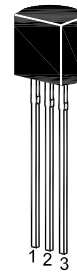


2N4402 / 2N4403

PNP Epitaxial Silicon Transistor

General purpose transistor

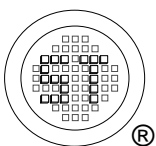
On special request, these transistors can be manufactured in different pin configurations.



1. Emitter 2. Base 3. Collector
TO-92 Plastic Package

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

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



SEMTECH ELECTRONICS LTD.

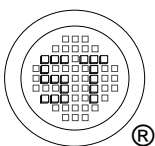


Dated: 12/08/2016 Rev: 02

2N4402 / 2N4403

Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain				
at $-V_{CE} = 1\text{ V}$, $-I_C = 0.1\text{ mA}$	2N4403 h_{FE}	30	-	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 1\text{ mA}$	2N4402 h_{FE}	30	-	-
	2N4403 h_{FE}	60	-	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 10\text{ mA}$	2N4402 h_{FE}	50	-	-
	2N4403 h_{FE}	100	-	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 150\text{ mA}$	2N4402 h_{FE}	50	150	-
	2N4403 h_{FE}	100	300	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 500\text{ mA}$	h_{FE}	20	-	-
Collector Base Cutoff Current at $-V_{CB} = 35\text{ V}$	$-I_{CBO}$	-	100	nA
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	100	nA
Collector Base Breakdown Voltage at $-I_C = 100\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	40	-	V
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$	$-V_{(BR)CEO}$	40	-	V
Emitter Base Breakdown Voltage at $-I_E = 100\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at $-I_C = 150\text{ mA}$, $-I_B = 15\text{ mA}$ at $-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-V_{CE(sat)}$	- -	0.4 0.75	V
Base Emitter Saturation Voltage at $-I_C = 150\text{ mA}$, $-I_B = 15\text{ mA}$ at $-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-V_{BE(sat)}$	0.75 -	0.95 1.3	V
Gain Bandwidth Product at $-V_{CE} = 10\text{ V}$, $-I_C = 20\text{ mA}$, $f = 100\text{ MHz}$	2N4402 f_T 2N4403	150 200	- -	MHz
Collector Output Capacitance at $-V_{CB} = 10\text{ V}$, $f = 140\text{ MHz}$	C_{ob}	-	8.5	pF
Turn On Time at $-V_{CC} = 30\text{ V}$, $-V_{BE} = 2\text{ V}$, $-I_C = 150\text{ mA}$, $-I_{B1} = 15\text{ mA}$	t_{on}	-	35	ns
Turn Off Time at $-V_{CC} = 30\text{ V}$, $-I_C = 150\text{ mA}$, $-I_{B1} = -I_{B2} = 15\text{ mA}$	t_{off}	-	255	ns



SEMTECH ELECTRONICS LTD.



ISO/TS 16949 : 2009
Certificate No. 160713060

ISO 14001 : 2004
Certificate No. 71116

ISO 9001 : 2008
Certificate No. 50713410

BS-OHSAS 18001 : 2007
Certificate No. 71116

IECQ QC 080000
Certificate No. PRC-16294-1621

TRANSIENT CHARACTERISTICS

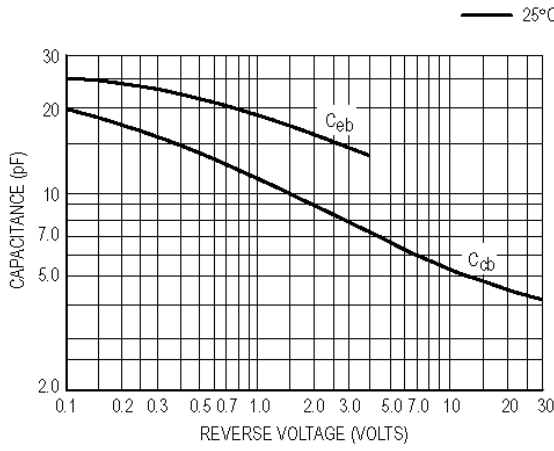


Figure 1. Capacitances

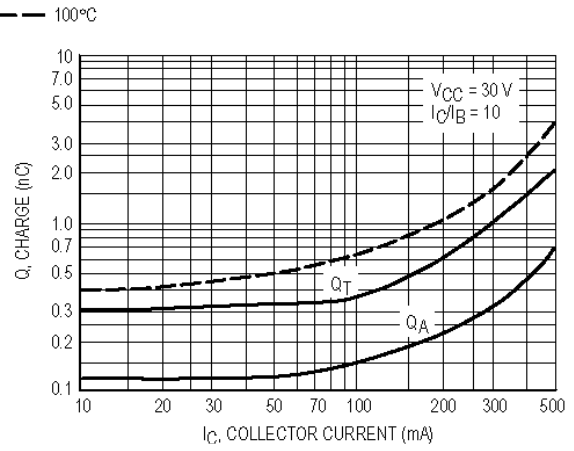


Figure 2. Charge Data

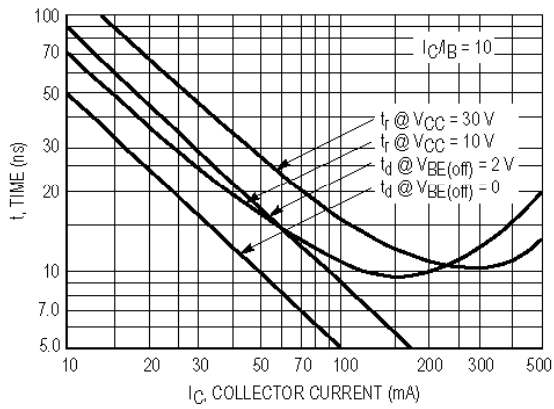


Figure 3. Turn-On Time

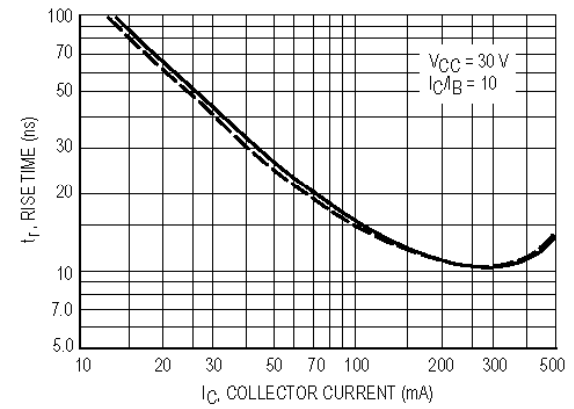


Figure 4. Rise Time

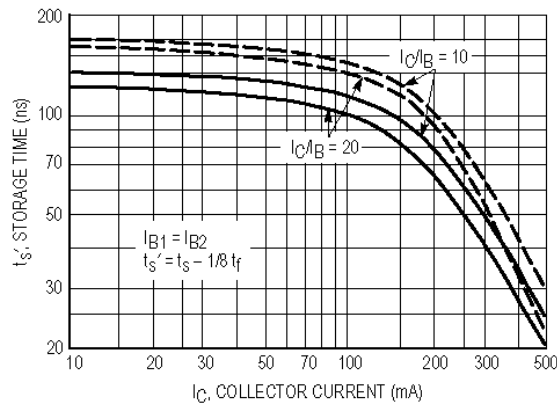
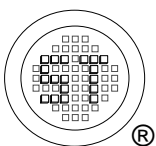


Figure 5. Storage Time



SEMTECH ELECTRONICS LTD.



SMALL-SIGNAL CHARACTERISTICS

NOISE FIGURE

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

Bandwidth = 1.0 Hz

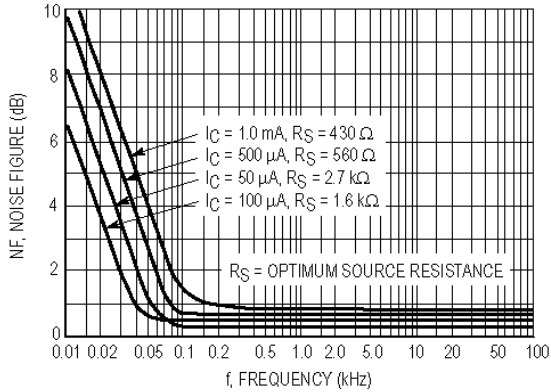


Figure 6. Frequency Effects

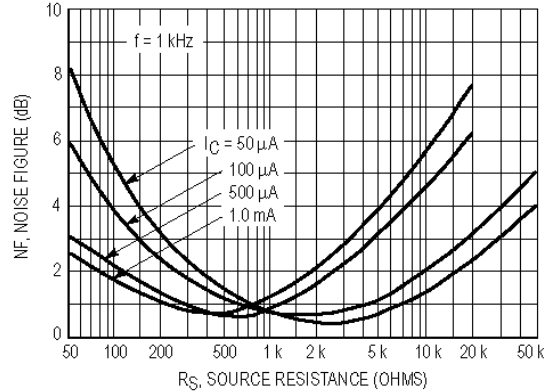


Figure 7. Source Resistance Effects

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.

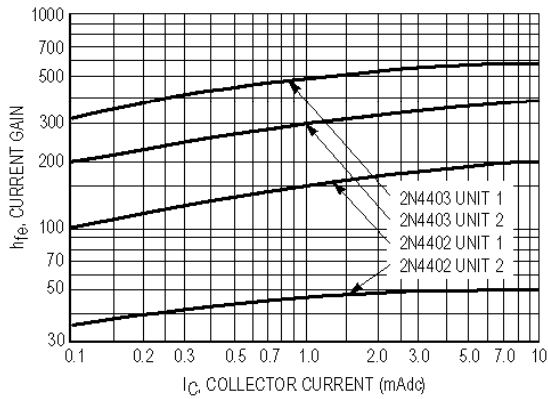


Figure 8. Current Gain

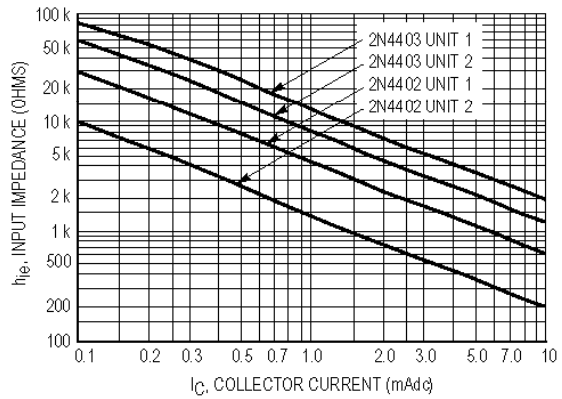


Figure 9. Input Impedance

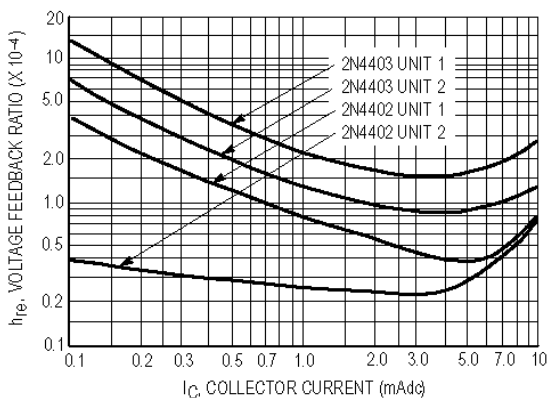


Figure 10. Voltage Feedback Ratio

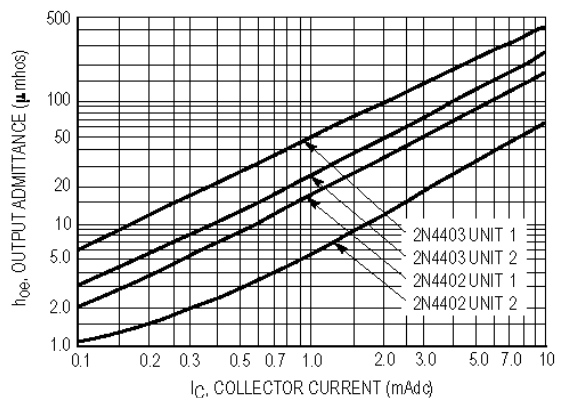
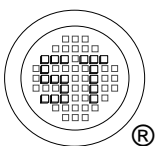


Figure 11. Output Admittance



SEMTECH ELECTRONICS LTD.



STATIC CHARACTERISTICS

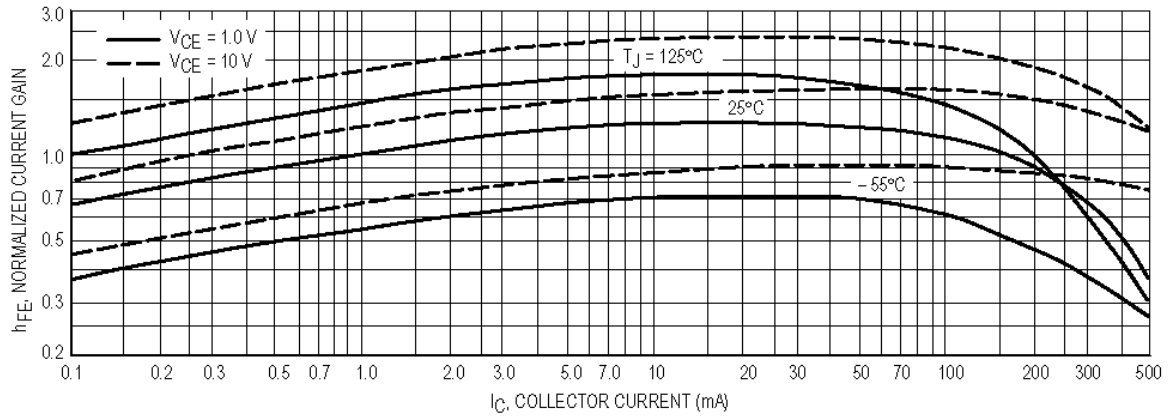


Figure 12. DC Current Gain

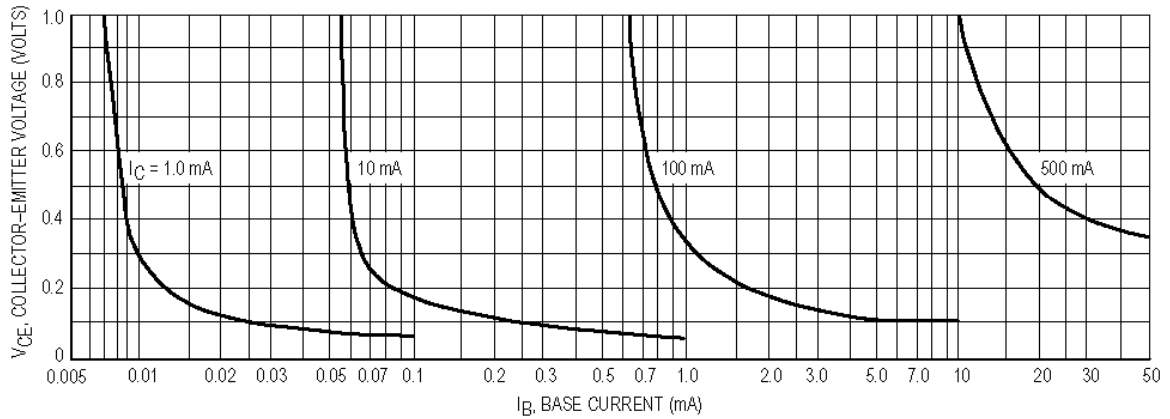


Figure 13. Collector Saturation Region

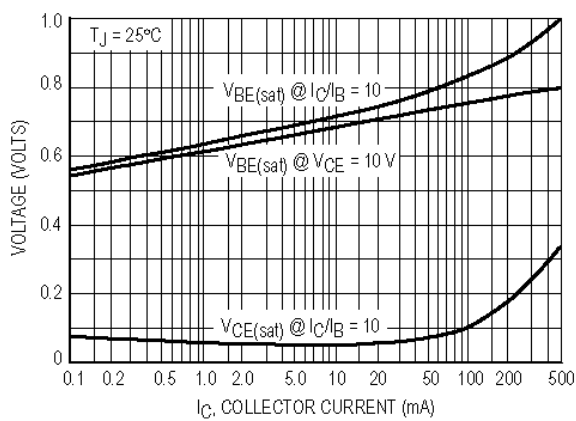


Figure 14. "On" Voltages

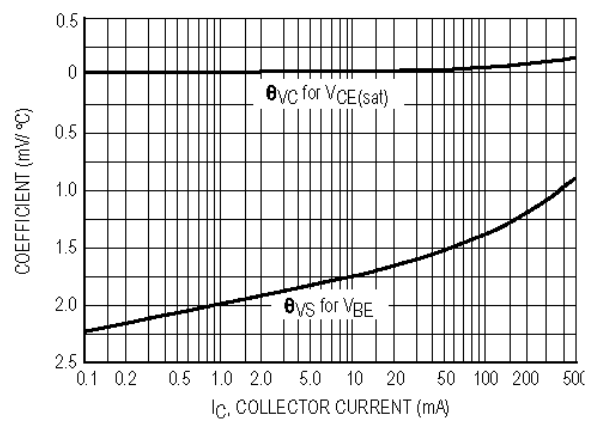
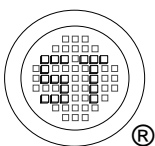


Figure 15. Temperature Coefficients



SEMTECH ELECTRONICS LTD.



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Bipolar Transistors - BJT category](#):

Click to view products by [Semtech manufacturer](#):

Other Similar products are found below :

[619691C](#) [MCH4017-TL-H](#) [MMBT-2369-TR](#) [BC546/116](#) [BC557/116](#) [BSW67A](#) [NJVMJD148T4G](#) [NTE123AP-10](#) [NTE153MCP](#) [NTE16](#)
[NTE195A](#) [NTE92](#) [2N4401-A](#) [2N6728](#) [2SA1419T-TD-H](#) [2SA2126-E](#) [2SB1204S-TL-E](#) [2SC2712S-GR,LF](#) [2SC4731T-AY](#) [FJPF5304DTU](#)
[2N2907A](#) [2N3904-NS](#) [2N5769](#) [2SB1324-TD-E](#) [2SC2412KT146S](#) [2SC3332T](#) [2SC3902S](#) [2SC5231C8-TL-E](#) [2SD1685F](#) [CPH6501-TL-E](#)
[MCH4021-TL-E](#) [MJE340](#) [Jantx2N5416](#) [US6T6TR](#) [NJL0281DG](#) [732314D](#) [CPH3121-TL-E](#) [CPH6021-TL-H](#) [873787E](#) [IMZ2AT108](#)
[UMX21NTR](#) [MCH6102-TL-E](#) [NJL0302DG](#) [TTA1452B,S4X\(S](#) [2N3879](#) [NTE13](#) [NTE26](#) [NTE282](#) [NTE323](#) [NTE350](#)