

NPN Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications.

The transistor is subdivided into one group according to its DC current gain.

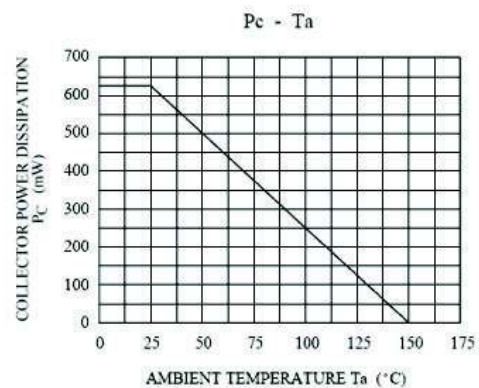
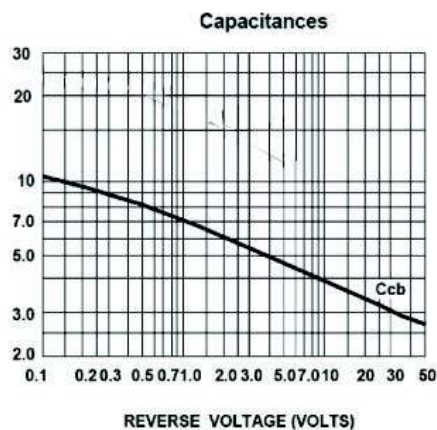
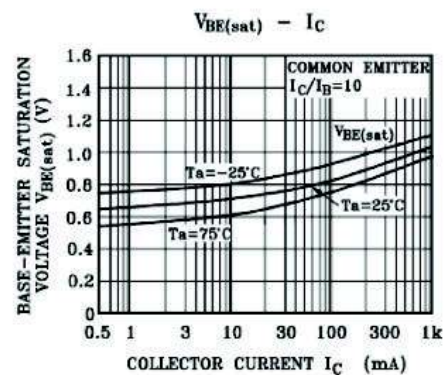
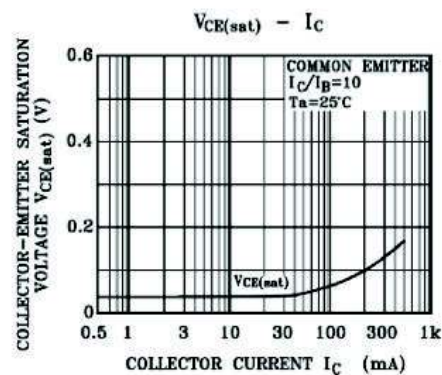
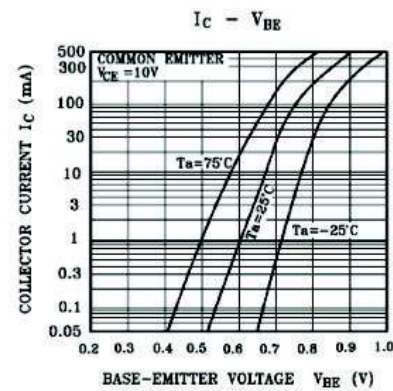
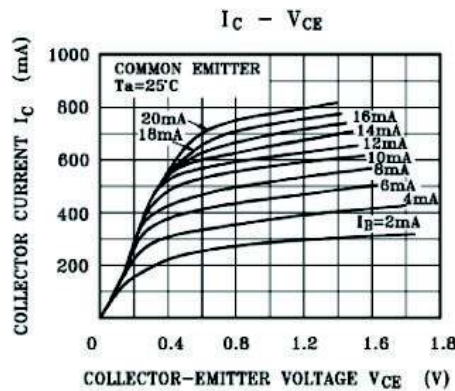
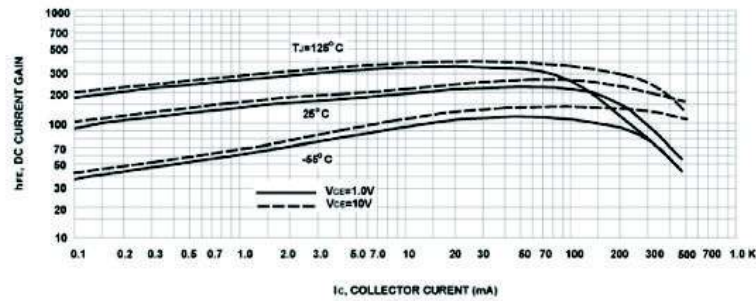
On special request, these transistors can be manufactured in different pin configurations.



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	2N2222	V_{CBO}	60	V
	2N2222A		75	
Collector Emitter Voltage	2N2222	V_{CEO}	30	V
	2N2222A		40	
Emitter Base Voltage	2N2222	V_{EBO}	5	V
	2N2222A		6	
Collector Current		I_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	$^\circ\text{C}$

Figure 1. DC Current Gain


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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain				
at $V_{CE} = 10\text{ V}$, $I_C = 0.1\text{ mA}$	h_{FE}	35	-	-
at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$	h_{FE}	50	-	-
at $V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$	h_{FE}	75	-	-
at $V_{CE} = 10\text{ V}$, $I_C = 150\text{ mA}$	h_{FE}	100	300	-
at $V_{CE} = 10\text{ V}$, $I_C = 500\text{ mA}$	h_{FE}	30	-	-
2N2222	h_{FE}	40	-	-
2N2222A	h_{FE}	40	-	-
Collector Base Cutoff Current				
at $V_{CB} = 50\text{ V}$	I_{CBO}	-	10	nA
at $V_{CB} = 60\text{ V}$	I_{CBO}	-	10	nA
Collector Base Breakdown Voltage				
at $I_C = 10\text{ }\mu\text{A}$	$V_{(BR)CBO}$	60	-	V
2N2222	$V_{(BR)CBO}$	75	-	V
2N2222A	$V_{(BR)CBO}$	75	-	V
Collector Emitter Breakdown Voltage				
at $I_C = 10\text{ mA}$	$V_{(BR)CEO}$	30	-	V
2N2222	$V_{(BR)CEO}$	40	-	V
2N2222A	$V_{(BR)CEO}$	40	-	V
Emitter Base Breakdown Voltage				
at $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	V
2N2222	$V_{(BR)EBO}$	6	-	V
2N2222A	$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage				
at $I_C = 150\text{ mA}$, $I_B = 15\text{ mA}$	$V_{CE(sat)}$	-	0.4	V
2N2222	$V_{CE(sat)}$	-	0.3	V
2N2222A	$V_{CE(sat)}$	-	0.3	V
at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	$V_{CE(sat)}$	-	1.6	V
2N2222	$V_{CE(sat)}$	-	1	V
2N2222A	$V_{CE(sat)}$	-	1	V
Base Emitter Saturation Voltage				
at $I_C = 150\text{ mA}$, $I_B = 15\text{ mA}$	$V_{BE(sat)}$	-	1.3	V
2N2222	$V_{BE(sat)}$	0.6	1.2	V
2N2222A	$V_{BE(sat)}$	0.6	1.2	V
at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	$V_{BE(sat)}$	-	2.6	V
2N2222	$V_{BE(sat)}$	-	2	V
2N2222A	$V_{BE(sat)}$	-	2	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