

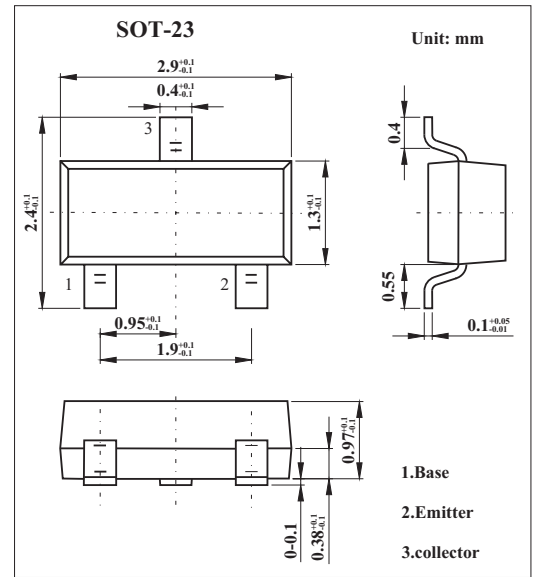
## SOT-23 Plastic-Encapsulate Transistors

### Features

- Low current (max. 100 mA).
- Low voltage (max. 65 V).
- NPN General Purpose Transistor

### MECHANICAL DATA

- Case style: SOT-23 molded plastic
- Mounting position: any



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	BC846	BC847	BC848	Unit
Collector-base voltage	V <sub>CB0</sub>	80	50	30	V
Collector-emitter voltage	V <sub>CE0</sub>	65	45	30	V
Emitter-base voltage	V <sub>EB0</sub>	6	6	5	V
Collector current	I <sub>C</sub>	100			mA
Peak collector current	I <sub>CM</sub>	200			mA
Peak base current	I <sub>BM</sub>	200			mA
Total power dissipation *	P <sub>tot</sub>	250			mW
Junction temperature	T <sub>j</sub>	150			°C
Storage temperature	T <sub>stg</sub>	-65 to +150			°C
Operating ambient temperature	R <sub>amb</sub>	-65 to +150			°C
Thermal resistance from junction to ambient *	R <sub>th j-a</sub>	500			K/W

### PACKAGE INFORMATION

Device	Package	Shipping
BC846 BC847 BC848	SOT-23	3000/Tape&Reel

\* Transistor mounted on an FR4 printed-circuit board, standard footprint.

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Collector cutoff current	I <sub>CB0</sub>	V <sub>CB</sub> = 30 V, I <sub>E</sub> = 0			15	nA	
	I <sub>CB0</sub>	V <sub>CB</sub> = 30 V, I <sub>E</sub> = 0, T <sub>j</sub> = 150°C			5	μA	
Emitter cutoff current	I <sub>EB0</sub>	V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0			100	nA	
DC current gain	h <sub>FE</sub>	I <sub>C</sub> = 2 mA; V <sub>CE</sub> = 5 V	BC846	110		450	
			BC847	110		800	
			BC846A, BC847A	110	180	220	
			BC846B, BC847B, BC848B	200	290	450	
			BC847C	420	520	800	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 10 mA; I <sub>B</sub> = 0.5 mA		90	250	mV	
		I <sub>C</sub> = 100 mA; I <sub>B</sub> = 5 mA; *		200	600	mV	
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 10 mA; I <sub>B</sub> = 0.5 mA		700		mV	
		I <sub>C</sub> = 100 mA; I <sub>B</sub> = 5 mA; *		900		mV	
Base-emitter voltage	V <sub>BE</sub>	I <sub>C</sub> = 2 mA; V <sub>CE</sub> = 5 V	580	660	700	mV	
		I <sub>C</sub> = 10 mA; V <sub>CE</sub> = 5 V			770	mV	
Collector capacitance	C <sub>c</sub>	V <sub>CB</sub> = 10 V; I <sub>E</sub> = I <sub>C</sub> = 0; f = 1 MHz		2.5		pF	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 5 V; I <sub>C</sub> = 10 mA; f = 100 MHz	100			MHz	
Noise figure	NF	I <sub>C</sub> = 200 μA; V <sub>CE</sub> = 5 V; R <sub>s</sub> = 2 kΩ; f = 1 kHz; B = 200 Hz		2	10	dB	

\* Pulse test: t<sub>p</sub> ≤ 300 μs, δ ≤ 0.02.

### h<sub>FE</sub> Classification

TYPE	BC846	BC846A	BC846B
Marking	1D	1A	1B

TYPE	BC847	BC847A	BC847B	BC847C
Marking	1H	1E	1F	1G

TYPE	BC848
Marking	1K