

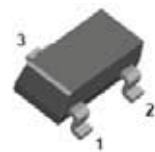
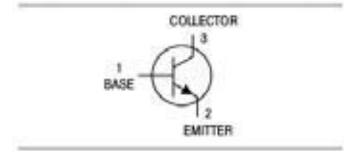
NPN General Purpose Transistor: BC846/847/848

Features:

- High current gain
- Excellent hFE linearity
- Low noise between 30Hz and 15kHz
- For AF input stages and driver applications

Applications:

- General purpose switching and amplification



SOT-23

Ordering Information

Type No.	Marking:	Package Code:
BC846A/B	1D/1A/1B	SOT-23
BC847A/B/C	1H/1E/1F/1G	SOT-23
BC848A/B/C	1J/1K/1L	SOT-23

Maximum Ratings & Characteristics: Tamb=25°C unless otherwise specified

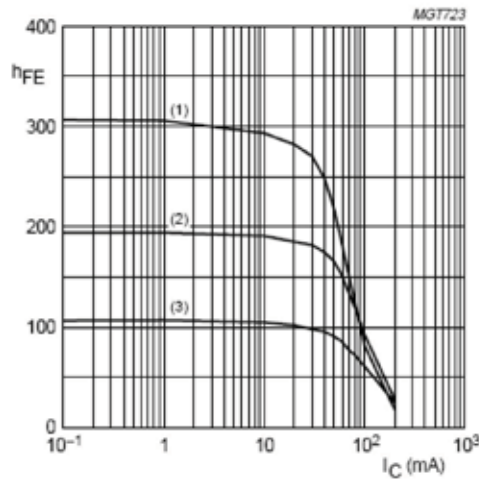
Parameter:	Symbol:	Value:	Unit:
Collector - Base Voltage - BC846 - BC847 - BC848	V_{CBO}	80 50 30	V
Collector - Emitter Voltage - BC846 - BC847 - BC848	V_{CEO}	65 45 30	V
Emitter - Base Voltage - BC846 - BC847 - BC848	V_{ebo}	6 6 5	V
Collector Current - Continuous	I_C	0.1	A
Collector Dissipation	P_C	250	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_j, T_{stg}	-55 to +150	°C

Maximum Ratings & Characteristics: Tamb=25°C unless otherwise specified

Parameter:	Symbol:	Test Conditions:	Min:	Typ:	Max:	Unit:
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0$ BC846 BC847 BC848	80 50 30			V
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -10mA, I_B = 0$ BC846 BC847 BC848	65 45 30			V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$ BC846 BC847 BC848	6 6 5			V
Collector Base Cut-off Current	I_{CBO}	$V_{CB} = 30V, I_E = 0$ $V_{CB} = 30V, I_E = 0, T_J = 150^\circ C$			15 5	nA uA
Emitter Base Cut-off Current	I_{EBO}	$V_{EB} = -5V, I_C = 0$			100	μA
DC Current Gain BC846A,847A,848A BC846B,847B,848B BC847C,848C	h_{FE}	$V_{CE} = 5V, I_C = -2mA$		90 150 270		
DC Current Gain BC846,847 BC846A,847A,848A BC846B,847B,848B BC847C,848C	h_{FE}	$V_{CE} = 5V, I_C = 10uA$	110 110 200 420		450 220 450 800	
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 0.5mA$ $I_C = 10mA, I_B = 5mA$		0.09 0.2	0.25 0.6	V
Base - Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10mA, I_B = 0.5mA$ $I_C = 100mA, I_B = 5mA$		0.7 0.9		V
Base Emitter Voltage	$V_{BE(on)}$	$I_C = 2mA, V_{CE} = 5V$ $I_C = 10mA, V_{CE} = 5V$	0.58	0.66	0.7 0.77	V
Collector Capacitance	C_C	$V_{CB} = 10V, I_E = I_C = 0$ $f = 1MHz$		2.5		pF
Transition Frequency	f_T	$V_{CE} = -5V, I_C = 10mA,$ $f = 100MHz$	100			MHz

Typical Characteristics: $T_{amb}=25^{\circ}\text{C}$ unless otherwise specified

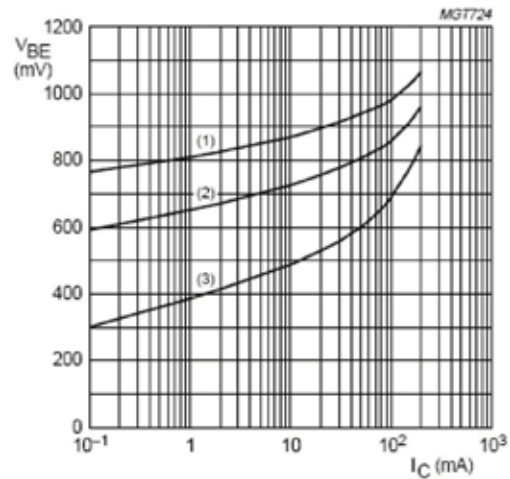
Ratings & Characteristic Curves



BC846A; $V_{CE} = 5\text{ V}$.

- (1) $T_{amb} = 150^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = -55^{\circ}\text{C}$.

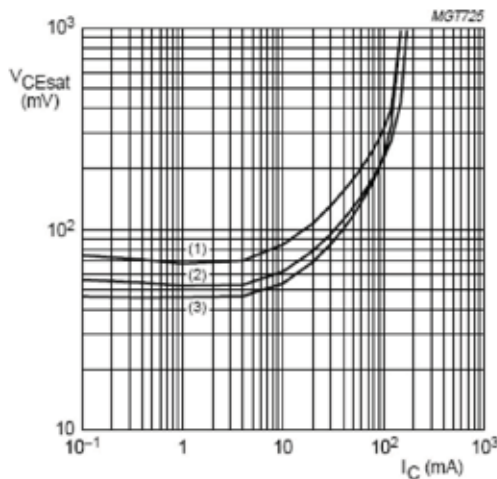
Fig.2 DC current gain as a function of collector current; typical values.



BC846A; $V_{CE} = 5\text{ V}$.

- (1) $T_{amb} = -55^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = 150^{\circ}\text{C}$.

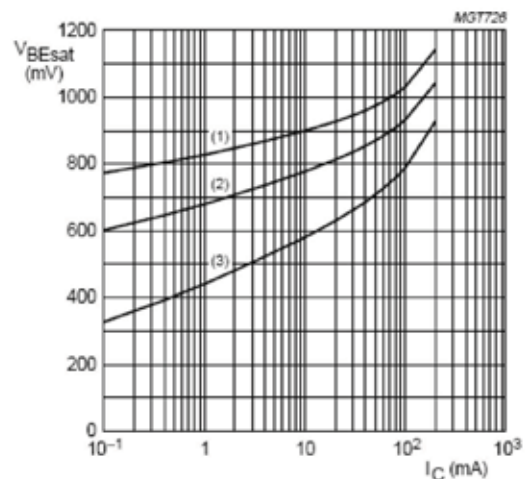
Fig.3 Base-emitter voltage as a function of collector current; typical values.



BC846A; $I_C/I_B = 20$.

- (1) $T_{amb} = 150^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = -55^{\circ}\text{C}$.

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



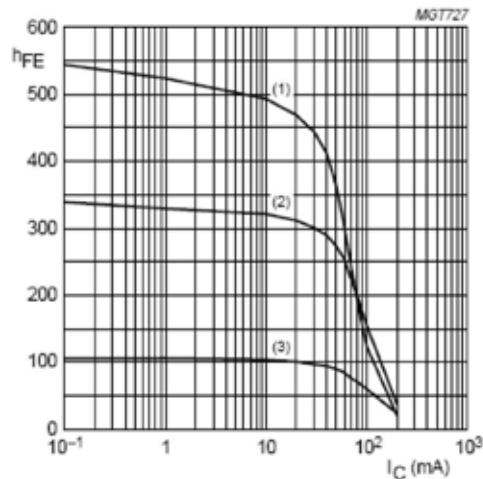
BC846A; $I_C/I_B = 10$.

- (1) $T_{amb} = -55^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = 150^{\circ}\text{C}$.

Fig.5 Base-emitter saturation voltage as a function of collector current; typical values.

Typical Characteristics: $T_{amb}=25^{\circ}\text{C}$ unless otherwise specified

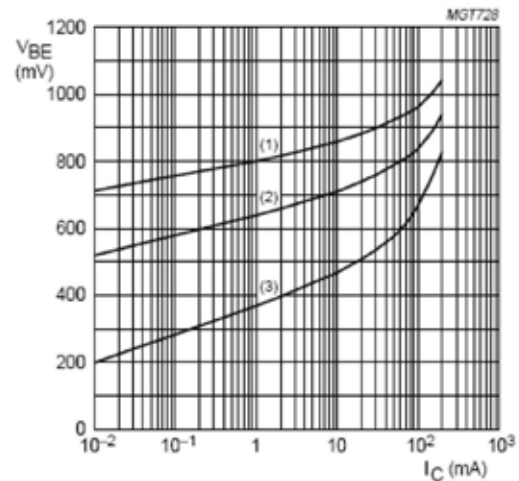
Ratings & Characteristic Curves



BC847B; $V_{CE} = 5\text{ V}$.

- (1) $T_{amb} = 150^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = -55^{\circ}\text{C}$.

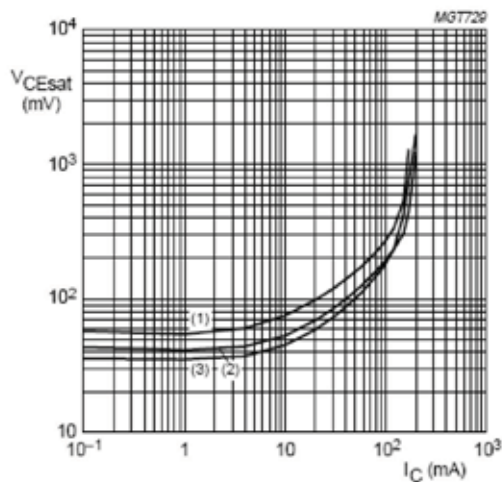
Fig.6 DC current gain as a function of collector current; typical values.



BC847B; $V_{CE} = 5\text{ V}$.

- (1) $T_{amb} = -55^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = 150^{\circ}\text{C}$.

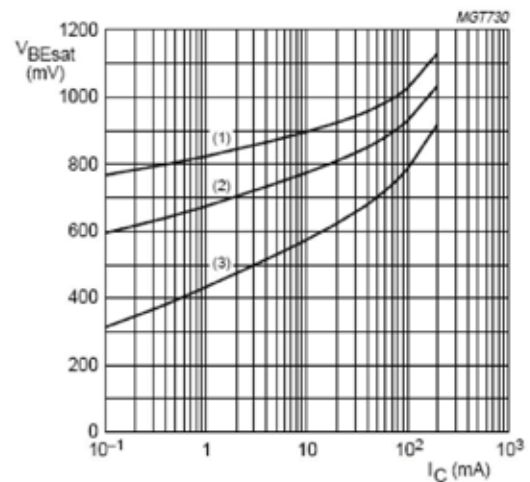
Fig.7 Base-emitter voltage as a function of collector current; typical values.



BC847B; $I_C/I_B = 20$.

- (1) $T_{amb} = 150^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = -55^{\circ}\text{C}$.

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



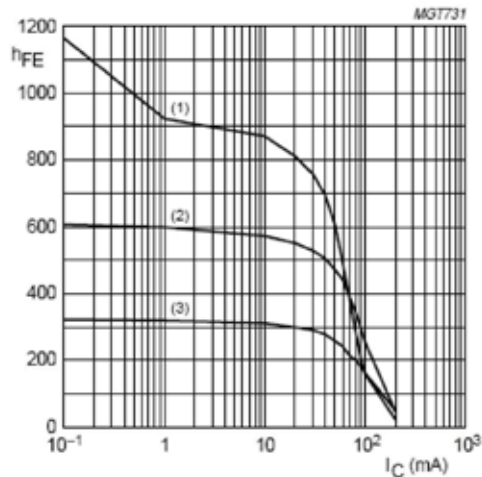
BC847B; $I_C/I_B = 10$.

- (1) $T_{amb} = -55^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = 150^{\circ}\text{C}$.

Fig.9 Base-emitter saturation voltage as a function of collector current; typical values.

Typical Characteristics: $T_{amb}=25^{\circ}\text{C}$ unless otherwise specified

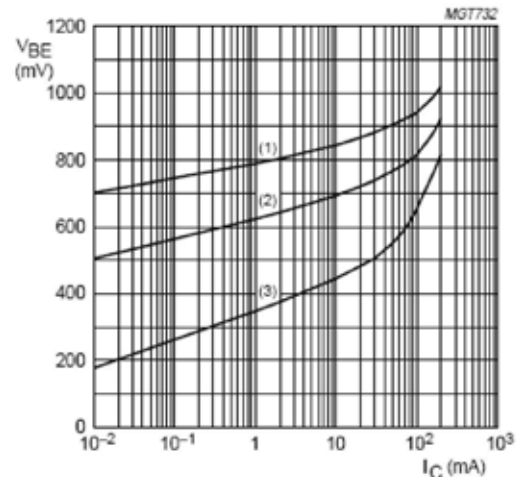
Ratings & Characteristic Curves



BC847C; $V_{CE} = 5\text{ V}$.

- (1) $T_{amb} = 150^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = -55^{\circ}\text{C}$.

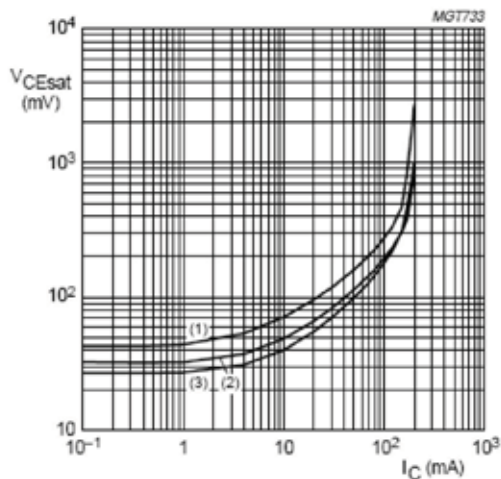
Fig. 10 DC current gain as a function of collector current; typical values.



BC847C; $V_{CE} = 5\text{ V}$.

- (1) $T_{amb} = -55^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = 150^{\circ}\text{C}$.

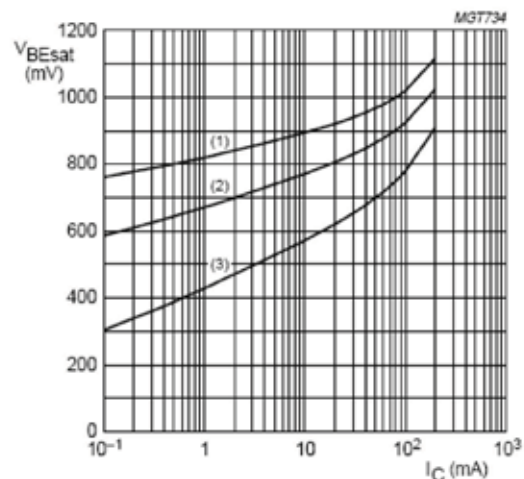
Fig. 11 Base-emitter voltage as a function of collector current; typical values.



BC847C; $I_C/I_B = 20$.

- (1) $T_{amb} = 150^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = -55^{\circ}\text{C}$.

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



BC847C; $I_C/I_B = 10$.

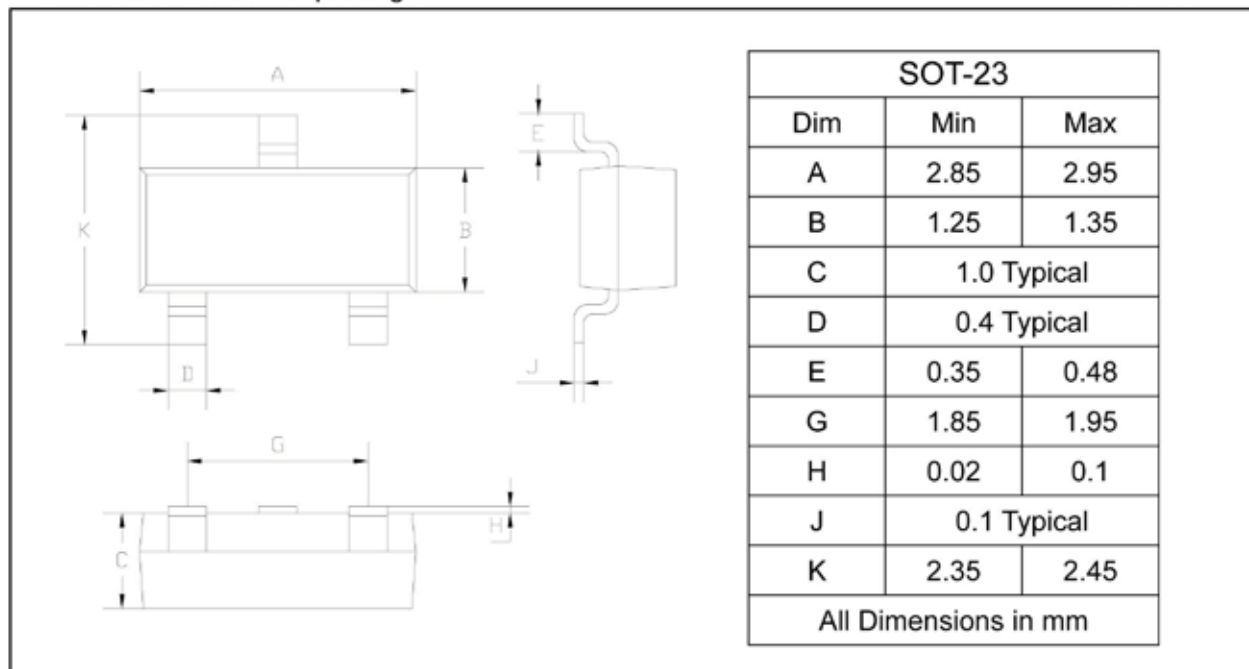
- (1) $T_{amb} = -55^{\circ}\text{C}$.
- (2) $T_{amb} = 25^{\circ}\text{C}$.
- (3) $T_{amb} = 150^{\circ}\text{C}$.

Fig. 13 Base-emitter saturation voltage as a function of collector current; typical values.

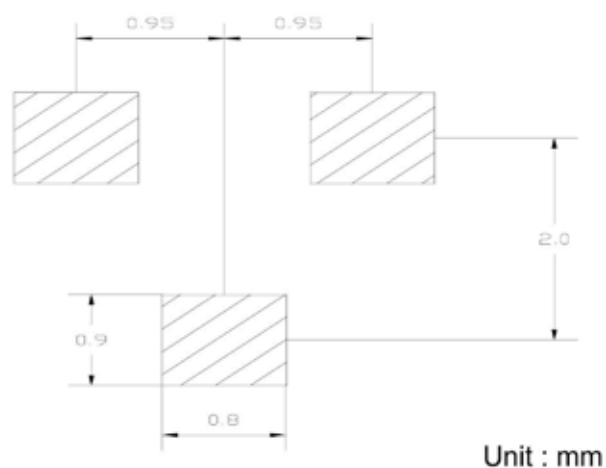
Package Outline

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BC846/847/848	SOT-23	3000/Tape&Reel