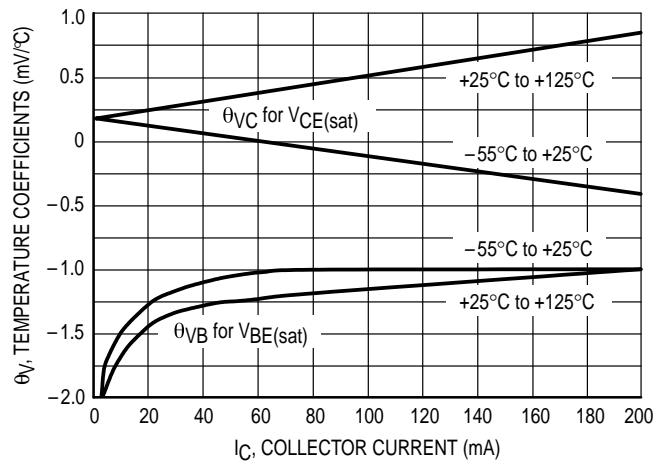


Figure 12. Temperature Coefficients





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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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