



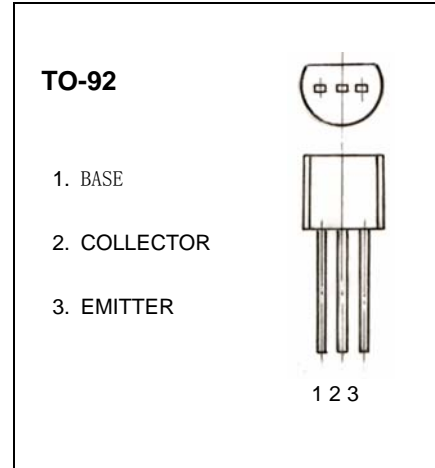
TO-92 Plastic-Encapsulate Transistors

HN13003 (ADB) TRANSISTOR(NPN)

FEATURES

Power dissipation

$P_{CM} : 1 \text{ W}(T_{amb}=25^{\circ}\text{C})$



MAXIMUM RATINGS* $T_A=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	450	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current -Continuous	1.20	A
P_D	Power Dissipation	1	W
T_J, T_{stg}	Operating and Storage and Temperature Range	-55-150	$^{\circ}\text{C}$

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

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

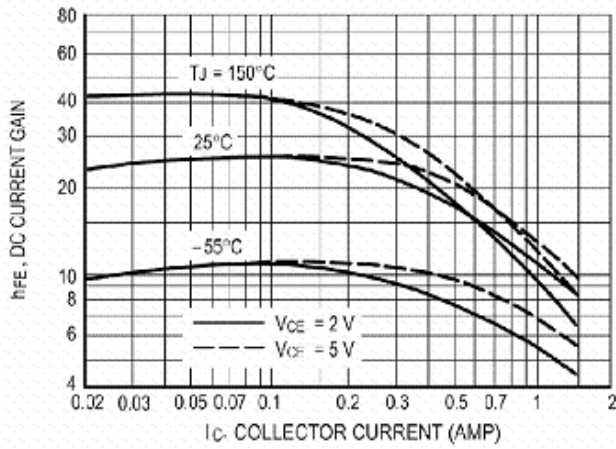
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V(BR)_{CBO}$	$I_C= 1000 \mu A, I_E=0$	700			V
Collector-emitter breakdown voltage	$V(BR)_{CEO}$	$I_C= 10 \text{ mA}, I_B=0$	450			V
Emitter-base breakdown voltage	$V(BR)_{EBO}$	$I_E= 1000 \mu A, I_C=0$	9			V
Collector cut-off current	I_{CBO}	$V_{CB}= 700 \text{ V}, I_E=0$			1000	μA
Collector cut-off current	I_{CEO}	$V_{CE}= 400 \text{ V}, I_B=0$			500	μA
Emitter cut-off current	I_{EBO}	$V_{EB}= 7 \text{ V}, I_C=0$			100	μA
DC current gain	H_{FE}	$V_{CE}= 10 \text{ V}, I_C= 0.4 \text{ A}$	20		40	
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=1500\text{mA}, I_B= 500 \text{ mA}$			3	V
	$V_{CE(sat)2}$	$I_C=500\text{mA}, I_B= 100\text{mA}$			0.8	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=500\text{mA}, I_B= 100\text{mA}$			1	V

CLASSIFICATION OF $H_{FE(1)}$

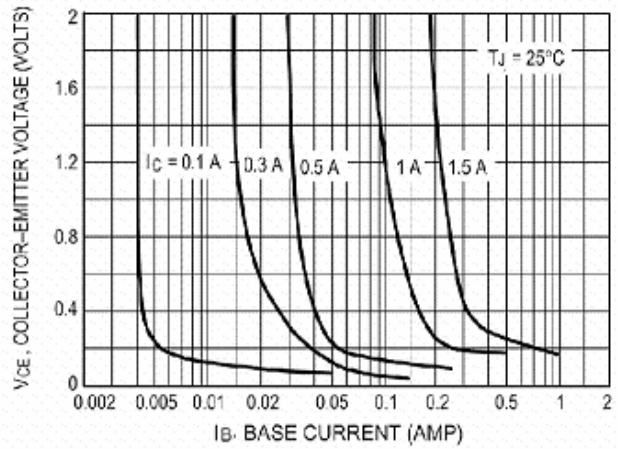
Rank				
Range	20-25	25-30	30-35	35-40

Typical Characteristics

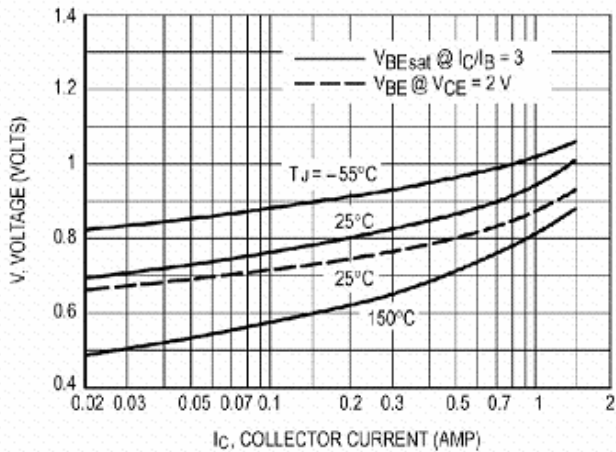
HN13003



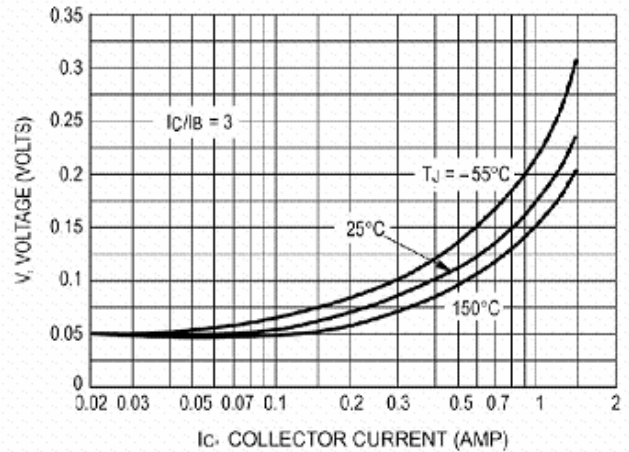
DC Current Gain



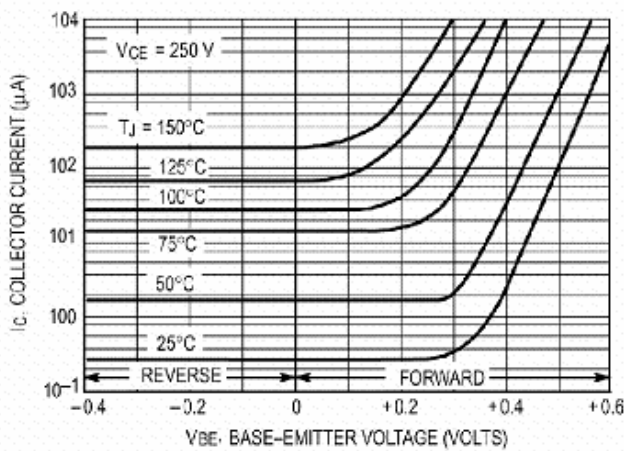
Collector Saturation Region



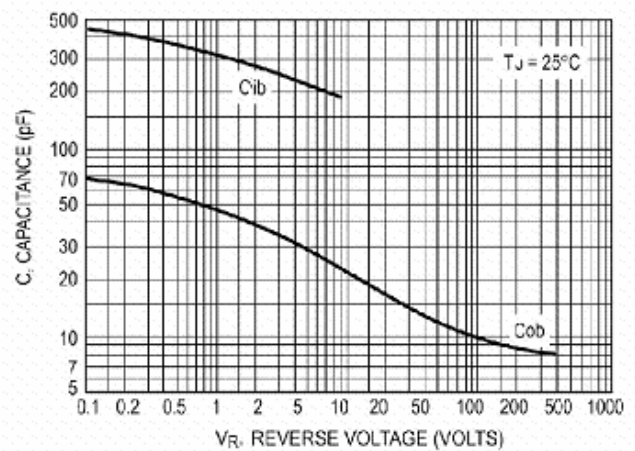
Base-Emitter Voltage



Collector-Emitter Saturation Region



Collector Cutoff Region



Capacitance