

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

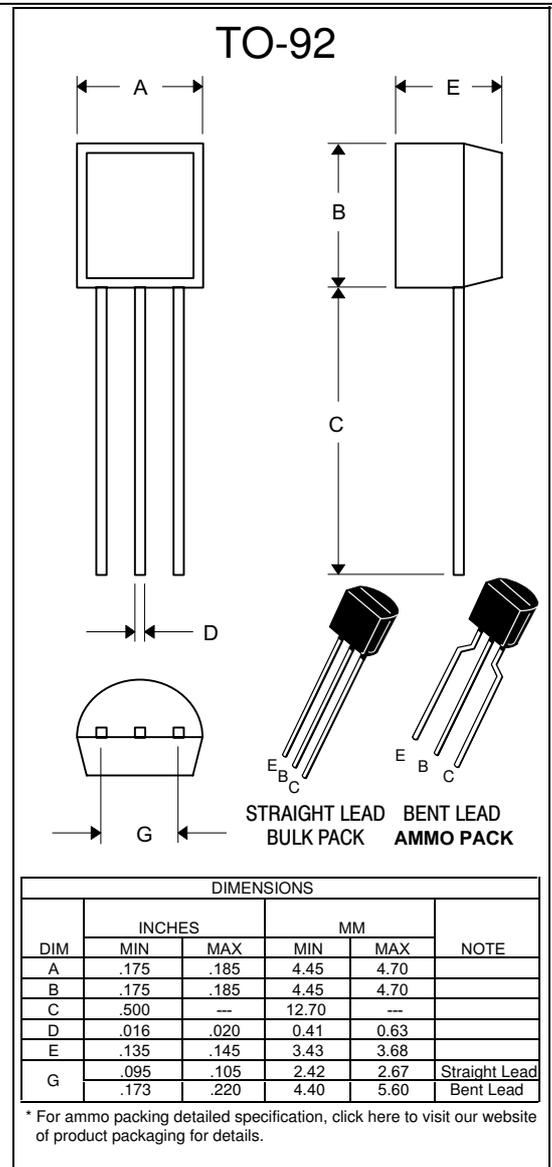
- Case: TO-92, Molded Plastic
- Marking: Part Number

Maximum Ratings @ 25°C Unless Otherwise Specified

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

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
OFF CHARACTERISTICS				
Collector–Emitter Breakdown Voltage ⁽¹⁾ ($I_C = 1.0\text{ mAdc}$, $I_E = 0$)	$V_{(BR)CEO}$	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⁽¹⁾

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 μs , Duty Cycle = 2.0%

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Figure 1. Capacitance

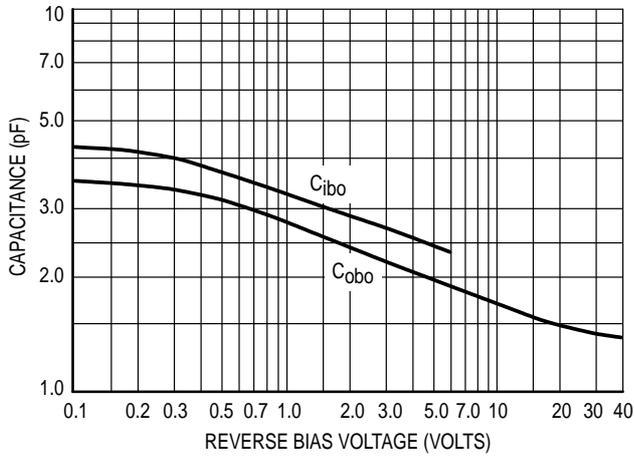


Figure 2. Switching Times

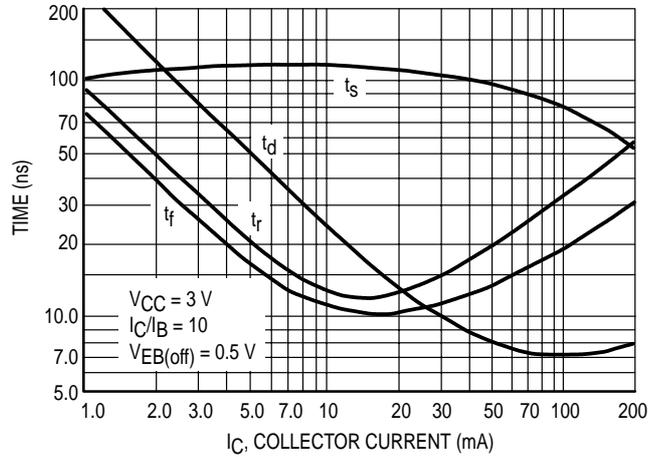


Figure 3. Frequency Variations

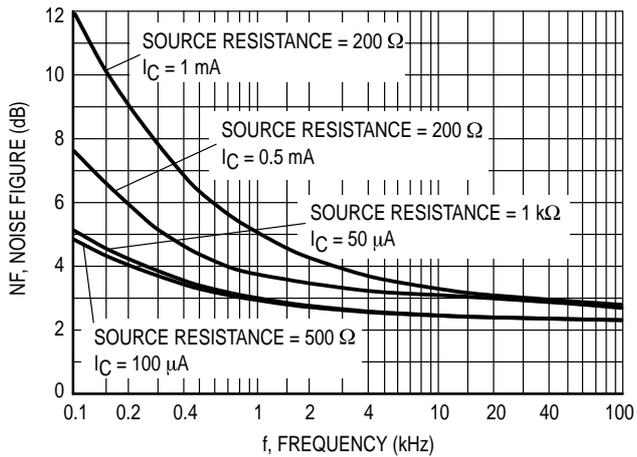


Figure 4. Source Resistance

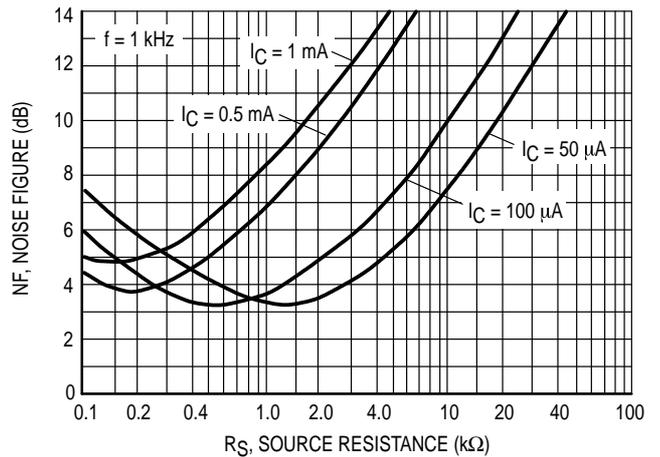


Figure 5. Current Gain

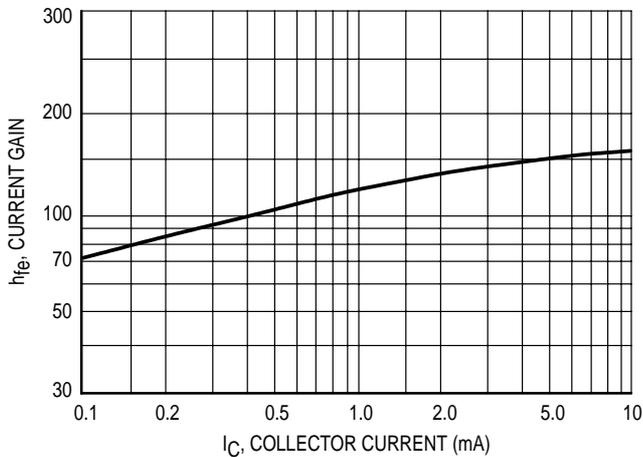
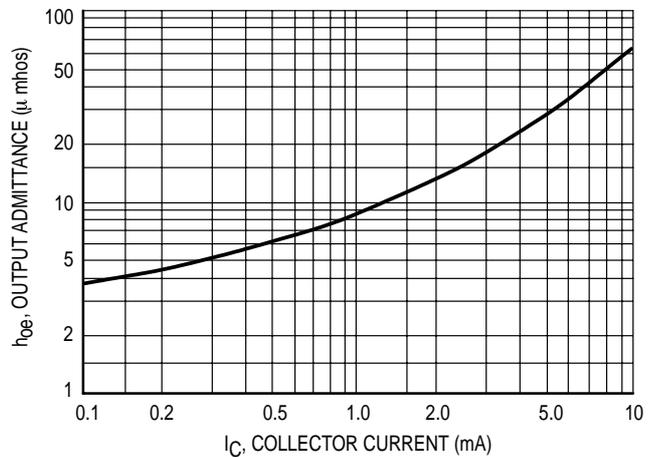


Figure 6. Output Admittance



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Figure 7. Input Impedance

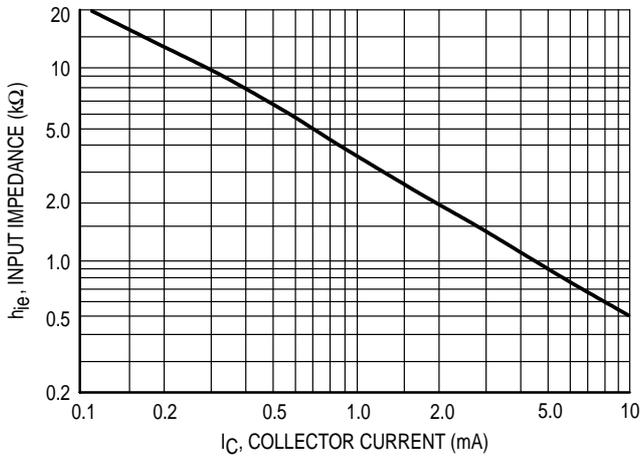


Figure 8. Voltage Feedback Ratio

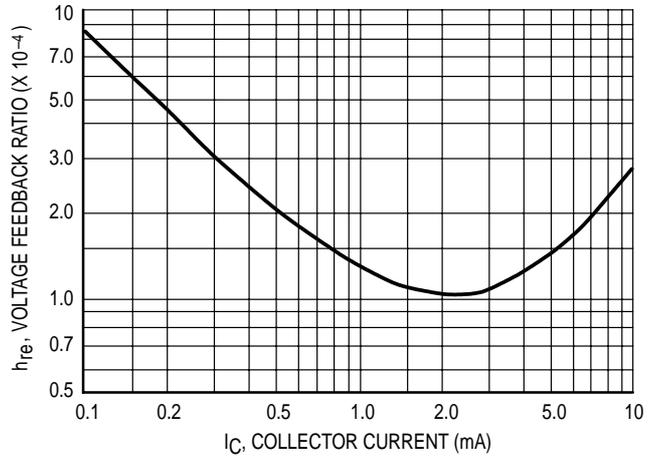


Figure 9. DC Current Gain

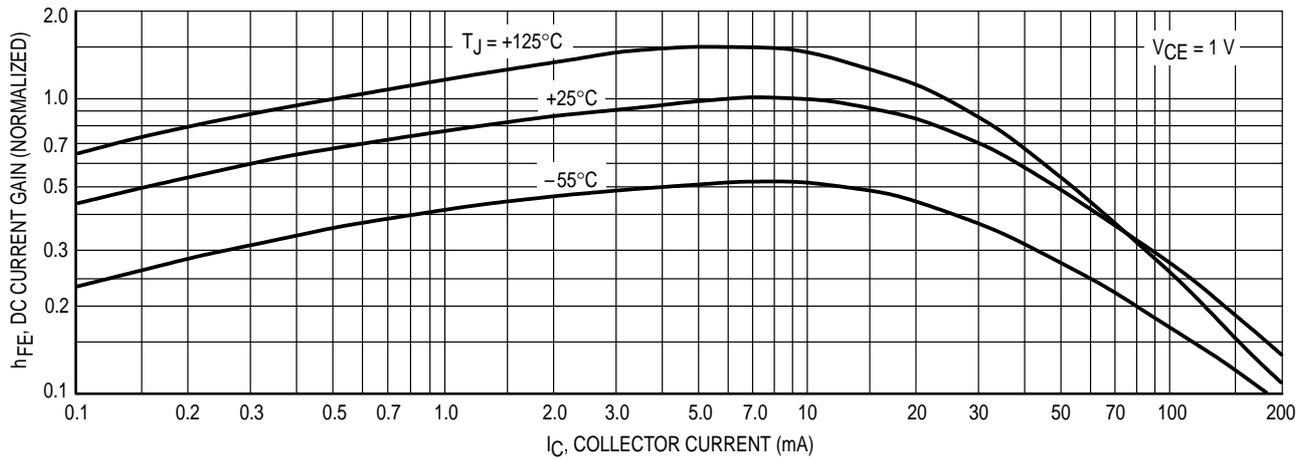
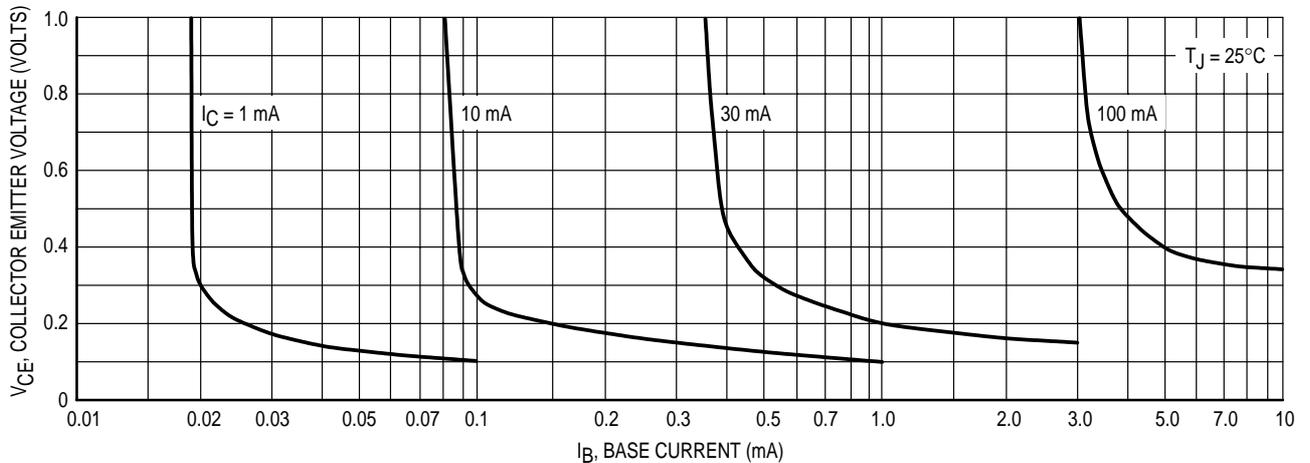


Figure 10. Collector Saturation Region



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Figure 11. "ON" Voltages

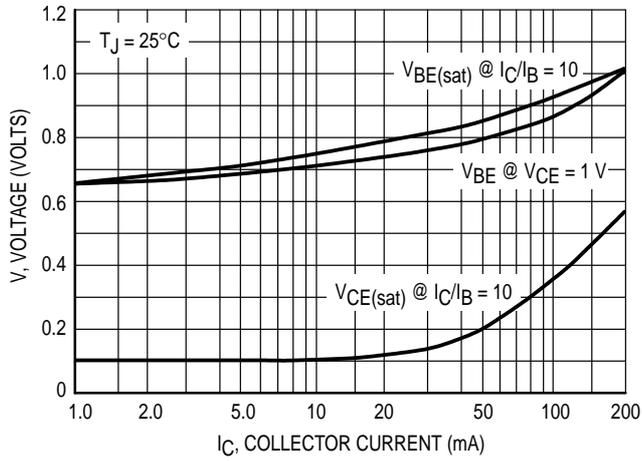
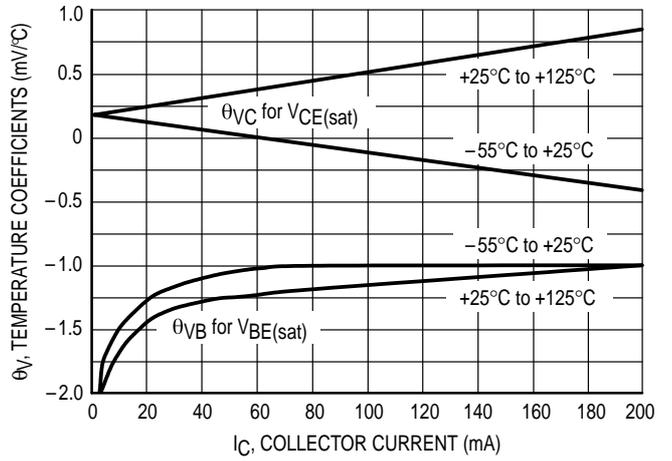


Figure 12. Temperature Coefficients





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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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