



TRANSISTOR (NPN)

FEATURES

Power dissipation

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

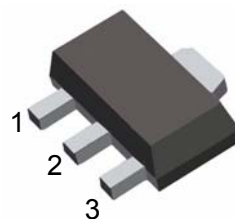
Symbol	Parameter	Value	Units
V_{CB0}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	3	A
P_C	Collector Power Dissipation	0.5	W
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55-150	$^{\circ}\text{C}$

SOT-89

1. BASE

2. COLLECTOR

3. EMITTER



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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$, $I_E=0$	40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $I_B=0$	30			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E= 100\mu\text{A}$, $I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}= 40\text{V}$, $I_E=0$			1	μA
Collector cut-off current	I_{CEO}	$V_{CE}= 30\text{V}$, $I_B=0$			10	μA
Emitter cut-off current	I_{EBO}	$V_{EB}= 6\text{V}$, $I_C=0$			1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=2\text{V}$, $I_C= 1\text{A}$	60		400	
	$h_{FE(2)}$	$V_{CE}=2\text{V}$, $I_C= 100\text{mA}$	32			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C= 2\text{A}$, $I_B= 0.2\text{A}$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C= 2\text{A}$, $I_B= 0.2\text{A}$			1.5	V
Transition frequency	f_T	$V_{CE}= 5\text{V}$, $I_C=0.1\text{A}$ $f=10\text{MHz}$	50			MHz

CLASSIFICATION OF $h_{FE(1)}$

Rank	R	O	Y	GR
Range	60-120	100-200	160-320	200-400

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Typical characteristics

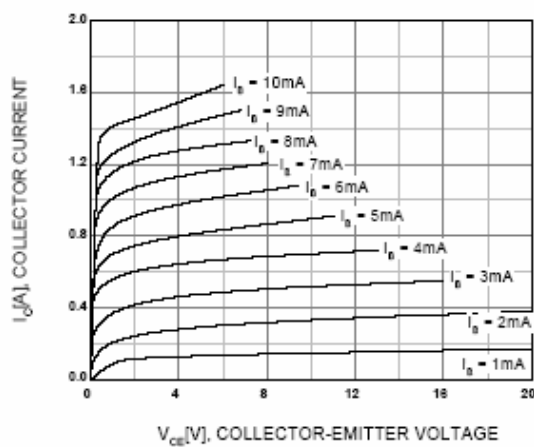


Figure 1. Static Characteristic

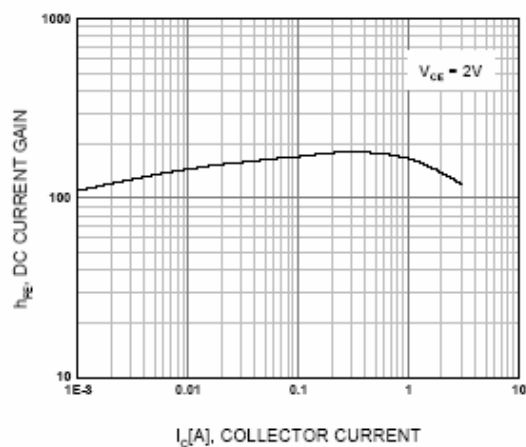


Figure 2. DC current Gain

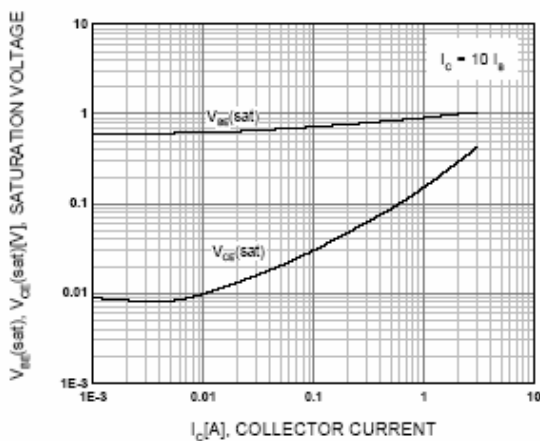


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

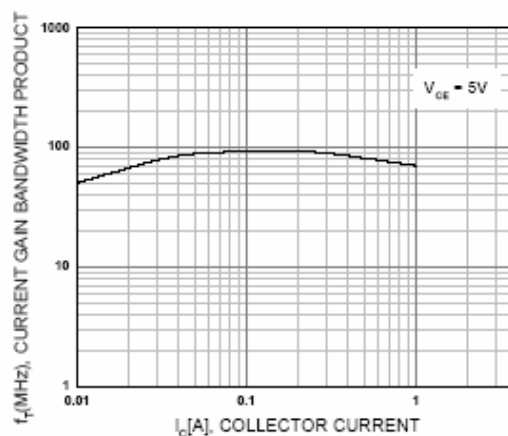


Figure 4. Current Gain Bandwidth Product

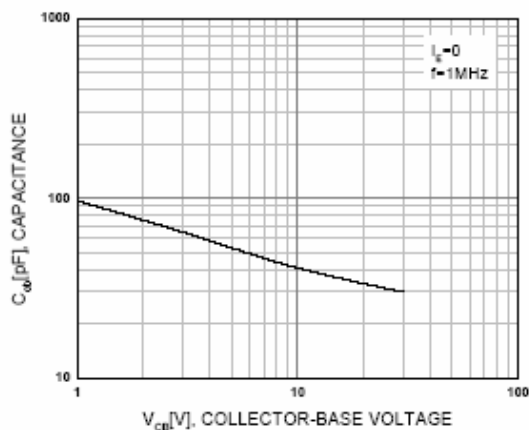
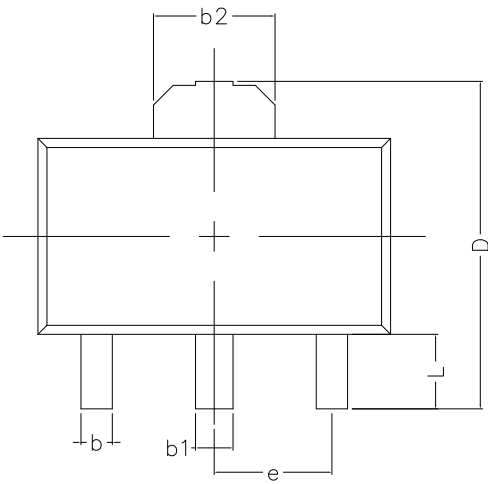


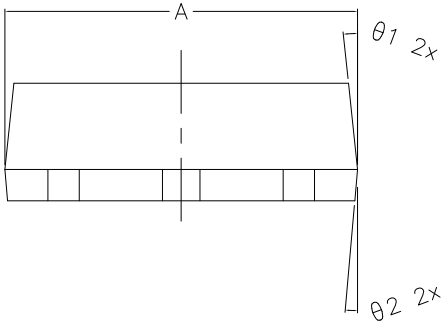
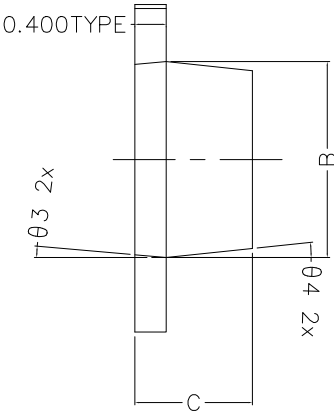
Figure 5. Collector Output Capacitance



TRANSISTOR (NPN)



TOP VIEW



COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	4.450	4.550	4.650
B	2.450	2.550	2.650
C	1.400	1.500	1.600
D	4.100	4.200	4.300
L	0.850	0.950	1.050
b	0.350	0.400	0.450
b1	0.430	0.480	0.530
b2	1.500	1.550	1.600
e	1.500TYPE		
θ_1	6° TYPE		
θ_2	5° TYPE		
θ_3	5° TYPE		
θ_4	6° TYPE		