

ST 2N4400 / 2N4401

NPN Epitaxial Silicon Transistor

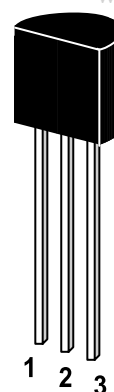
General purpose transistor

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.

www.DataSheet4U.com



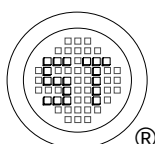
1. Emitter 2. Base 3. Collector

TO-92 Plastic Package

Weight approx. 0.19g

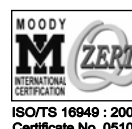
Absolute Maximum Ratings ($T_a = 25\text{ }^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	60	V
Collector Emitter Voltage	V_{CEO}	40	V
Emitter Base Voltage	V_{EBO}	6	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	$^{\circ}\text{C}$



SEMTECH ELECTRONICS LTD.

(Subsidiary of Sino-Tech International Holdings Limited, a company
listed on the Hong Kong Stock Exchange, Stock Code: 724)



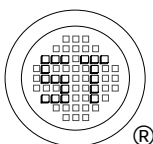
www.DataSheet4U.com

Dated : 02/12/2005

ST 2N4400 / 2N4401

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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain				
at $V_{CE}=1V$, $I_C=0.1mA$ ST 2N4401	h_{FE}	20	-	-
at $V_{CE}=1V$, $I_C=1mA$ ST 2N4400	h_{FE}	20	-	-
ST 2N4401	h_{FE}	40	-	-
at $V_{CE}=1V$, $I_C=10mA$ ST 2N4400	h_{FE}	40	-	-
ST 2N4401	h_{FE}	58	-	-
at $V_{CE}=1V$, $I_C=150mA$ ST 2N4400	h_{FE}	50	150	-
ST 2N4401	h_{FE}	100	300	-
at $V_{CE}=2V$, $I_C=500mA$ ST 2N4400	h_{FE}	20	-	-
ST 2N4401	h_{FE}	40	-	-
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 $I_C=100\mu A$	$V_{(BR)CBO}$	60	-	V
Emitter Base Breakdown Voltage at $I_E=100\mu A$	$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage at $I_C=150mA$, $I_B=15mA$	V_{CEsat}	-	0.4	V
at $I_C=500mA$, $I_B=50mA$	V_{CEsat}	-	0.75	V
Collector Saturation Voltage at $I_C=150mA$, $I_B=15mA$	V_{BEsat}	0.75	0.95	V
at $I_C=500mA$, $I_B=50mA$	V_{BEsat}	-	1.2	V
Gain Bandwidth Product				
at $V_{CE}=10V$, $I_C=20mA$, $f=100MHz$ ST 2N4400	f_T	200	-	MHz
ST 2N4401	f_T	250	-	MHz
Collector Base Capacitance at $V_{CB}=5V$, $f=100MHz$	C_{CBO}	-	6.5	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



SEMTECH ELECTRONICS LTD.

(Subsidiary of Sino-Tech International Holdings Limited, a company
listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002
Certificate No. 05103



ISO 14001:2004
Certificate No. 7116



ISO 9001:2000
Certificate No. 0506008

www.DataSheet4U.com

Dated : 02/12/2005

● Electrical characteristic curves

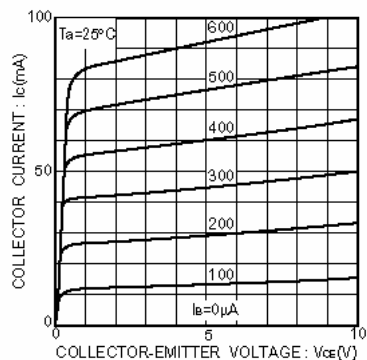


Fig.1 Grounded emitter output characteristics

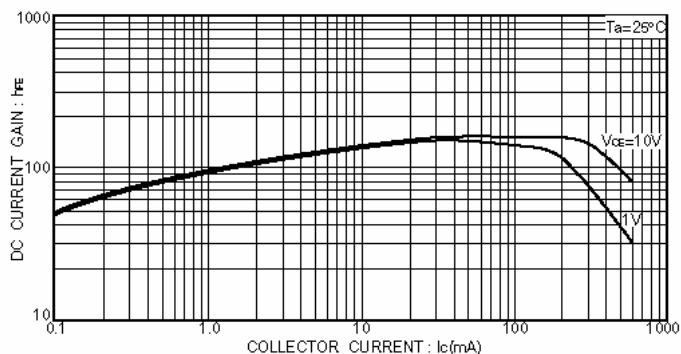


Fig.3 DC current gain vs. collector current(I)

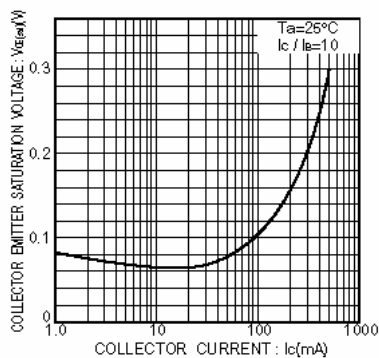


Fig.2 Collector-emitter saturation voltage vs. collector current

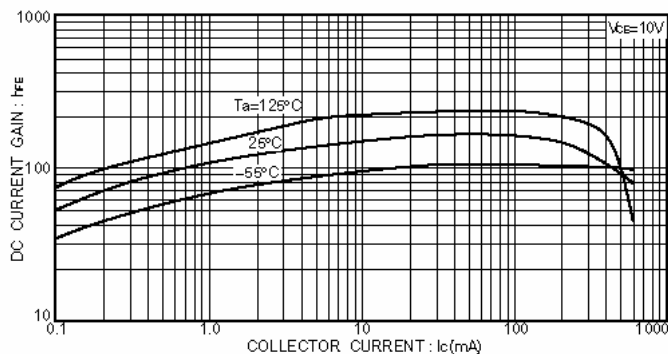


Fig.4 DC current gain vs. collector current(II)

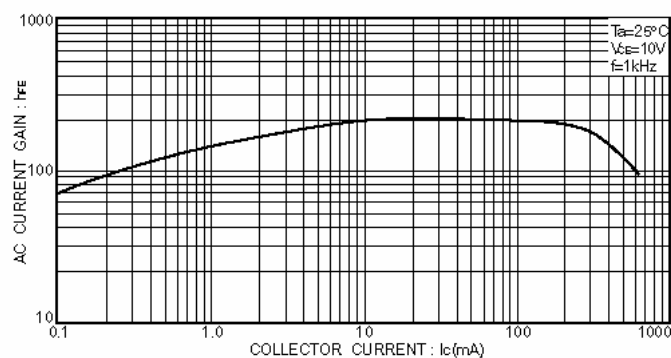


Fig.5 AC current gain vs. collector current

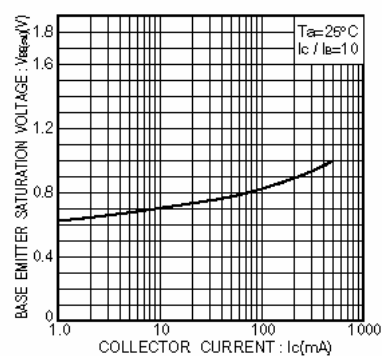
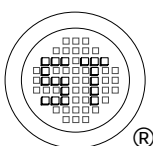


Fig.6 Base-emitter saturation voltage vs. collector current



SEMTECH ELECTRONICS LTD.

(Subsidiary of Sino-Tech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002
Certificate No. 05103



ISO 14001:2004
Certificate No. 7116



ISO 9001:2000
Certificate No. 050008

www.DataSheet4U.com

Dated : 02/12/2005

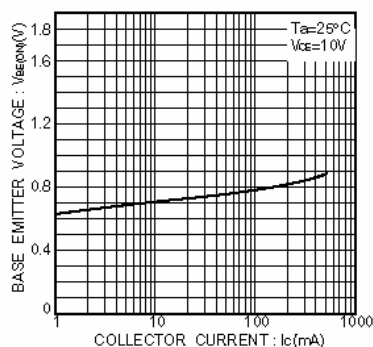


Fig.7 Grounded emitter propagation characteristics

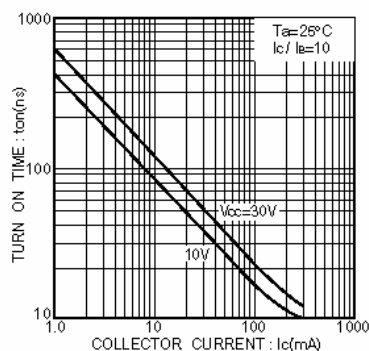


Fig.8 Turn-on time vs. collector current

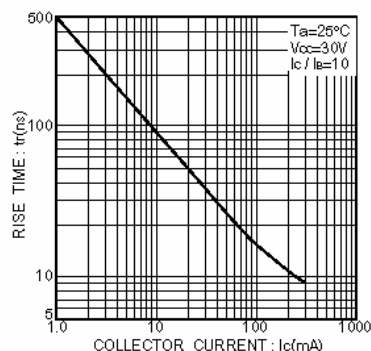


Fig.9 Rise time vs. collector current

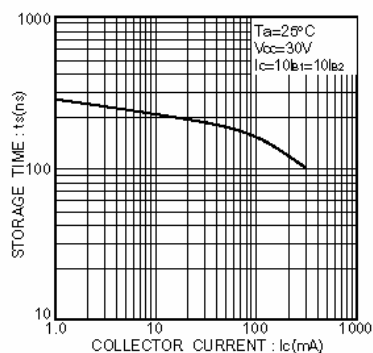


Fig.10 Storage time vs. collector current

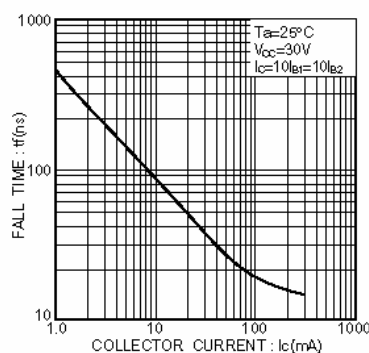


Fig.11 Fall time vs. collector current

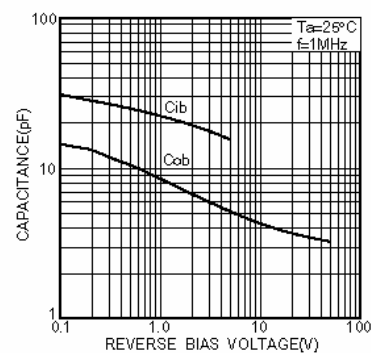


Fig.12 Input/output capacitance vs. voltage

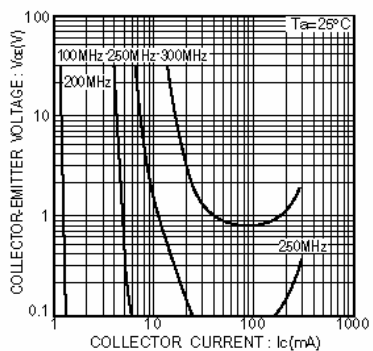


Fig.13 Gain bandwidth product

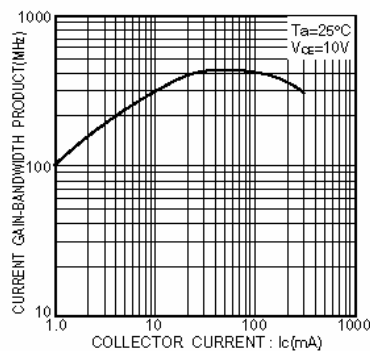
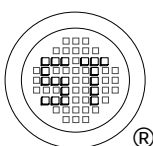
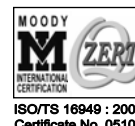


Fig.14 Gain bandwidth product vs. collector current



SEMTECH ELECTRONICS LTD.

(Subsidiary of Sino-Tech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002
Certificate No. 05103



ISO 14001:2004
Certificate No. 7116



ISO 9001:2000
Certificate No. 050008

www.DataSheet4U.com

Dated : 02/12/2005