

## TRANSISTOR (NPN)

### FEATURES

Power dissipation

### MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

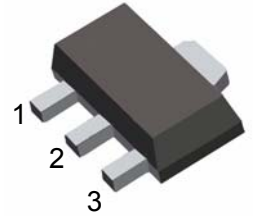
Symbol	Parameter	Value	Units
V <sub>CB0</sub>	Collector-Base Voltage	40	V
V <sub>CEO</sub>	Collector-Emitter Voltage	30	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current -Continuous	3	A
P <sub>C</sub>	Collector Power Dissipation	0.5	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55-150	°C

### SOT-89

1. BASE

2. COLLECTOR

3. EMITTER



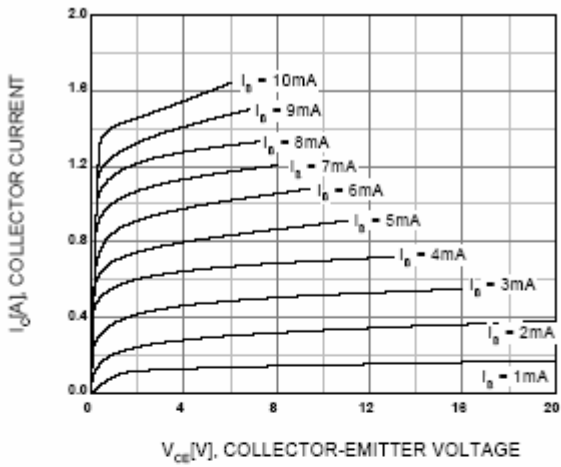
### ELECTRICAL CHARACTERISTICS(T<sub>amb</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 100μA, I <sub>E</sub> =0	40			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 10mA, I <sub>B</sub> =0	30			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 100μA, I <sub>C</sub> =0	6			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = 40V, I <sub>E</sub> =0			1	μA
Collector cut-off current	I <sub>CEO</sub>	V <sub>CE</sub> = 30V, I <sub>B</sub> =0			10	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = 6V, I <sub>C</sub> =0			1	μA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> = 1A	60		400	
	h <sub>FE(2)</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> = 100mA	32			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 2A, I <sub>B</sub> = 0.2 A			0.5	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 2A, I <sub>B</sub> = 0.2 A			1.5	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> =0.1A f =10MHz	50			MHz

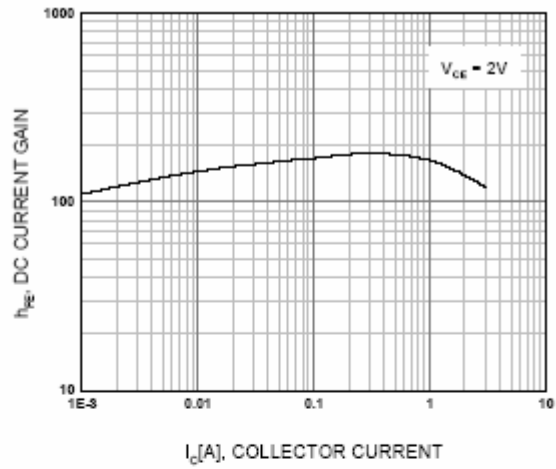
### CLASSIFICATION OF h<sub>FE(1)</sub>

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

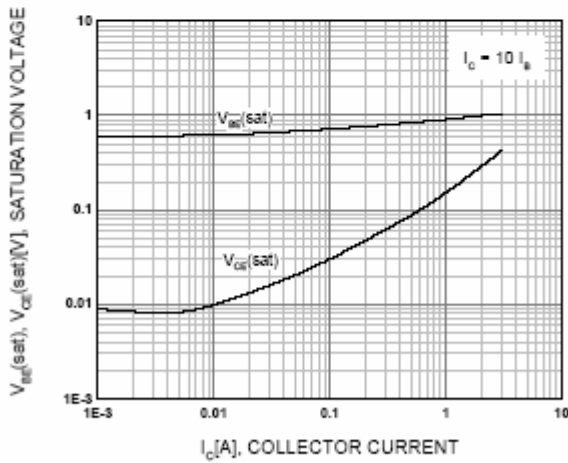
**Typical characteristics**



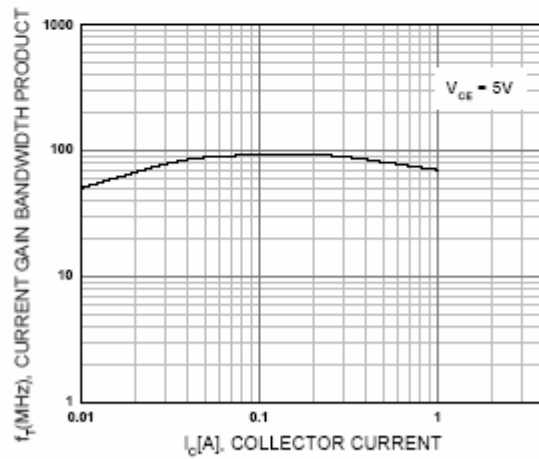
**Figure 1. Static Characteristic**



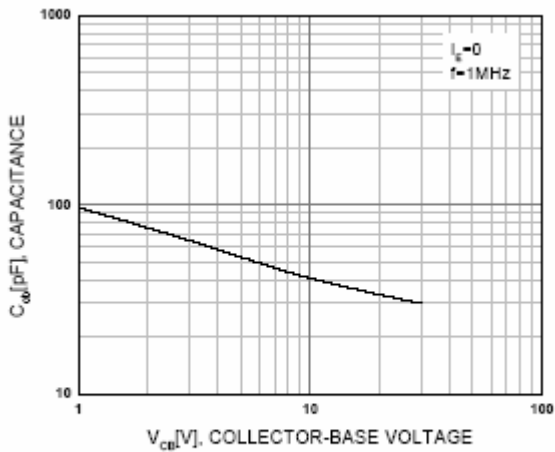
**Figure 2. DC current Gain**



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



**Figure 4. Current Gain Bandwidth Product**



**Figure 5. Collector Output Capacitance**