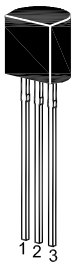
ST 13001

NPN Silicon Epitaxial Planar Transistor

for high voltage and high speed switching applications



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

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	500	V
Collector Emitter Voltage	V_{CEO}	400	V
Emitter Base Voltage	V_{EBO}	9	V
Collector Current (DC)	I_C	0.3	A
Total Power Dissipation	P_{tot}	0.75	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at V_{CE} = 10 V, I_C = 0.25 mA at V_{CE} = 20 V, I_C = 20 mA	 h_{FE} h_{FE}	 5 10	 - 40	 - -
Collector Base Cutoff Current at V_{CB} = 500 V	I_{CBO}	-	100	µA
Collector Emitter Cutoff Current at V_{CE} = 400 V	I_{CEO}	-	200	µA
Emitter Base Cutoff Current at V_{EB} = 9 V	I_{EBO}	-	100	µA
Collector Base Breakdown Voltage at I_C = 100 µA	$V_{(BR)CBO}$	500	-	V
Collector Emitter Breakdown Voltage at I_C = 1 mA	$V_{(BR)CEO}$	400	-	V
Emitter Base Breakdown Voltage at I_E = 100 µA	$V_{(BR)EBO}$	9	-	V
Collector Emitter Saturation Voltage at I_C = 50 mA, I_B = 10 mA	$V_{CE(sat)}$	-	0.5	V
Base Emitter Saturation Voltage at I_C = 50 mA, I_B = 10 mA	$V_{BE(sat)}$	-	1.2	V
Transition Frequency at V_{CE} = 20 V, I_C = 20 mA, f = 1 MHz	f_T	8	-	MHz
Storage Time at UI9600, I_C = 100 mA	t_s	-	3	µs
Fall Time at UI9600, I_C = 100 mA	t_f	-	1	µs

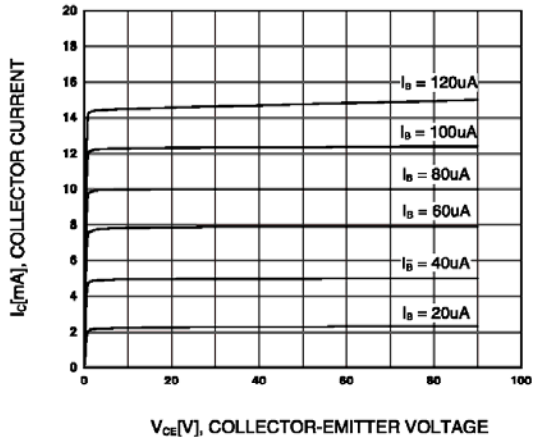


Figure 1. Static Characteristic

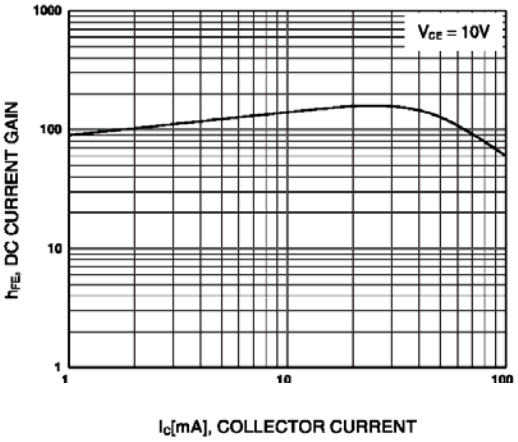


Figure 2. DC current Gain

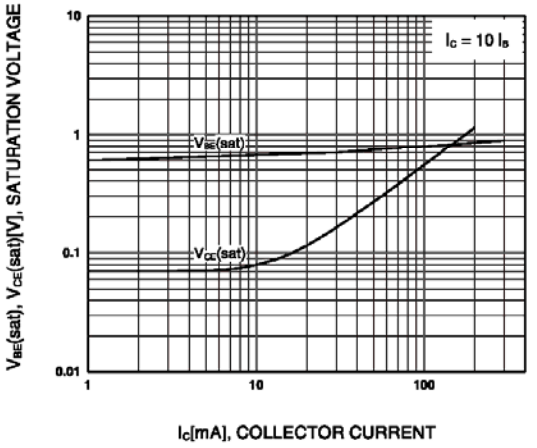


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

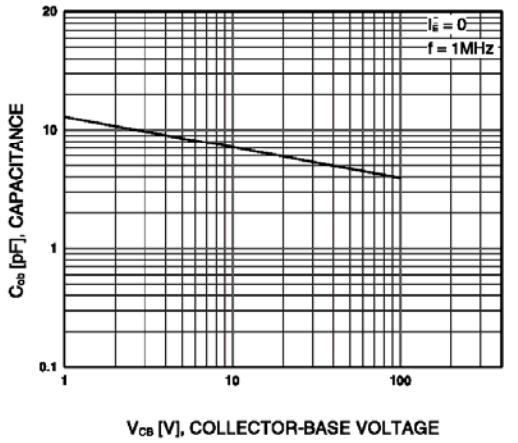


Figure 4. Collector Output Capacitance