

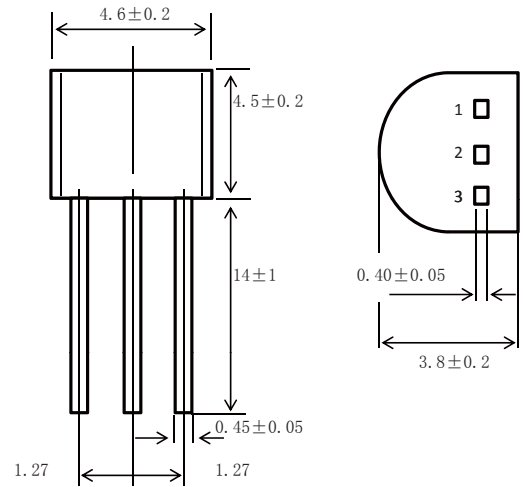
## TO-92 Plastic-Encapsulate Transistors

### FEATURE

- NPN Transistors

### MECHANICAL DATA

- Case style:TO-92 molded plastic
- Mounting position:any



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Symbol	Parameter	Value	Units
V <sub>CB0</sub>	Collector-Base Voltage	-60	V
V <sub>CE0</sub>	Collector-Emitter Voltage	-50	V
V <sub>EBO</sub>	Emitter-Base Voltage	-5	V
I <sub>c</sub>	Collector Current -Continuous	-100	mA
P <sub>D</sub>	Total Device Dissipation	250	mW
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Junction and Storage Temperature	-55-150	°C

### PACKAGE INFORMATION

Device	Package	Shipping
2SA733	TO-92	2000/Tape&Reel

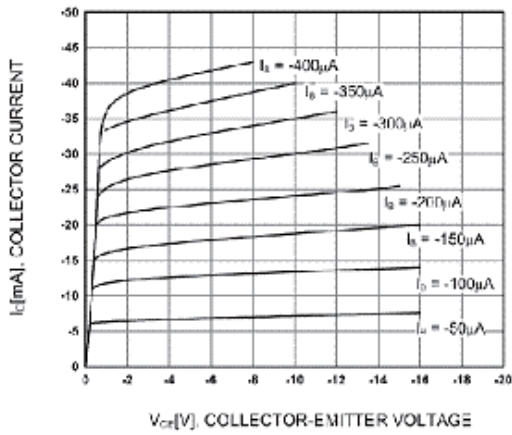
\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V(BR) <sub>CB0</sub>	I <sub>C</sub> = -50uA, I <sub>E</sub> =0	-60			V
Collector-emitter breakdown voltage	V(BR) <sub>CE0</sub>	I <sub>C</sub> = -1mA, I <sub>B</sub> =0	-50			V
Emitter-base breakdown voltage	V(BR) <sub>EBO</sub>	I <sub>E</sub> = -50uA, I <sub>C</sub> =0	-5			V
Collector cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> = -60 V, I <sub>E</sub> =0			-0.1	uA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = -5 V, I <sub>C</sub> =0			-0.1	uA
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = -6 V, I <sub>C</sub> = -1mA	90	200	600	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -100mA, I <sub>B</sub> = -10mA		-0.18	-0.3	V
Base-emitter voltage	V <sub>BE</sub>	V <sub>CE</sub> =-6V, I <sub>C</sub> =-1.0mA	-0.58	-0.62	-0.68	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =-6V, I <sub>C</sub> =-10mA	100	180		MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, I <sub>E</sub> =0, f=1MHz		4.5	6	pF
Noise figure	NF	V <sub>CE</sub> =-6V, I <sub>C</sub> =-0.3mA, R <sub>g</sub> =10kΩ, f=100Hz		6	20	dB

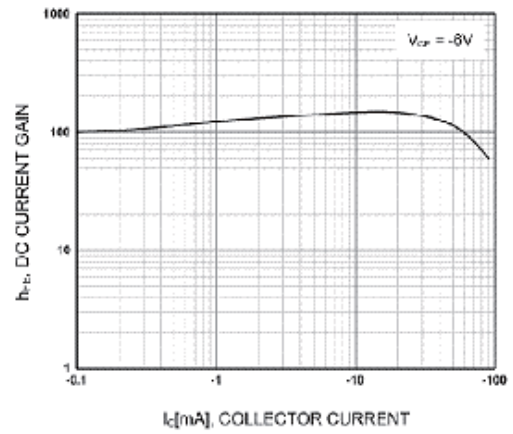
### CLASSIFICATION OF h<sub>FE</sub>

Rank	R	Q	P	K
Range	90-180	135-270	200-400	300-600

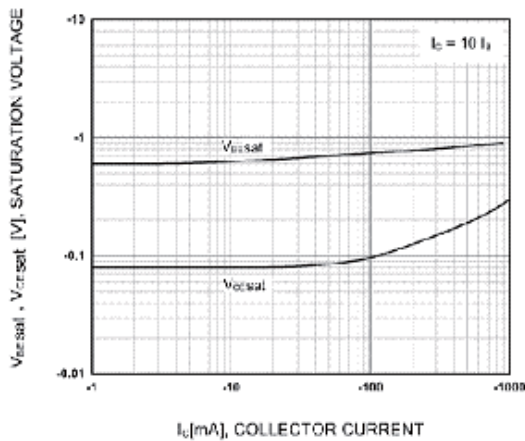
## ■ Typical Characteristics



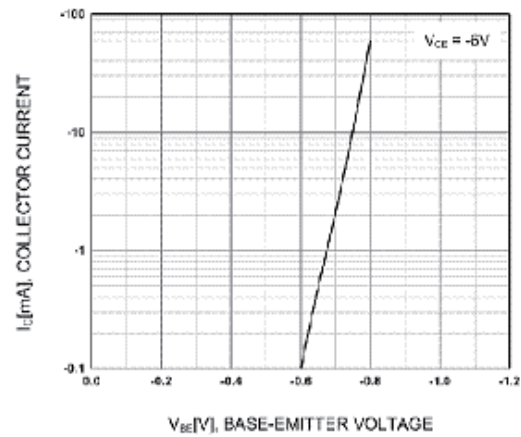
**Static Characteristic**



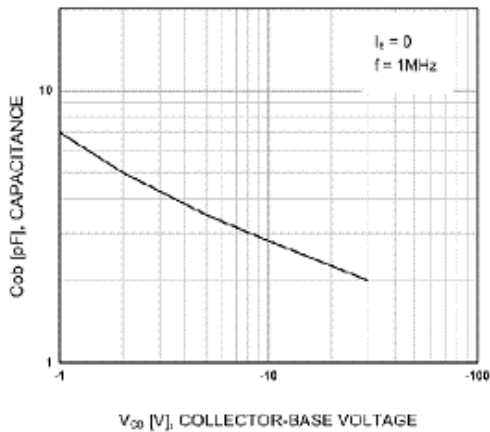
**DC current Gain**



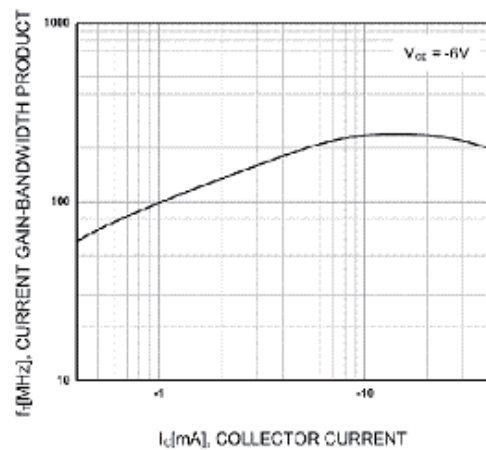
**Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage**



**Base-Emitter On Voltage**



**Collector Output Capacitance**



**Current Gain Bandwidth Product**