



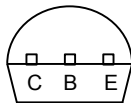
Micro Commercial Components
 21201 Itasca Street Chatsworth
 CA 91311
 Phone: (818) 701-4933
 Fax: (818) 701-4939

2N4123
2N4124

Features

- Through Hole TO-92 Package
- Capable of 625mWatts of Power Dissipation

Pin Configuration
 Bottom View



**NPN Silicon General
 Purpose Transistor**
625mW

Mechanical Data

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

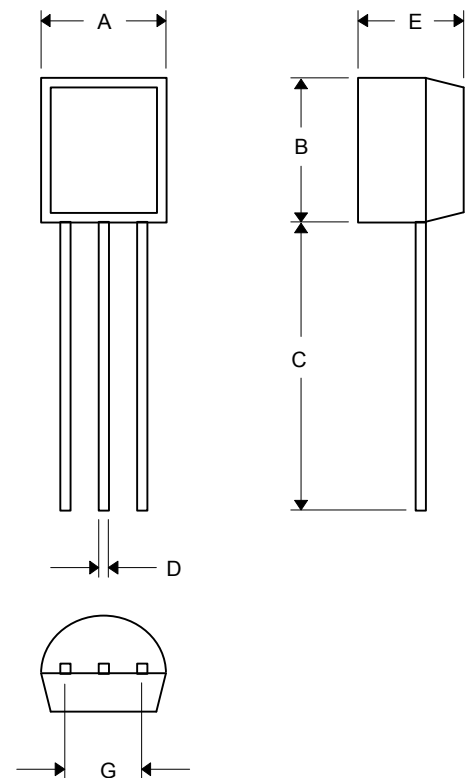
2N4123 ----- 2N4123

2N4124 ----- 2N4124

Maximum Ratings @ 25°C Unless Otherwise Specified

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

TO-92



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.175	.185	4.45	4.70	
B	.175	.185	4.46	4.70	
C	.500	---	12.7	---	
D	.016	.020	0.41	0.63	
E	.135	.145	3.43	3.68	
G	.095	.105	2.42	2.67	

2N4123

2N4124

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 ($I_C = 2.0\text{ mAdc}$, $V_{CE} = 1.0\text{ Vdc}$) ($I_C = 50\text{ mAdc}$, $V_{CE} = 1.0\text{ Vdc}$)	h_{FE}	50 120 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
Small-Signal Current Gain ($I_C = 2.0\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $R_S = 10\text{ kohm}$, $f = 1.0\text{ kHz}$)	h_{fe}	50 120	200 480	—
Current Gain-High Frequency ($I_C = 10\text{ mAdc}$, $V_{CE} = 20\text{ Vdc}$, $f = 100\text{ kHz}$) ($I_C = 2.0\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 1.0\text{ kHz}$)	h_{fcl}	2.5 3.0 50 120	— — 200 480	—
Noise Figure ($I_C = 100\ \mu\text{Adc}$, $V_{CE} = 5.0\text{ Vdc}$, $R_S = 1.0\text{ kohm}$, $f = 1.0\text{ kHz}$)	NF	— —	6.0 5.0	dB

¹ Pulse Test: Pulse Width = 300 μs , Duty Cycle = 2.0%

2N4123

2N4124

Figure 1. Capacitance

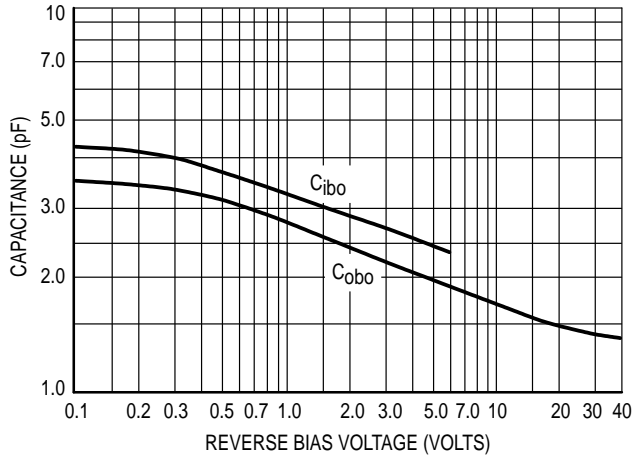


Figure 2. Switching Times

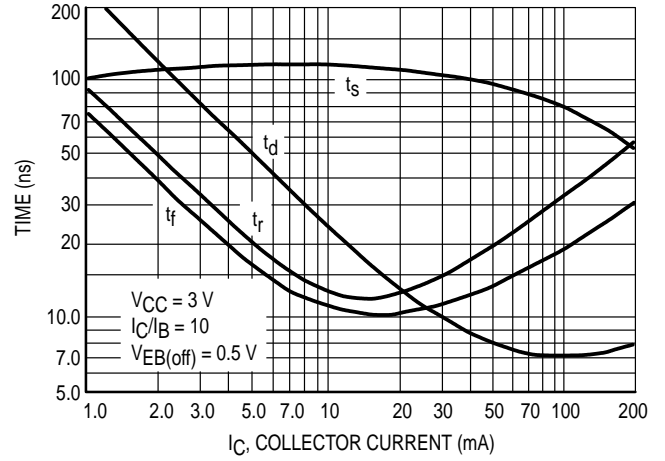


Figure 3. Frequency Variations

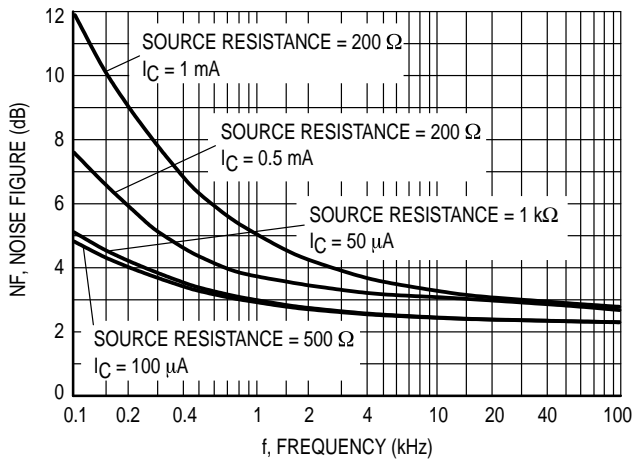


Figure 4. Source Resistance

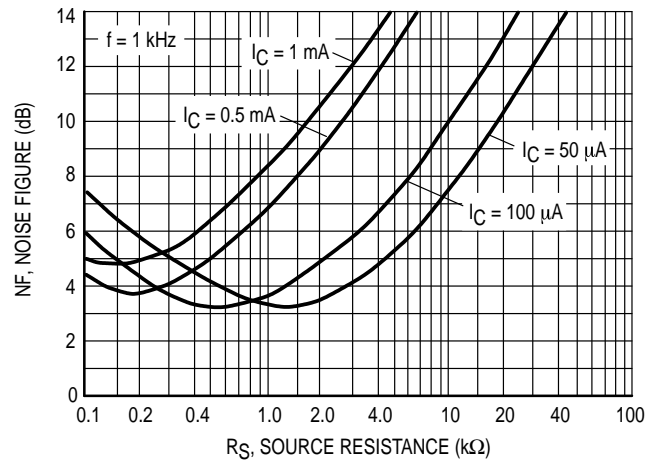


Figure 5. Current Gain

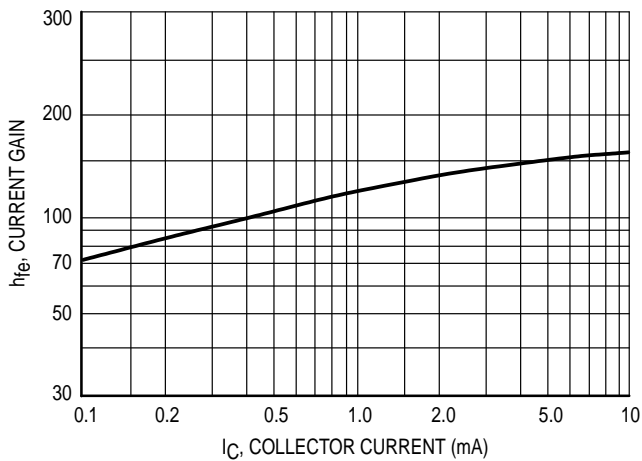
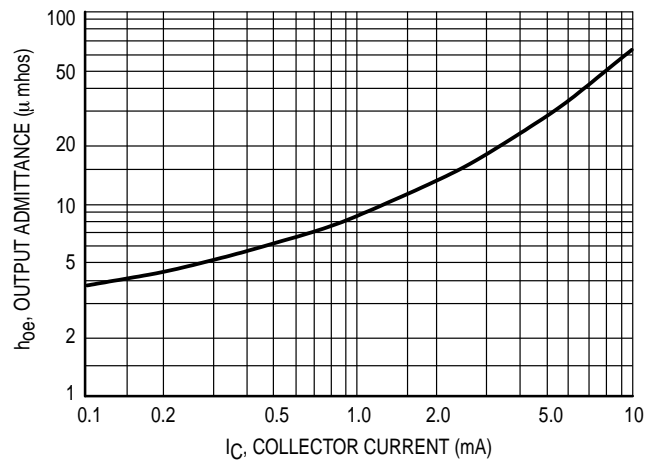


Figure 6. Output Admittance



2N4123
2N4124

Figure 7. Input Impedance

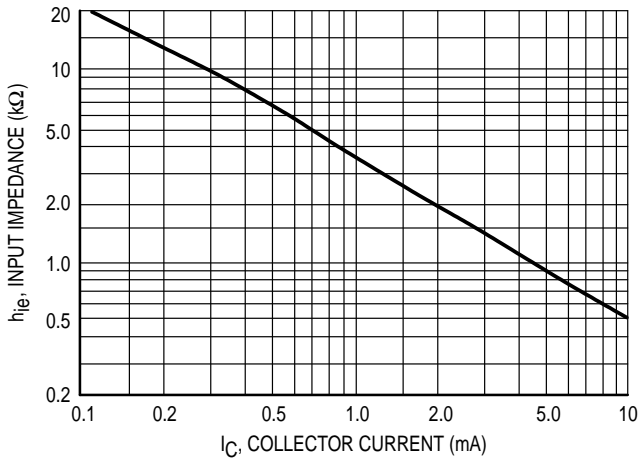


Figure 8. Voltage Feedback Ratio

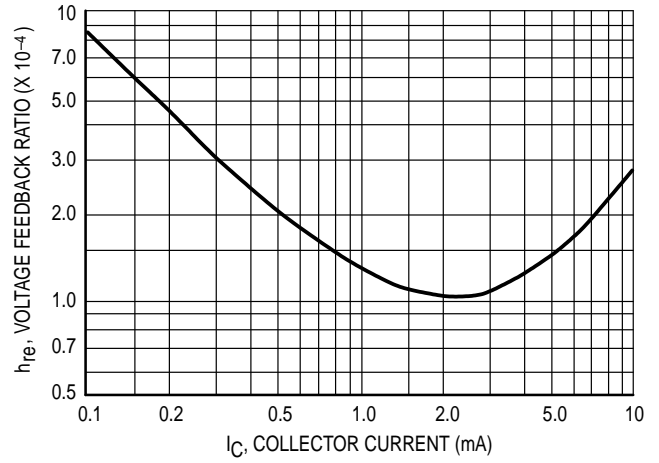


Figure 9. DC Current Gain

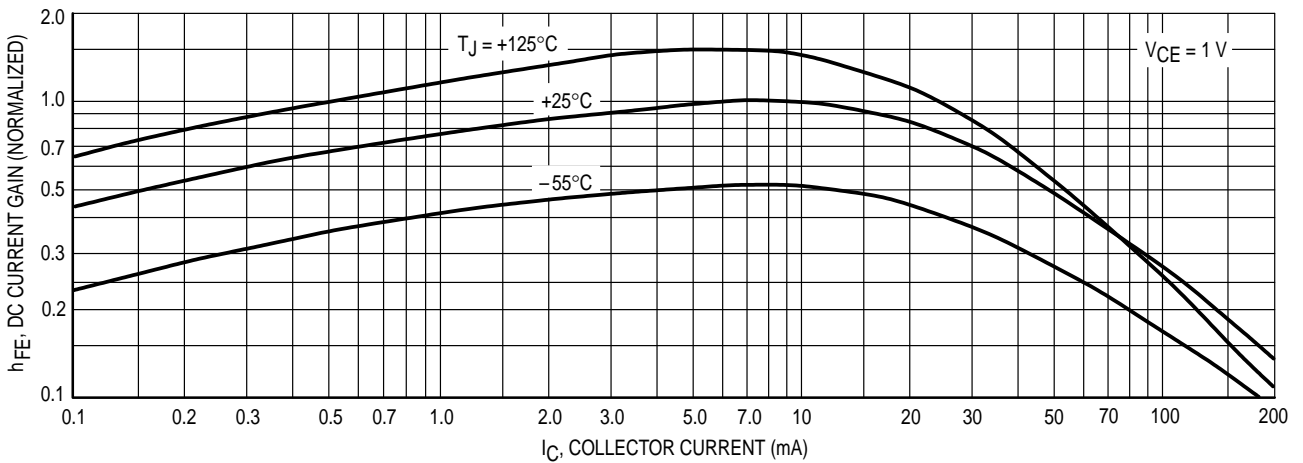
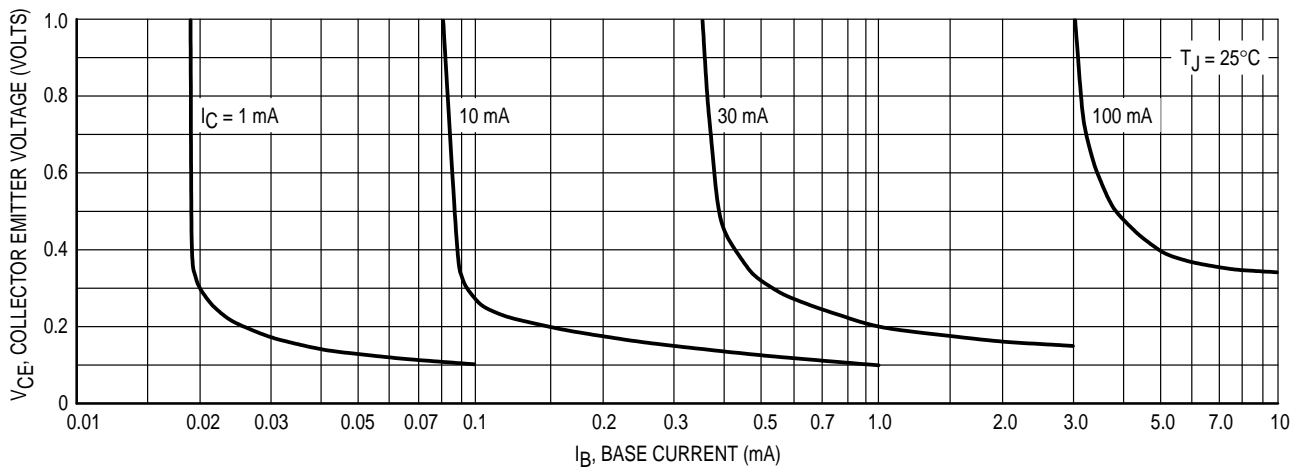


Figure 10. Collector Saturation Region



2N4123
2N4124

Figure 11. "ON" Voltages

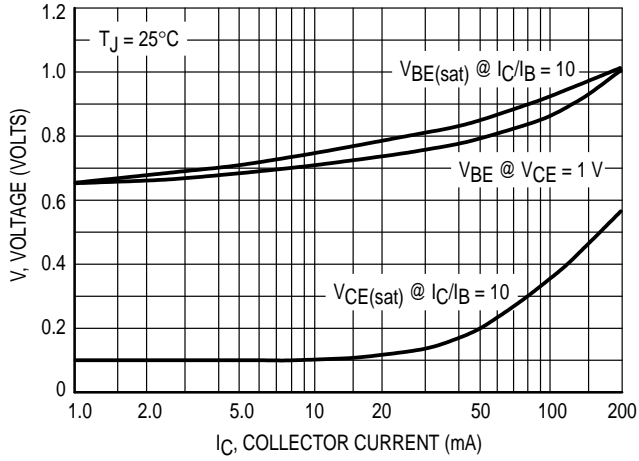


Figure 12. Temperature Coefficients

