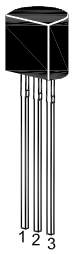
ST 13003

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}	800	V
Collector Emitter Voltage	V_{CEO}	430	V
Emitter Base Voltage	V_{EBO}	9	V
Collector Current (DC)	I_C	1.5	A
Collector Current (Pulse)	I_{CP}	3	A
Total Power Dissipation	P_{tot}	0.8	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 65 to + 150	°C

Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at V_{CE} = 2 V, I_C = 0.5 A at V_{CE} = 2 V, I_C = 1 A at V_{CE} = 5 V, I_C = 10 µA	 h_{FE} h_{FE} h_{FE}	 20 8 6	 40 40 40	 - - -
Collector Base Cutoff Current at V_{CB} = 700 V	I_{CBO}	-	10	µA
Emitter Base Cutoff Current at V_{EB} = 9 V	I_{EBO}	-	10	µA
Collector Base Breakdown Voltage at I_C = 500 µA	$V_{(BR)CBO}$	800	-	V
Collector Emitter Breakdown Voltage at I_C = 5 mA	$V_{(BR)CEO}$	430	-	V
Emitter Base Breakdown Voltage at I_E = 500 µA	$V_{(BR)EBO}$	9	-	V
Collector Emitter Saturation Voltage at I_C = 0.5 A, I_B = 0.1 A at I_C = 1 A, I_B = 0.25 A at I_C = 1.5 A, I_B = 0.5 A	$V_{CE(sat)}$	 - - -	 0.5 1 3	V
Base Emitter Saturation Voltage at I_C = 0.5 A, I_B = 0.1 A at I_C = 1 A, I_B = 0.25 A	$V_{BE(sat)}$	 - -	 1 1.2	V
Transition Frequency at V_{CE} = 10 V, I_C = 100 mA	f_T	4	-	MHz
Turn On Time at V_{CC} = 125 V, I_C = 1 A, I_B = -I_{B2} = 0.2 A, R_L = 125 Ω	t_{on}	-	1.1	µs
Storage Time at V_{CC} = 125 V, I_C = 1 A, I_B = -I_{B2} = 0.2 A, R_L = 125 Ω	t_s	-	4	µs
Fall Time at V_{CC} = 125 V, I_C = 1 A, I_B = -I_{B2} = 0.2 A, R_L = 125 Ω	t_f	-	0.7	µs

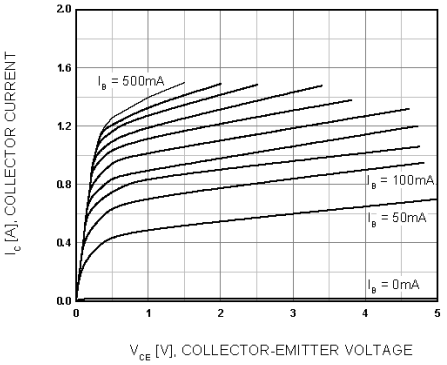


Figure 1. Static Characteristic

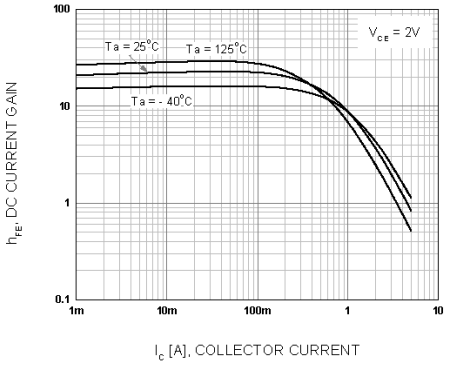


Figure 2. DC current Gain

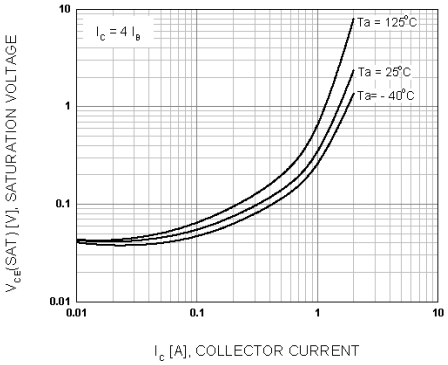


Figure 3. Collector-Emitter Saturation Voltage

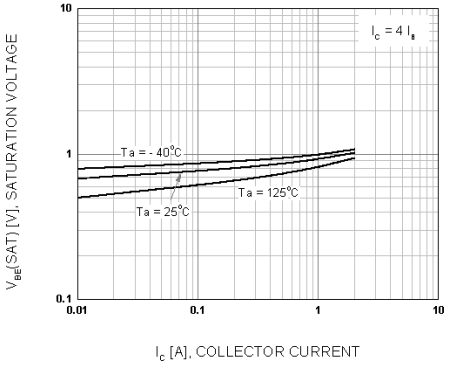


Figure 4. Base-Emitter Saturation Voltage

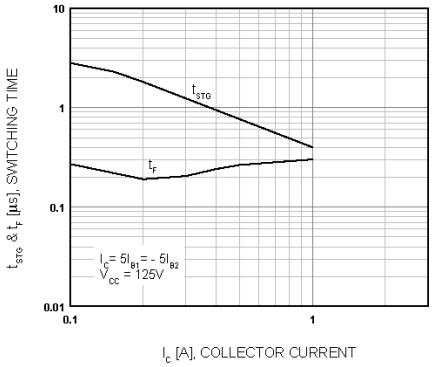


Figure 5. Resistive Load Switching Time

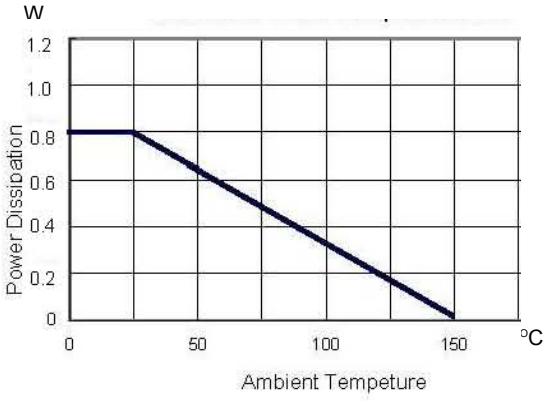


Figure 6. Power Derating