

SOT-23

RoHS
COMPLIANT

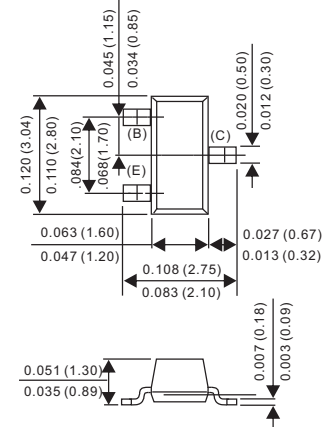
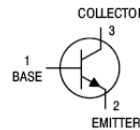
Pb
Pb-Free

FEATURES

- High current gain.
- Excellent h_{FE} linearity .
- Low noise between 30Hz and 15kHz.
- For AF input stages and driver applications.

APPLICATIONS

- General purpose switching and amplification.



Dimensions in inches and (millimeters)

ORDERING INFORMATION

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

MAXIMUM RATING @ $T_a=25^{\circ}\text{C}$ unless otherwise specified

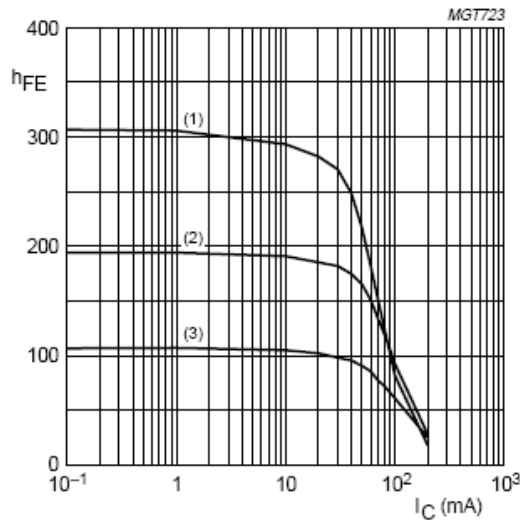
Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	BC846 80	V
		BC847 50	
		BC848 30	
V_{CEO}	Collector-Emitter Voltage	BC846 65	V
		BC847 45	
		BC848 30	
V_{EBO}	Emitter-Base Voltage	BC846 6	V
		BC847 6	
		BC848 5	
I_C	Collector Current -Continuous	0.1	A
P_C	Collector Dissipation	250	mW
$R_{\theta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



ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage BC846 BC847 BC848	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	80 50 30			V
Collector-emitter breakdown voltage BC846 BC847 BC848	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	65 45 30			V
Emitter-base breakdown voltage BC846 BC847 BC848	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	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	nA
DC current gain BC846A,847A,848A BC846B,847B,848B BC847C,848C	h_{FE}	$V_{CE}=5V, I_C=10\mu A$		90 150 270		
DC current gain BC846A,847A,848A BC846B,847B,848B BC847C,848C	h_{FE}	$V_{CE}=5V, I_C=2mA$	110 200 420		220 450 800	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=0.5mA$ $I_C=100mA, I_B=5mA$		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

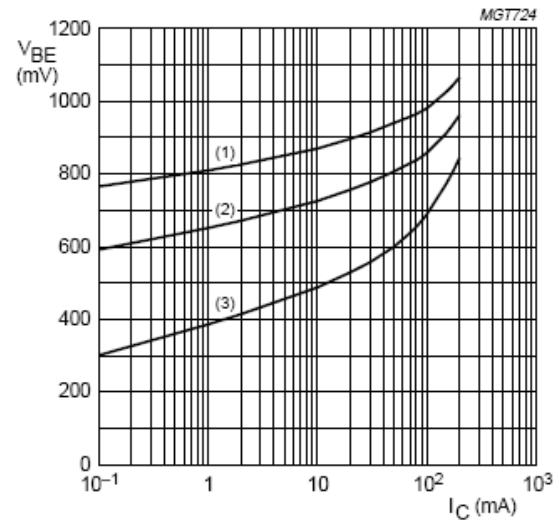
TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified



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

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

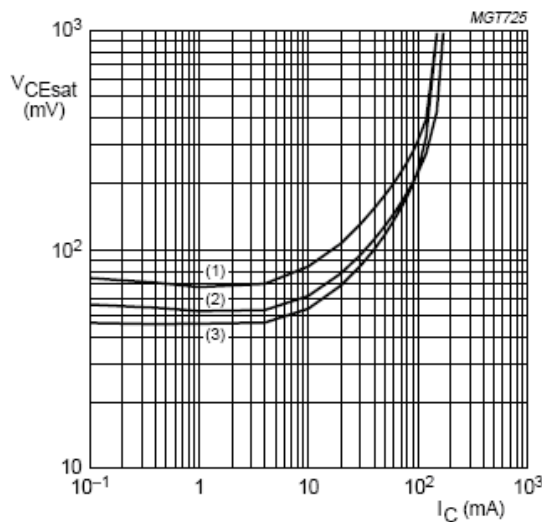
Fig.1 DC current gain as a function of collector current; typical values.



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

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

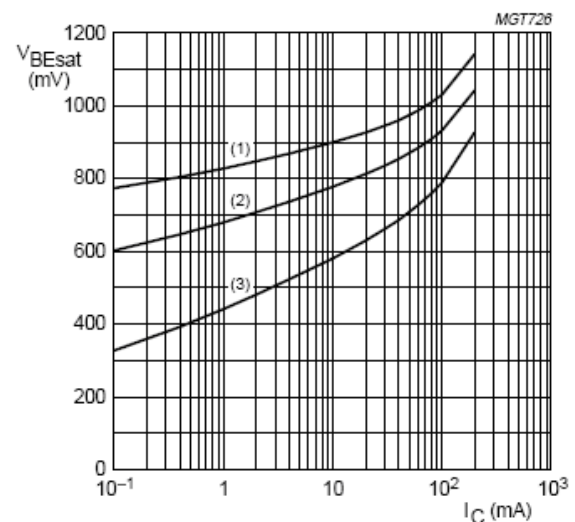
Fig.2 Base-emitter voltage as a function of collector current; typical values.



BC846A; $I_C/I_B = 20$.

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

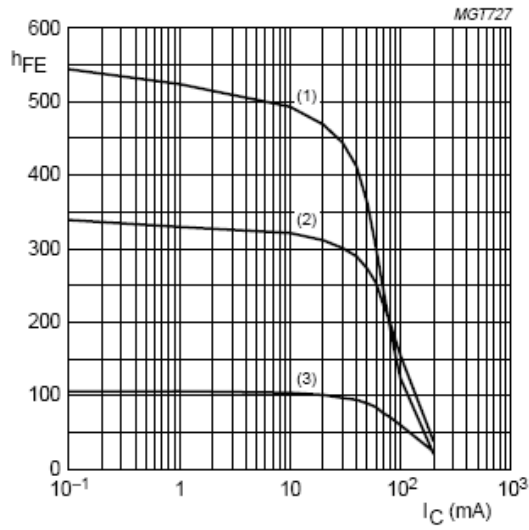
Fig.3 Collector-emitter saturation voltage as a function of collector current; typical values.



BC846A; $I_C/I_B = 10$.

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

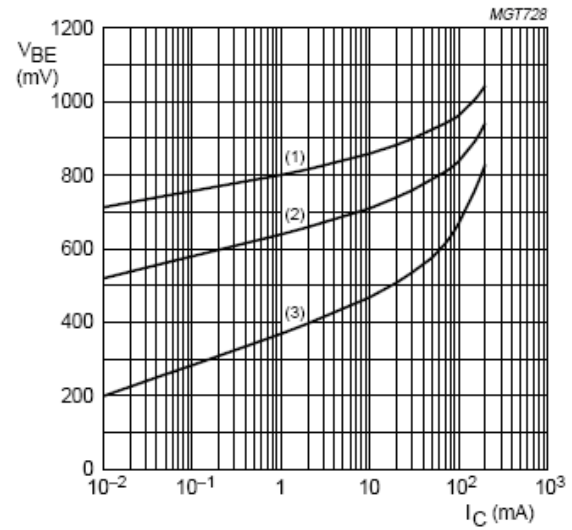
Fig.4 Base-emitter saturation voltage as a function of collector current; typical values.



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

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

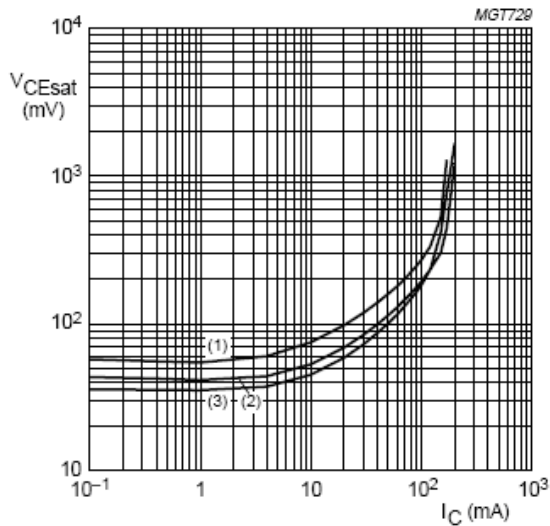
Fig.5 DC current gain as a function of collector current; typical values.



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

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

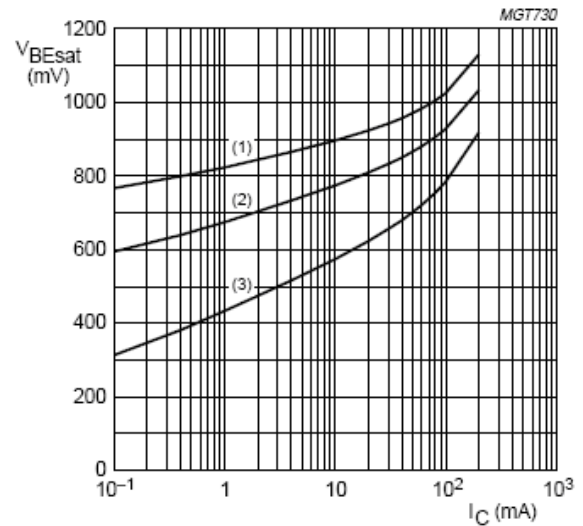
Fig.6 Base-emitter voltage as a function of collector current; typical values.



BC847B; $I_C/I_B = 20$.

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

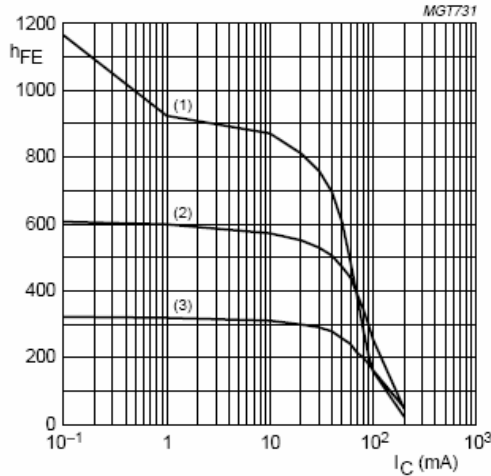
Fig.7 Collector-emitter saturation voltage as a function of collector current; typical values.



BC847B; $I_C/I_B = 10$.

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

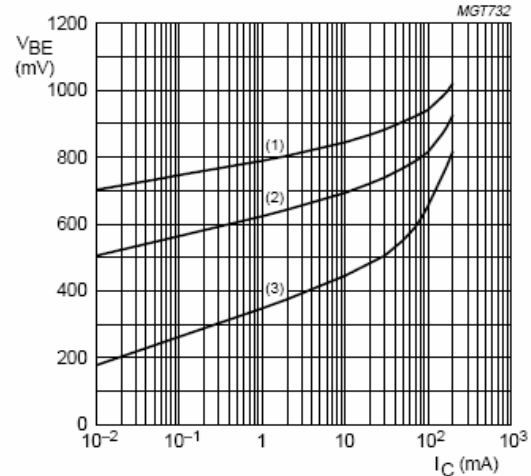
Fig.8 Base-emitter saturation voltage as a function of collector current; typical values.



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

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

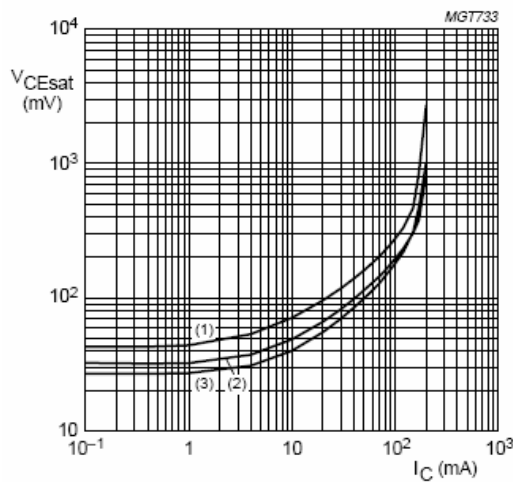
Fig.9 DC current gain as a function of collector current; typical values.



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

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

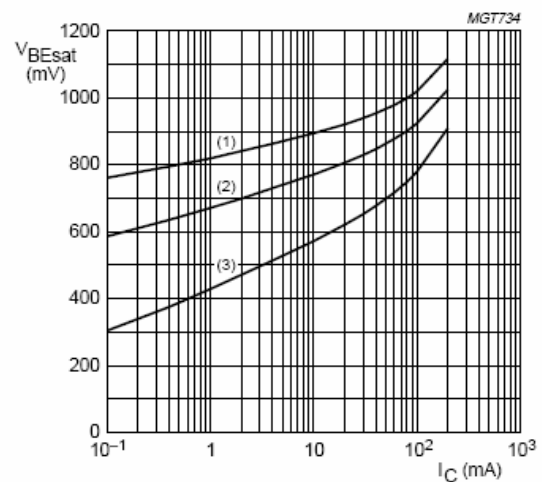
Fig.10 Base-emitter voltage as a function of collector current; typical values.



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

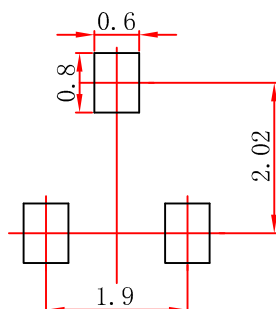


BC847C; $I_C/I_B = 10$.

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

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

SOT-23 Suggested Pad Layout



Note:

- 1. Controlling dimension; in millimeters.
- 2. General tolerance: $\pm 0.05\text{ mm}$.
- 3. The pad layout is for reference purposes only.