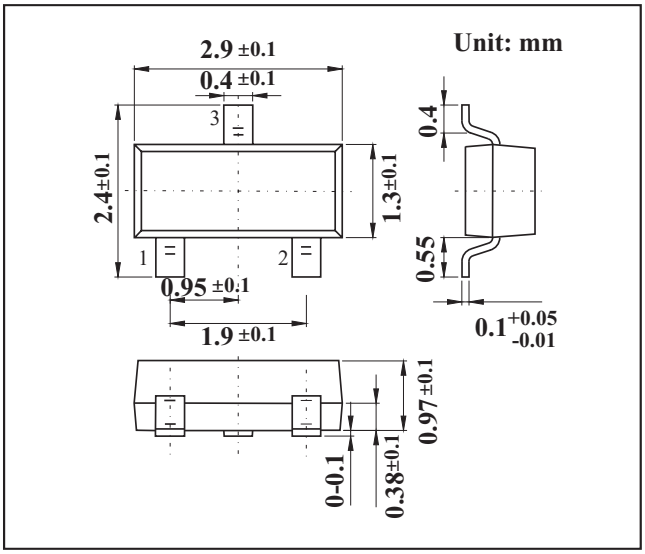
SOT-23 Plastic-Encapsulate Transistors

Features

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

MECHANICAL DATA

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



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	BC846B	BC847B	BC848B	Unit
Collector-base voltage	V_{CBO}	80	50	30	V
Collector-emitter voltage	V_{CEO}	65	45	30	V
Emitter-base voltage	V_{EBO}	6	6	5	V
Collector current	I_C	100			mA
Peak collector current	I_{CM}	200			mA
Peak base current	I_{BM}	200			mA
Total power dissipation *	P_{tot}	250			mW
Junction temperature	T_j	150			℃
Storage temperature	T_{stg}	-65 to +150			℃
Operating ambient temperature	R_{amb}	-65 to +150			℃
Thermal resistance from junction to ambient *	$R_{th\ j\text{-}a}$	500			K/W

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

Parameter		Symbol	Testconditons	Min	Typ	Max	Unit
Collector cutoff current		I_{CBO}	V_{CB} = 30 V, I_E = 0			15	nA
		I_{CBO}	V_{CB} = 30 V, I_E = 0 , T_j = 150℃			5	μA
Emitter cutoff current		I_{EBO}	V_{EB} = 5 V, I_C = 0			100	nA
DC current gain	BC846	h_{FE}	I_C = 2 mA; V_{CE} = 5 V	110		450	
	BC847			110		800	
	BC846A,BC847A			110	180	220	
	BC846B,BC847B,BC848B			200	290	450	
	BC847C			420	520	800	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C = 10 mA; I_B = 0.5 mA		90	250	mV
			I_C = 100 mA; I_B = 5 mA; *		200	600	mV
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C = 10 mA; I_B = 0.5 mA		700		mV
			I_C = 100 mA; I_B = 5 mA; *		900		mV
Base-emitter voltage		V_{BE}	I_C = 2 mA; V_{CE} = 5 V	580	660	700	mV
			I_C = 10 mA; V_{CE} = 5 V			770	mV
Collector capacitance		C_C	V_{CB} = 10 V; I_E = Ie = 0;f = 1 MHz		2.5		pF
Transition frequency		f_T	V_{CE} = 5 V; I_C = 10 mA;f = 100 MHz	100			MHz
Noise figure		NF	I_C = 200μA; V_{CE} = 5 V;R_S = 2 kΩ; f = 1 kHz;B = 200 Hz		2	10	dB

* Pulse test: tp ⩽ 300μs, δ ⩽ 0.02.

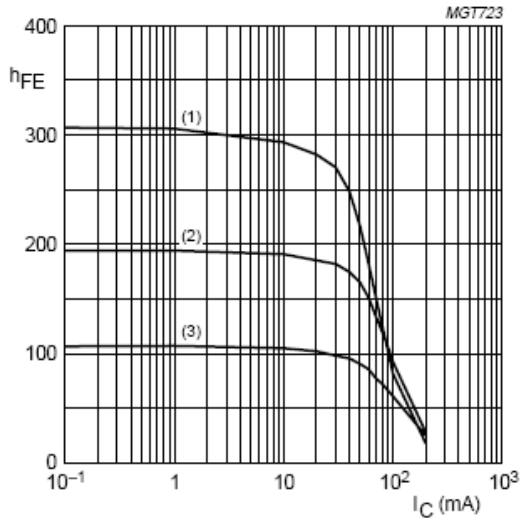
■ h_{FE} Classification

TYPE	BC846	BC846A	BC846B
Marking	1D	1A	1B

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

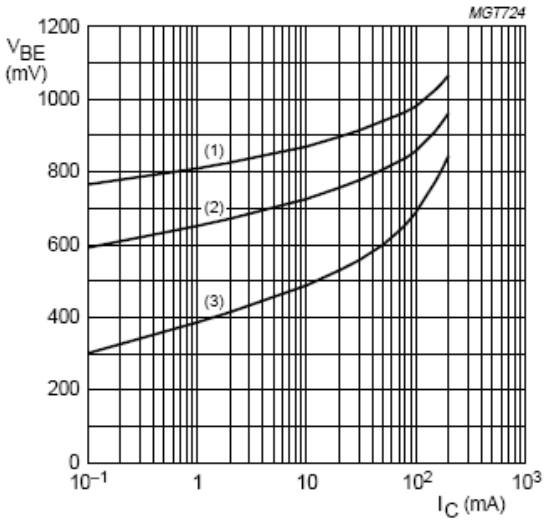
TYPE	BC848
Marking	1K

RATINGS AND CHARACTERISTIC CURVES



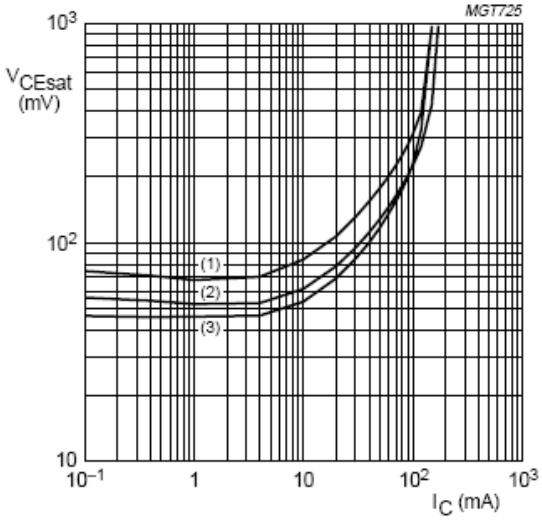
BC846A; V_{CE} = 5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.**1** DC current gain as a function of collector current; typical values.



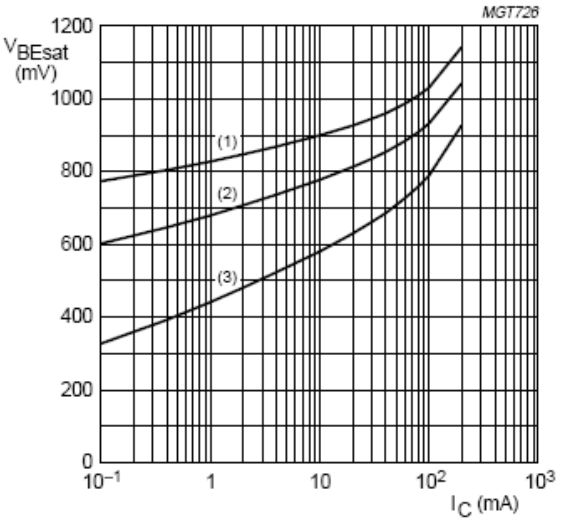
BC846A; V_{CE} = 5 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.2 Base-emitter voltage as a function of collector current; typical values.



BC846A; I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

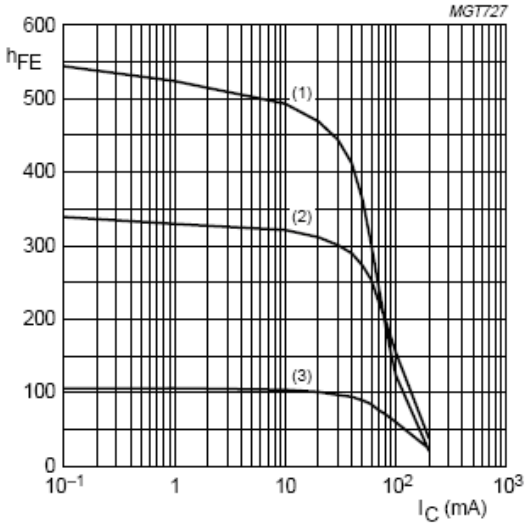
Fig.3 Collector-emitter saturation voltage as a function of collector current; typical values.



BC846A; I_C/I_B = 10.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

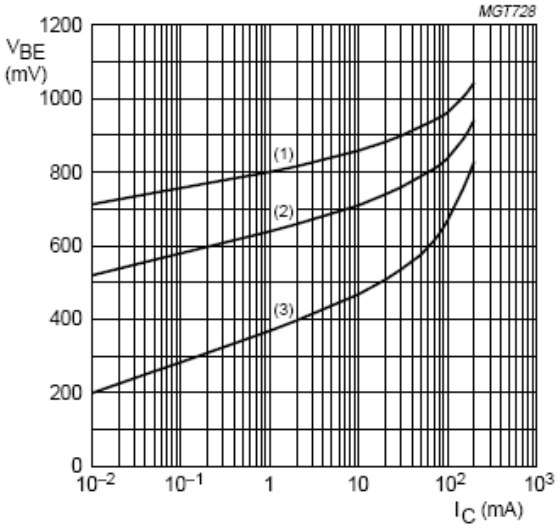
Fig.4 Base-emitter saturation voltage as a function of collector current; typical values.

RATINGS AND CHARACTERISTIC CURVES



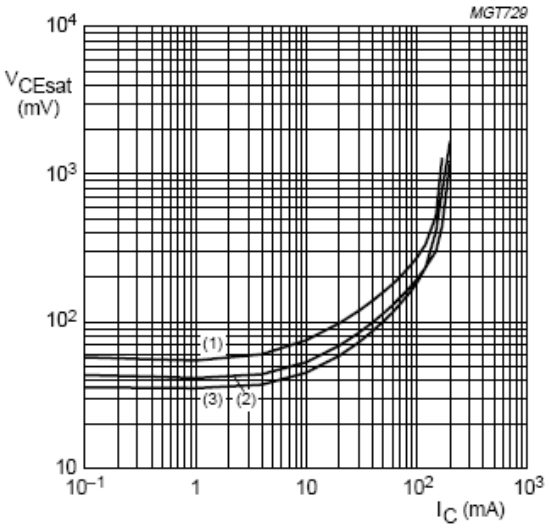
BC847B; V_{CE} = 5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.5 DC current gain as a function of collector current; typical values.



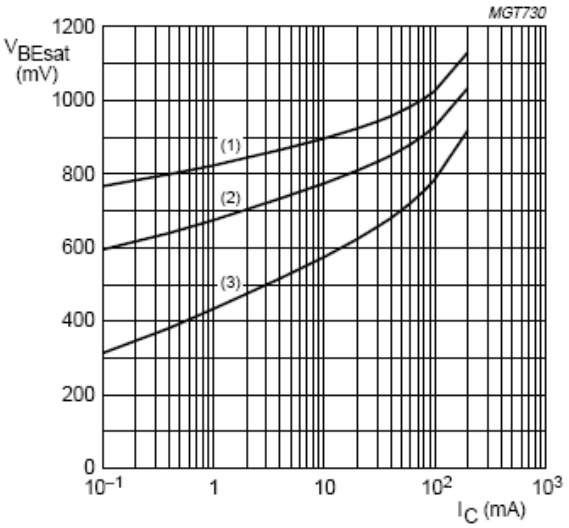
BC847B; V_{CE} = 5 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.6 Base-emitter voltage as a function of collector current; typical values.



BC847B; I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

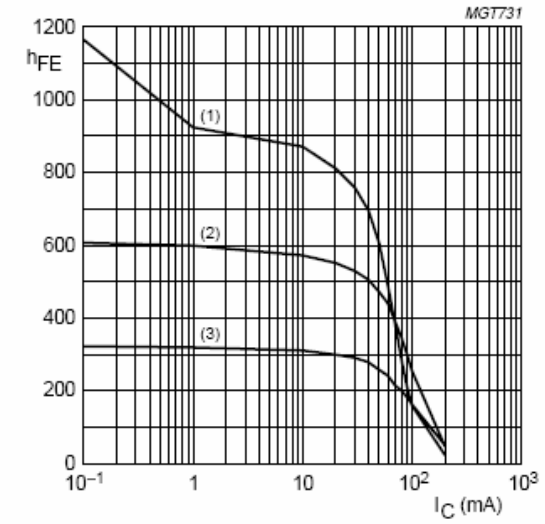
Fig.7 Collector-emitter saturation voltage as a function of collector current; typical values.



BC847B; I_C/I_B = 10.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

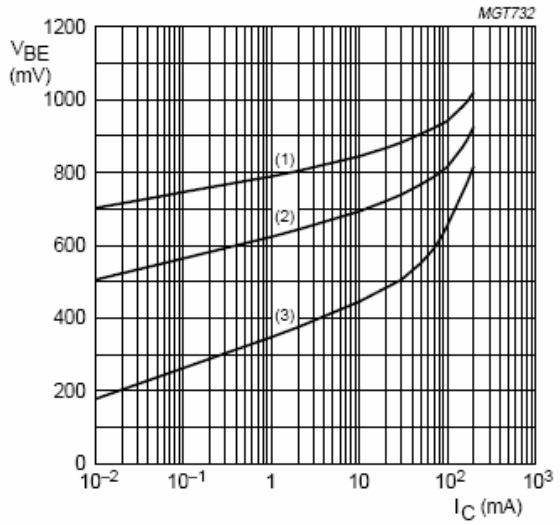
Fig.8 Base-emitter saturation voltage as a function of collector current; typical values.

RATINGS AND CHARACTERISTIC CURVES



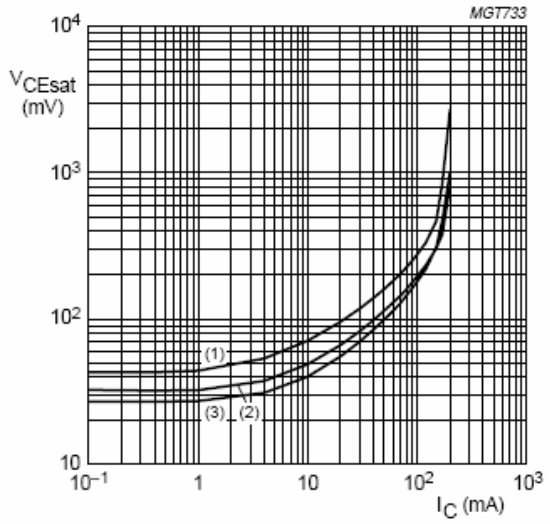
BC847C; V_{CE} = 5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.9 DC current gain as a function of collector current; typical values.



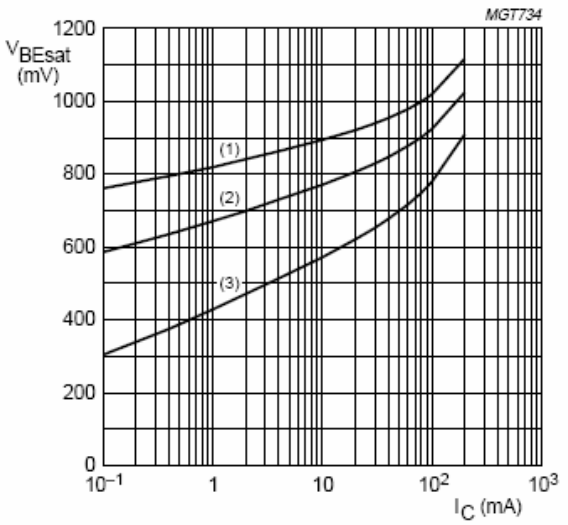
BC847C; V_{CE} = 5 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.10 Base-emitter voltage as a function of collector current; typical values.



BC847C; I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.11 Collector-emitter saturation voltage as a function of collector current; typical values.



BC847C; I_C/I_B = 10.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.12 Base-emitter saturation voltage as a function of collector current; typical values.