

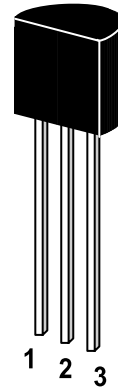
PNP Epitaxial Silicon Transistor

General purpose transistor

Collector Emitter Voltage: $V_{CEO} = 40\text{ V}$

Collector Dissipation: $P_C (\text{max}) = 625\text{ mW}$

On special request, these transistors can be manufactured in different pin configurations.



1. Emitter 2. Base 3. Collector

TO-92 Plastic Package

Weight approx. 0.19g

Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	40	V
Collector Emitter Voltage	$-V_{CEO}$	40	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	600	mA
Power Dissipation	P_{tot}	625	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_s	-55 to +150	$^\circ\text{C}$

Characteristics at $T_{amb}=25\text{ °C}$

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain				
at $-V_{CE}=1V, -I_C=0.1mA$	ST 2N4403 h_{FE}	30	-	-
at $-V_{CE}=1V, -I_C=1mA$	ST 2N4402 h_{FE}	30	-	-
	ST 2N4403 h_{FE}	60	-	-
at $-V_{CE}=1V, -I_C=10mA$	ST 2N4402 h_{FE}	50	-	-
	ST 2N4403 h_{FE}	100	-	-
at $-V_{CE}=1V, -I_C=150mA$	ST 2N4402 h_{FE}	50	150	-
	ST 2N4403 h_{FE}	100	300	-
at $-V_{CE}=2V, -I_C=500mA$	ST 2N4403 h_{FE}	20	-	-
	ST 2N4403 h_{FE}	20	-	-
Collector Cutoff Current at $-V_{CB}=35V$	$-I_{CBO}$	-	100	nA
Emitter Cutoff Current at $-V_{EB}=5V$	$-I_{EBO}$	-	100	nA
Collector Emitter Breakdown Voltage at $-I_C=1mA$	$-V_{(BR)CEO}$	40	-	V
Collector Base Breakdown Voltage at $-I_C=100\mu A$	$-V_{(BR)CBO}$	40	-	V
Emitter Base Breakdown Voltage at $-I_E=100\mu A$	$-V_{(BR)EBO}$	5	-	V
Collector Saturation Voltage at $-I_C=150mA, -I_B=15mA$	$-V_{CEsat}$	-	0.4	V
Base Saturation Voltage at $-I_C=150mA, -I_B=15mA$	$-V_{BEsat}$	0.75	0.95	V
Gain Bandwidth Product at $-V_{CE}=10V, -I_C=20mA, f=100MHz$				
	ST 2N4402 f_T	150	-	MHz
	ST 2N4403 f_T	200	-	MHz
Collector Base Capacitance at $-V_{CB}=10V, f=140MHz$	C_{CBO}	-	8.5	pF
Turn On Time at $-V_{CC}=30V, -V_{BE}=2V, -I_C=150mA, -I_{B1}=15mA$	t_{on}	-	35	ns
Turn Off Time at $-V_{CC}=30V, -I_C=150mA, -I_{B1}=-I_{B2}=15mA$	t_{off}	-	255	ns



TRANSIENT CHARACTERISTICS

— 25°C - - - 100°C

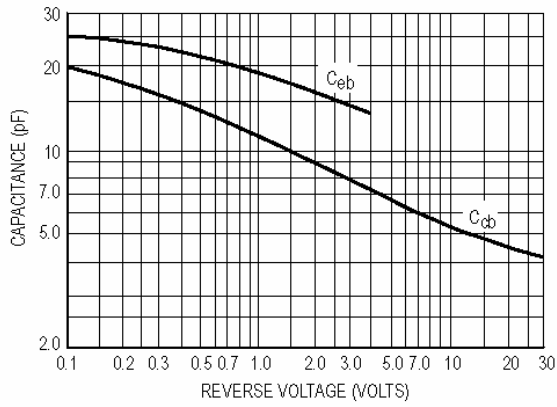


Figure 3. Capacitances

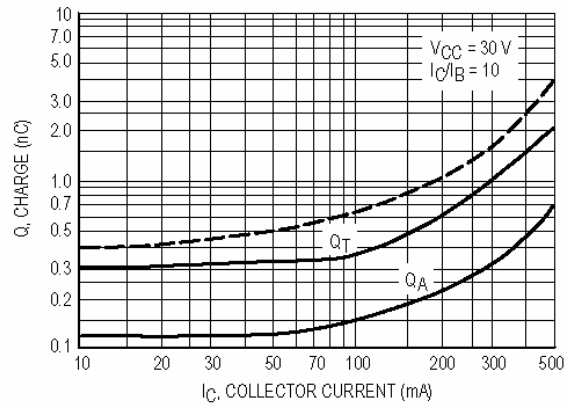


Figure 4. Charge Data

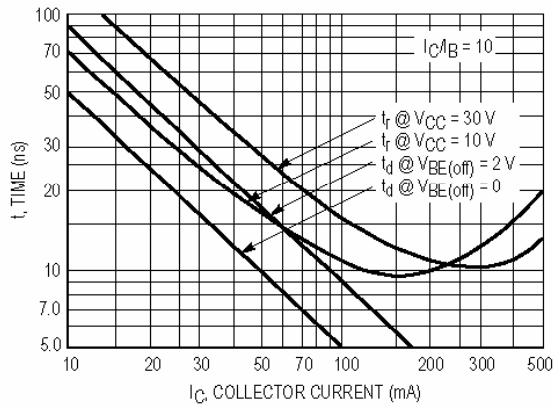


Figure 5. Turn-On Time

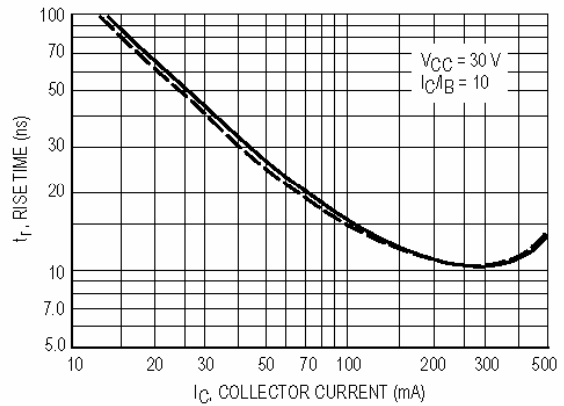


Figure 6. Rise Time

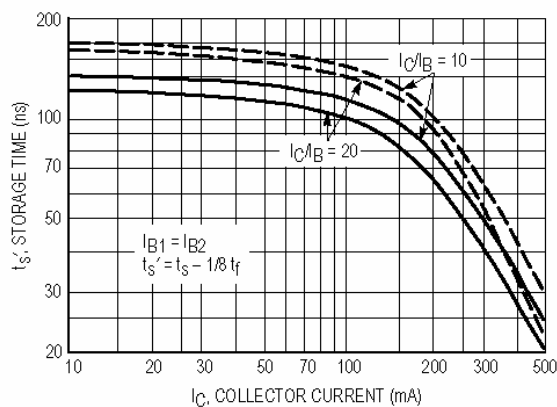


Figure 7. Storage Time



SMALL-SIGNAL CHARACTERISTICS
NOISE FIGURE

$V_{CE} = -10 \text{ Vdc}$, $T_A = 25^\circ\text{C}$
Bandwidth = 1.0 Hz

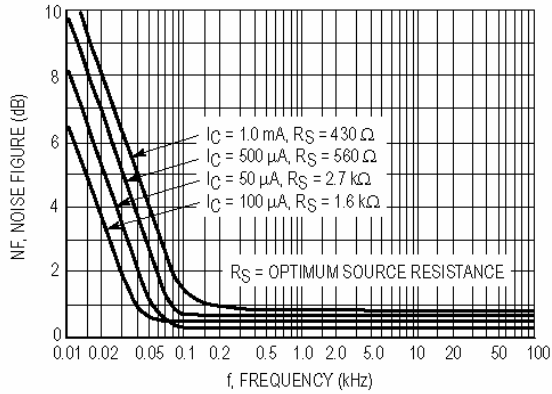


Figure 8. Frequency Effects

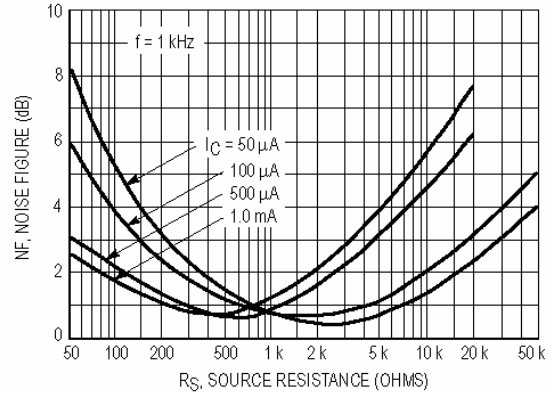


Figure 9. Source Resistance Effects

h PARAMETERS

$V_{CE} = -10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$, $T_A = 25^\circ\text{C}$

This group of graphs illustrates the relationship between h_{fe} and other "h" parameters for this series of transistors. To obtain these curves, a high-gain and a low-gain unit were

selected from both the 2N4402 and 2N4403 lines, and the same units were used to develop the correspondingly-numbered curves on each graph.

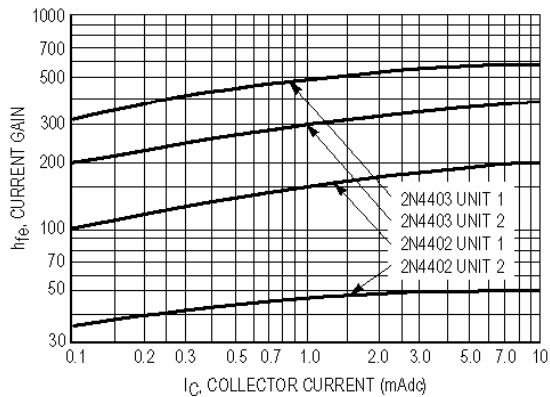


Figure 10. Current Gain

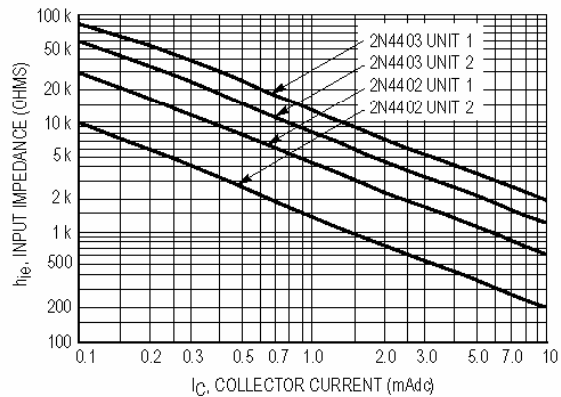


Figure 11. Input Impedance

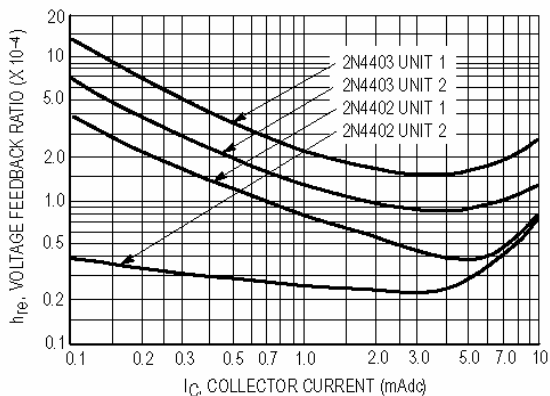


Figure 12. Voltage Feedback Ratio

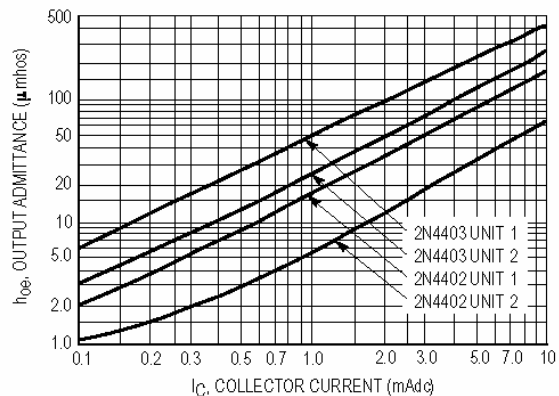


Figure 13. Output Admittance



STATIC CHARACTERISTICS

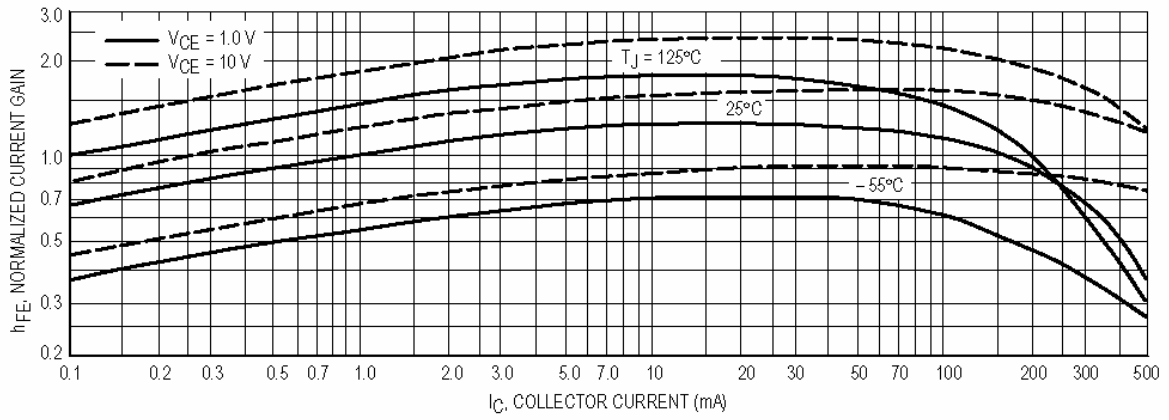


Figure 14. DC Current Gain

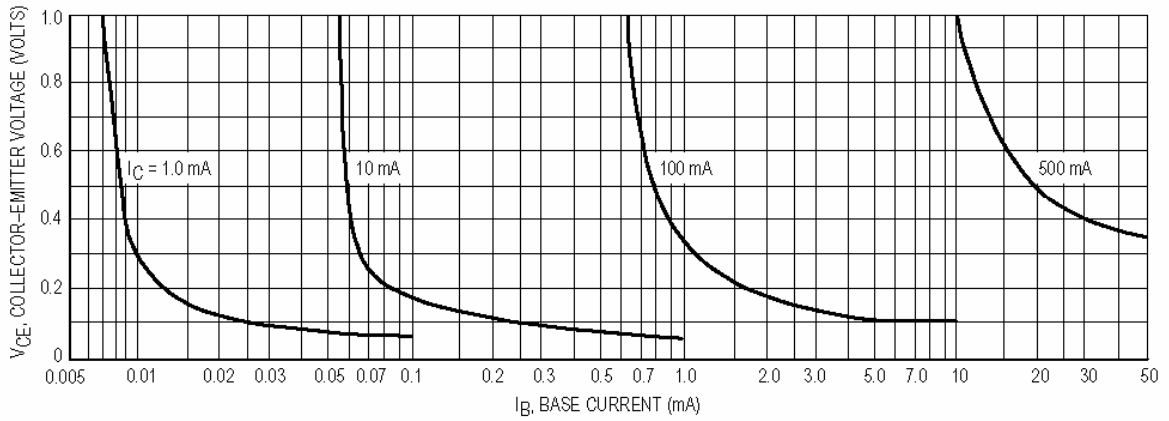


Figure 15. Collector Saturation Region

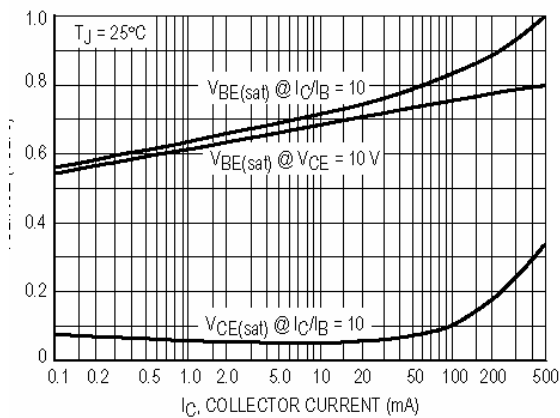


Figure 16. "On" Voltages

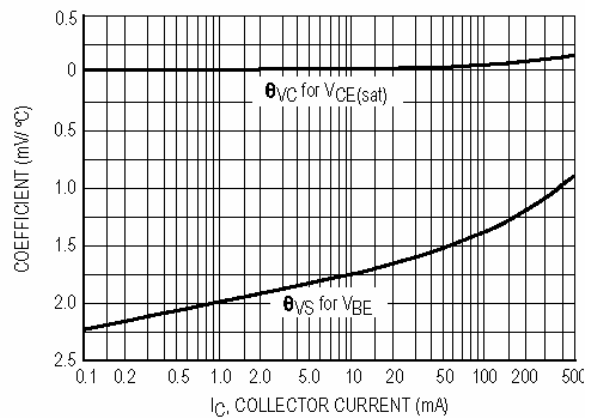


Figure 17. Temperature Coefficients