

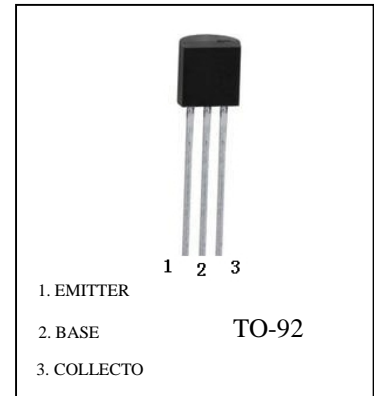
FEATURES

Complimentary to S9012
Collector current: $I_C=0.5A$

MARKING: S9013

MAXIMUM RATINGS ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current -Continuous	I_C	500	mA
Collector Power Dissipation	P_C	625	mW
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-55-150	$^\circ C$

S9013 (NPN)


ELECTRICAL CHARACTERISTICS ($T_{amb}=25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CBO}	$I_C= 100\mu A, I_E=0$	40			V
Collector-emitter breakdown voltage	V_{CEO}	$I_C= 1mA, I_B=0$	25			V
Emitter-base breakdown voltage	V_{EBO}	$I_E= 100\mu A, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}= 40V, I_E=0$			0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE}= 20V, I_B=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}= 5V, I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}= 1V, I_C= 50mA$	64		400	
	$h_{FE(2)}$	$V_{CE}= 1V, I_C= 500mA$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C= 500mA, I_B= 50mA$			0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C= 500mA, I_B= 50mA$			1.2	V
Transition frequency	f_T	$V_{CE}= 6V, I_C= 20mA, f=30MHz$	150			MHz

CLASSIFICATION OF HFE

Rank	E	F	G	H	I	J
Range	70-120	90-150	120-180	150-200	200-300	300-400

S9013 Typical Characteristics

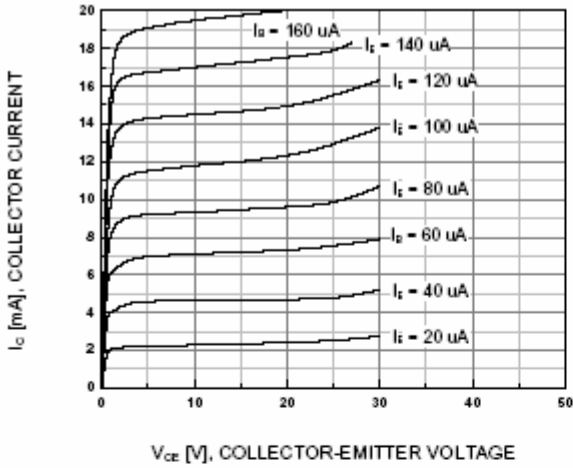


Figure 1. Static Characteristic

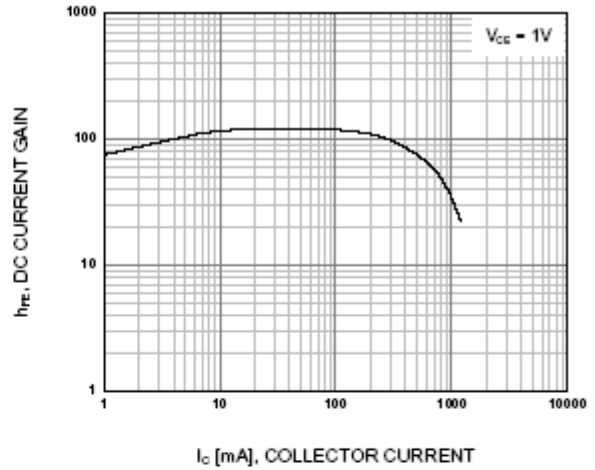


Figure 2. DC current Gain

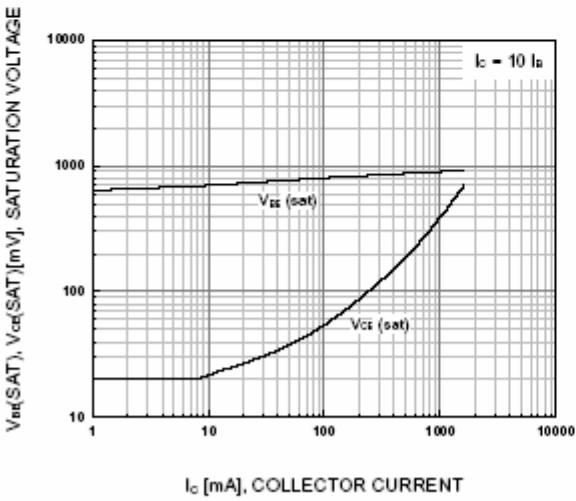


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

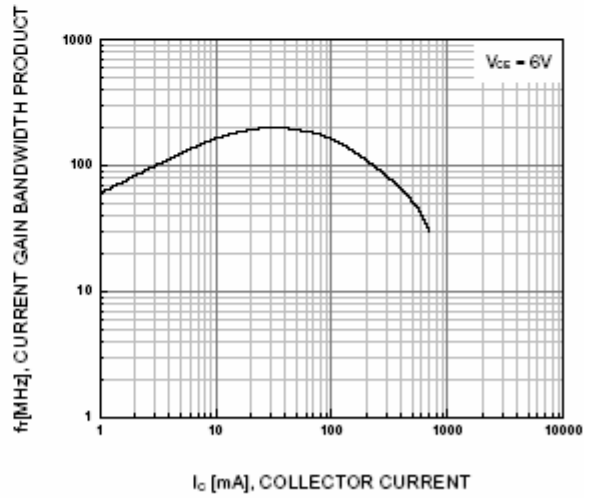


Figure 4. Current Gain Bandwidth Product