

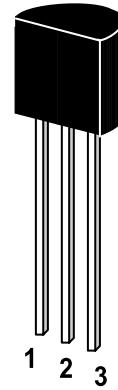
# ST 2N2222 / 2N2222A

## NPN Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications.

The transistor is subdivided into one group according to its DC current gain. As complementary type the PNP transistor ST 2N2907 and ST 2N2907A are recommended.

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

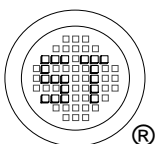


1. Emitter 2. Base 3. Collector

TO-92 Plastic Package  
Weight approx. 0.19g

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

	Symbol	Value		Unit
		ST 2N2222	ST 2N2222A	
Collector Base Voltage	$V_{CBO}$	60	75	V
Collector Emitter Voltage	$V_{CEO}$	30	40	V
Emitter Base Voltage	$V_{EBO}$	5	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)



ISO/TS 16949 : 2002  
Certificate No. 05103



ISO 14001:2004  
Certificate No. 7116



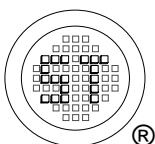
ISO 9001:2000  
Certificate No. 0506098

Dated : 05/10/2005

# ST 2N2222 / 2N2222A

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

		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $I_C=0.1\text{mA}$ , $V_{CE}=10\text{V}$ at $I_C=1\text{mA}$ , $V_{CE}=10\text{V}$ at $I_C=10\text{mA}$ , $V_{CE}=10\text{V}$ at $I_C=150\text{mA}$ , $V_{CE}=10\text{V}$ at $I_C=500\text{mA}$ , $V_{CE}=10\text{V}$	ST 2N2222	$h_{FE}$	35	-	-	-
	ST 2N2222A	$h_{FE}$	50	-	-	-
	ST 2N2222	$h_{FE}$	75	-	-	-
	ST 2N2222A	$h_{FE}$	100	-	300	-
	ST 2N2222	$h_{FE}$	30	-	-	-
	ST 2N2222A	$h_{FE}$	40	-	-	-
Collector Cutoff Current at $V_{CB}=50\text{V}$ $V_{CB}=60\text{V}$	ST 2N2222	$I_{CBO}$	-	-	0.01	$\mu\text{A}$
	ST 2N2222A	$I_{CBO}$	-	-	0.01	$\mu\text{A}$
Collector Base Breakdown Voltage at $I_C=10\mu\text{A}$	ST 2N2222	$V_{(BR)CBO}$	60	-	-	V
	ST 2N2222A	$V_{(BR)CBO}$	75	-	-	V
Collector Emitter Breakdown Voltage at $I_C=10\text{mA}$	ST 2N2222	$V_{(BR)CEO}$	30	-	-	V
	ST 2N2222A	$V_{(BR)CEO}$	40	-	-	V
Emitter Base Breakdown Voltage at $I_E=10\mu\text{A}$	ST 2N2222	$V_{(BR)EBO}$	5	-	-	V
	ST 2N2222A	$V_{(BR)EBO}$	6	-	-	V
Collector Saturation Voltage at $I_C=150\text{mA}$ , $I_B=15\text{mA}$  at $I_C=500\text{mA}$ , $I_B=50\text{mA}$	ST 2N2222	$V_{CE(sat)}$	-	-	0.4	V
	ST 2N2222A	$V_{CE(sat)}$	-	-	0.3	V
	ST 2N2222	$V_{CE(sat)}$	-	-	1.6	V
	ST 2N2222A	$V_{CE(sat)}$	-	-	1	V
Base Saturation Voltage at $I_C=150\text{mA}$ , $I_B=15\text{mA}$  at $I_C=500\text{mA}$ , $I_B=50\text{mA}$	ST 2N2222	$V_{BE(sat)}$	-	-	1.3	V
	ST 2N2222A	$V_{BE(sat)}$	0.6	-	1.2	V
	ST 2N2222	$V_{BE(sat)}$	-	-	2.6	V
	ST 2N2222A	$V_{BE(sat)}$	-	-	2.0	V
Gain Bandwidth Product at $I_C=20\text{mA}$ , $V_{CE}=20\text{V}$ , $f=100\text{MHz}$		$f_T$	250	-	-	MHz
Collector Output Capacitance at $V_{CB}=10\text{V}$ , $f=1\text{MHz}$		$C_{ob}$	-	-	8	pF
Input Capacitance at $V_{CB}=0.5\text{V}$ , $f=1\text{MHz}$		$C_{ib}$	-	-	30	pF



**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. 0506098

Dated : 05/10/2005

# ST 2N2222 / 2N2222A

Figure 1. DC Current Gain

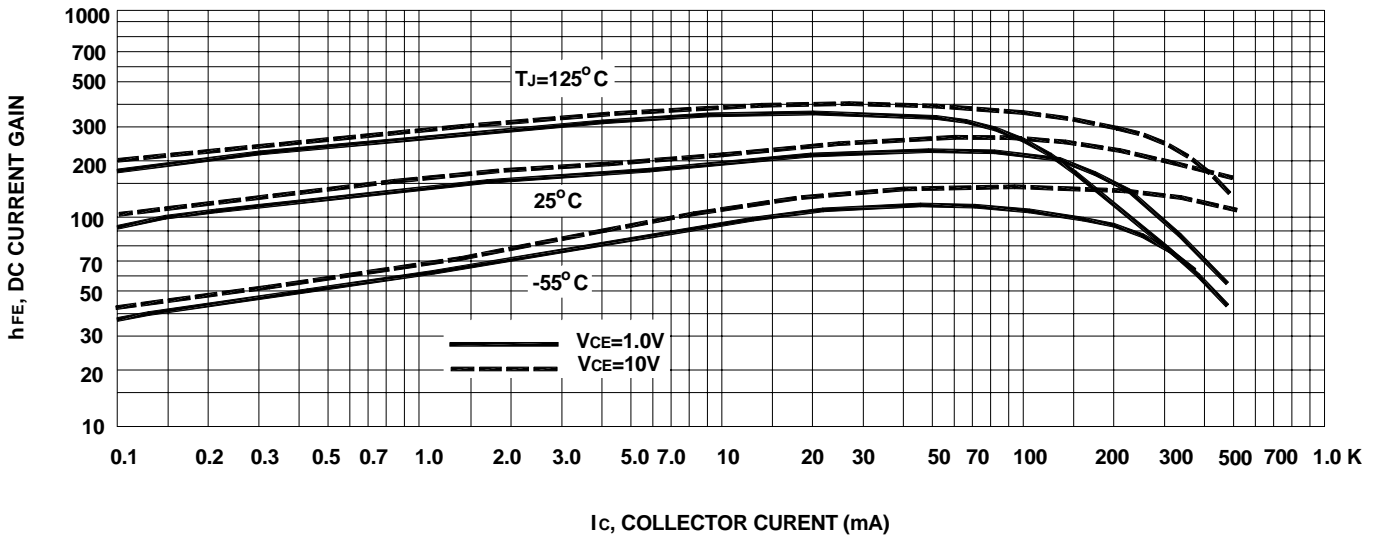
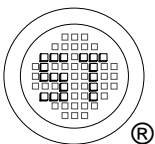
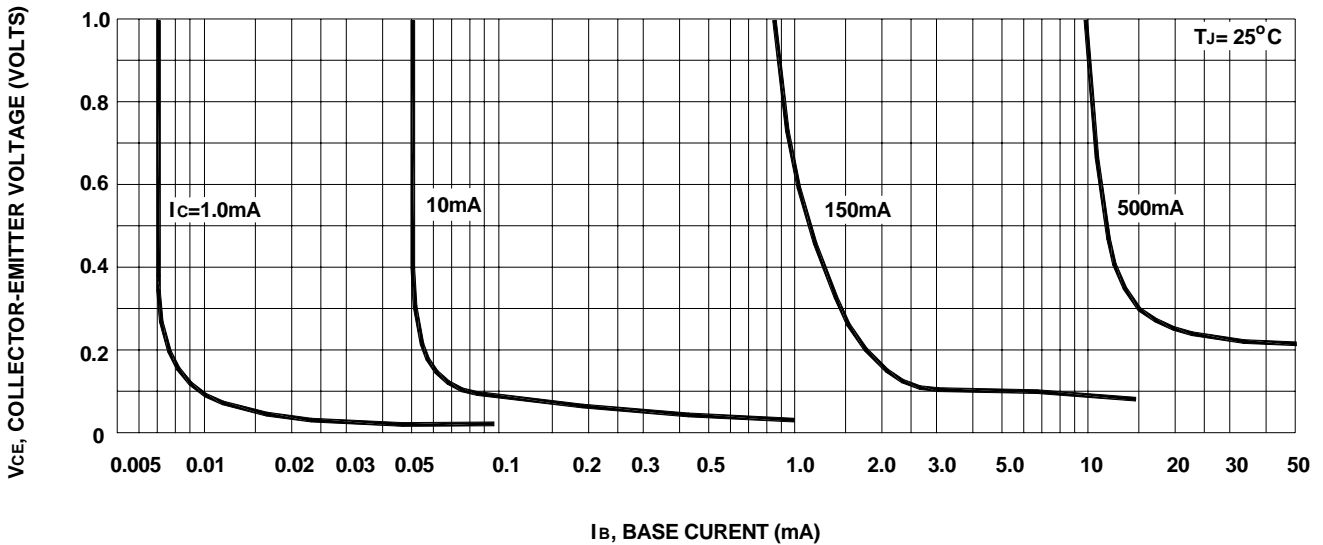
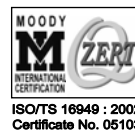


Figure 2. Collector Saturation Region



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



Dated : 05/10/2005

# ST 2N2222 / 2N2222A

Figure 3. Capacitances

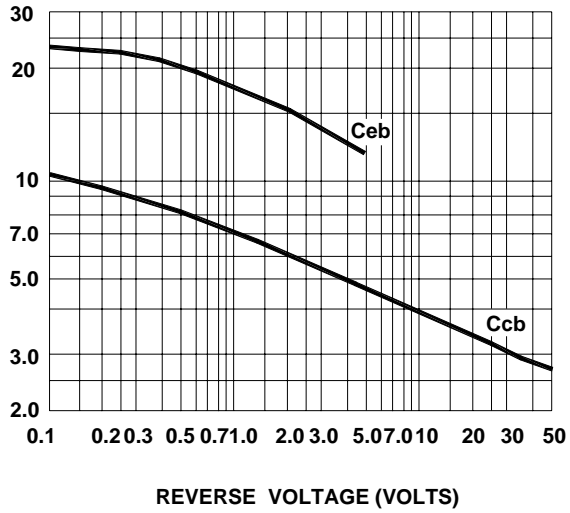
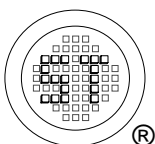
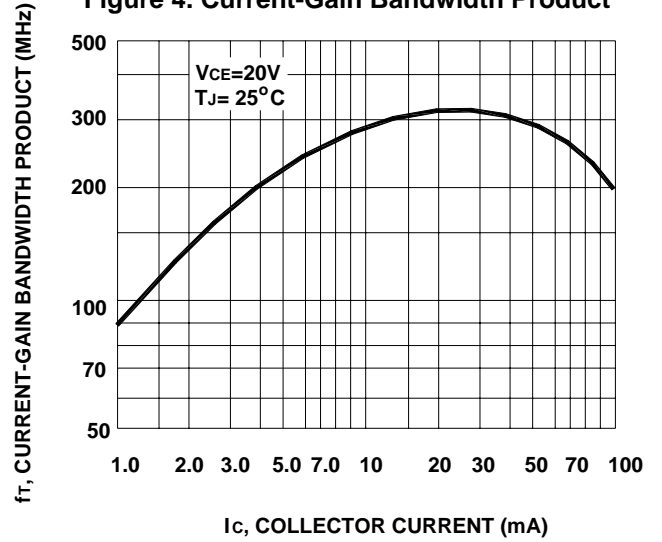


Figure 4. Current-Gain Bandwidth Product



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

