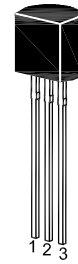


# 13001

## NPN Silicon Epitaxial Planar Transistor

for high voltage and high speed switching applications



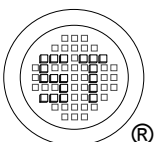
1. Emitter 2. Collector 3. Base  
TO-92 Plastic Package

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

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	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

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

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



**SEMTECH ELECTRONICS LTD.**



ISO/TS 16949 : 2009  
Certificate No. 180713000

ISO14001 : 2004  
Certificate No. 7116

ISO 9001 : 2008  
Certificate No. 50719410

BS-OHSAS 18001 : 2007  
Certificate No. 7116

IECQ QC 080000  
Certificate No. PRC-HSPM-1483

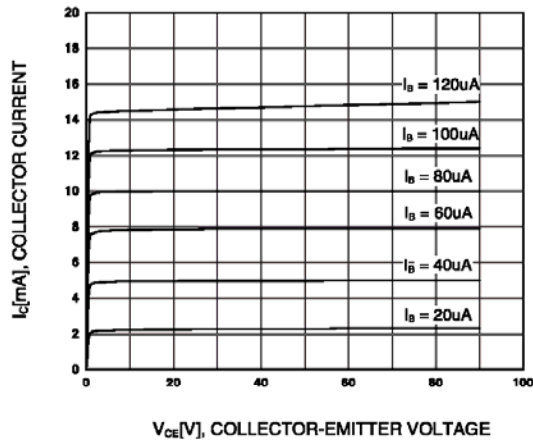


Figure 1. Static Characteristic

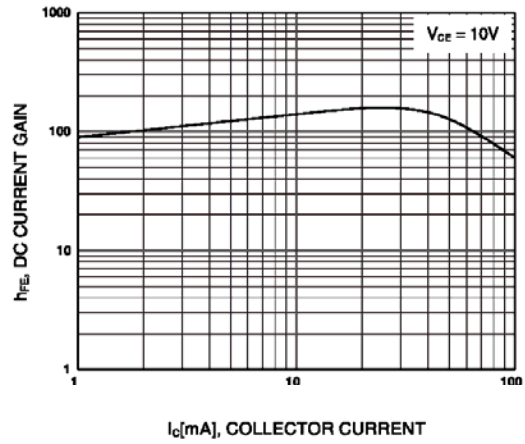


Figure 2. DC current Gain

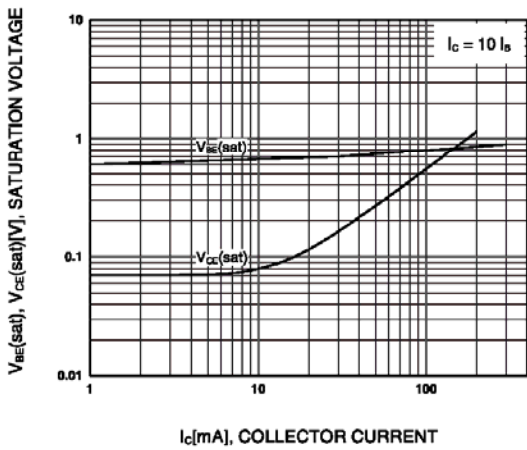


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

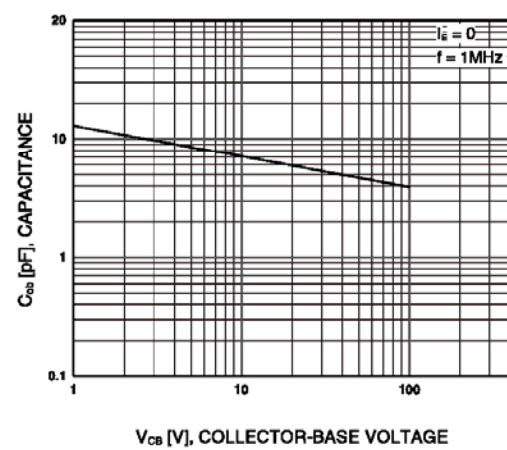
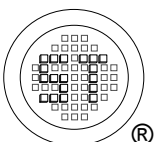


Figure 4. Collector Output Capacitance



SEMTECH ELECTRONICS LTD.

