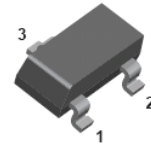


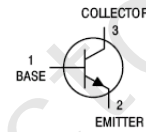
## FEATURES

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


**SOT-23**

## APPLICATIONS

- General purpose switching and amplification



## ORDERING INFORMATION

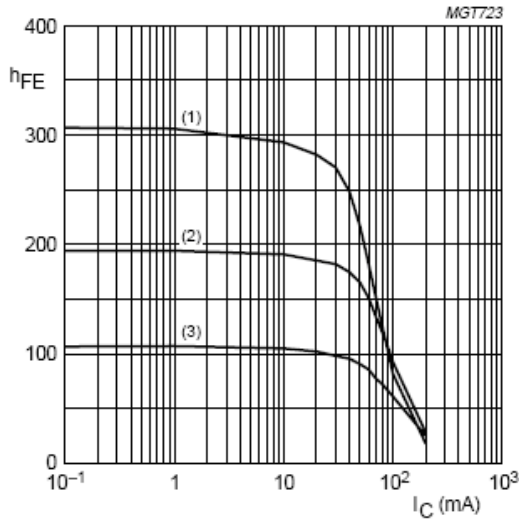
Type No.	Marking	Package Code
BC846A/B	1A/1B	SOT-23
BC847A/B/C	1E/1F/1G	SOT-23
BC848A/B/C	1J/1K/1L	SOT-23

## 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		500	$^{\circ}\text{C}/\text{W}$
$T_J, T_{STG}$	Junction and Storage Temperature		-55 to +150	$^{\circ}\text{C}$

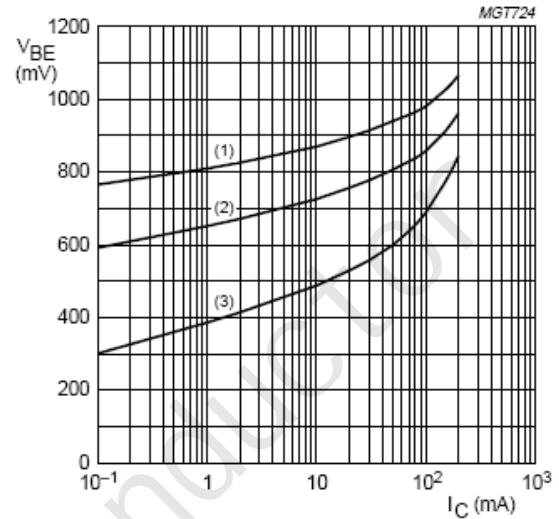
**ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

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
Collector-emitter cut-off current	$I_{CEO}$	$V_{CE}=30V, I_B=0$			1	mA
DC current gain BC846A,847A,848A BC846B,847B,848B BC847C,848C	$h_{FE}$	$V_{CE}=5V, I_C=10uA$		110 250 480		
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	0.9 1.1	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**


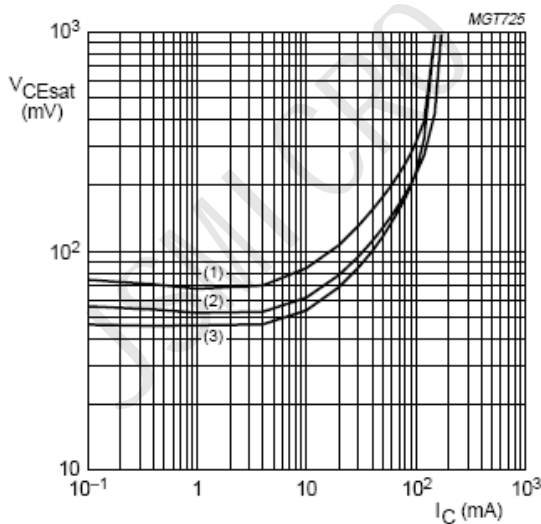
**BC846A;  $V_{CE} = 5\text{ V}$ .**  
 (1)  $T_{amb} = 150^\circ\text{C}$ .  
 (2)  $T_{amb} = 25^\circ\text{C}$ .  
 (3)  $T_{amb} = -55^\circ\text{C}$ .

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



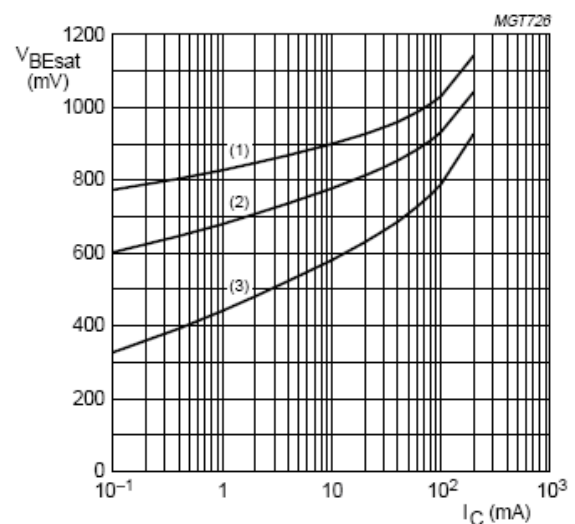
**BC846A;  $V_{CE} = 5\text{ V}$ .**  
 (1)  $T_{amb} = -55^\circ\text{C}$ .  
 (2)  $T_{amb} = 25^\circ\text{C}$ .  
 (3)  $T_{amb} = 150^\circ\text{C}$ .

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



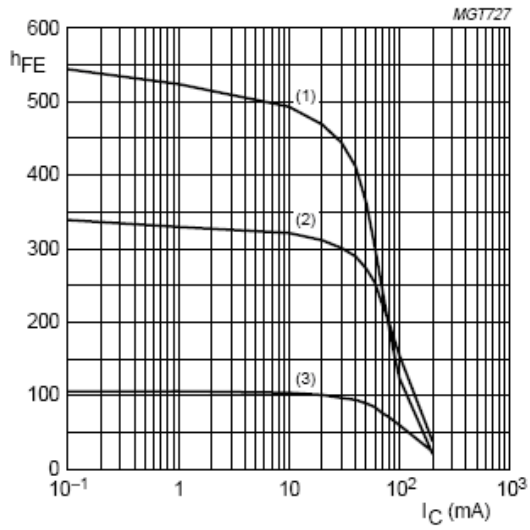
**BC846A;  $I_C/I_B = 20$ .**  
 (1)  $T_{amb} = 150^\circ\text{C}$ .  
 (2)  $T_{amb} = 25^\circ\text{C}$ .  
 (3)  $T_{amb} = -55^\circ\text{C}$ .

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



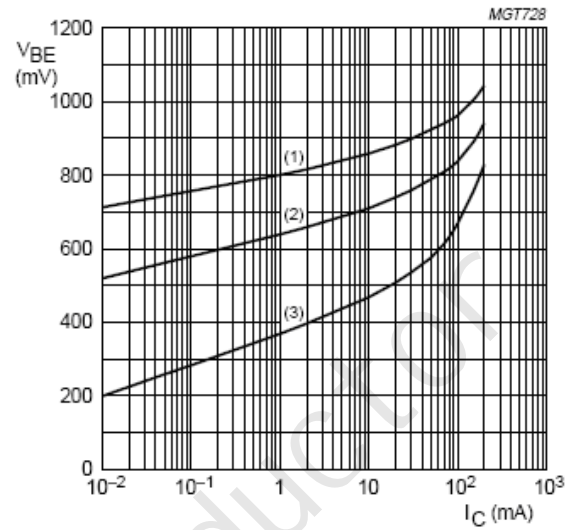
**BC846A;  $I_C/I_B = 10$ .**  
 (1)  $T_{amb} = -55^\circ\text{C}$ .  
 (2)  $T_{amb} = 25^\circ\text{C}$ .  
 (3)  $T_{amb} = 150^\circ\text{C}$ .

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



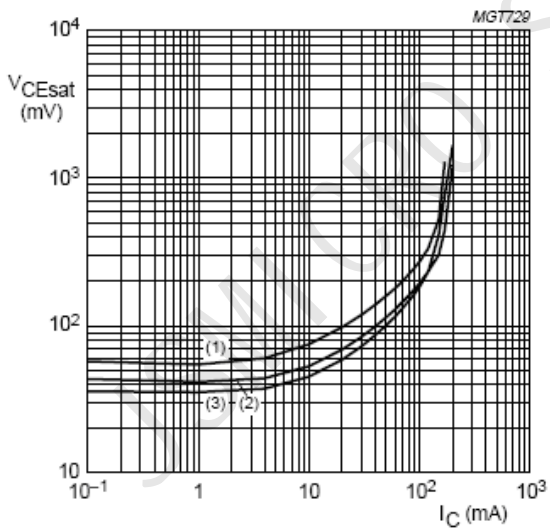
BC847B;  $V_{CE} = 5\text{ V}$ .  
(1)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .  
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
(3)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .

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



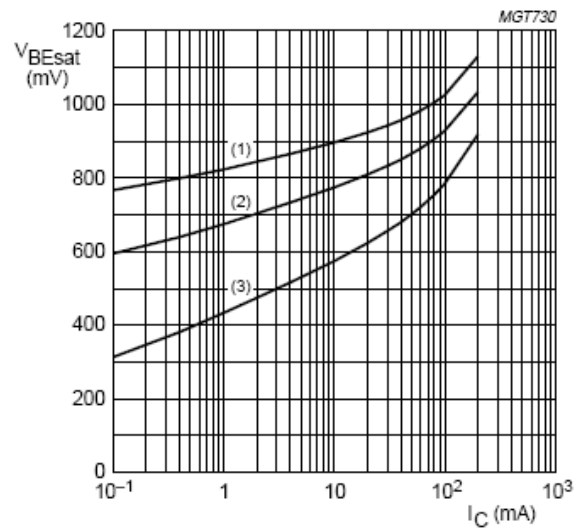
BC847B;  $V_{CE} = 5\text{ V}$ .  
(1)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .  
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
(3)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .

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



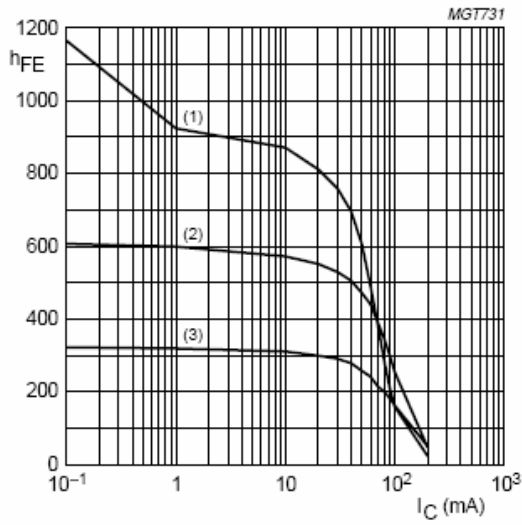
BC847B;  $I_C/I_B = 20$ .  
(1)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .  
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
(3)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .

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



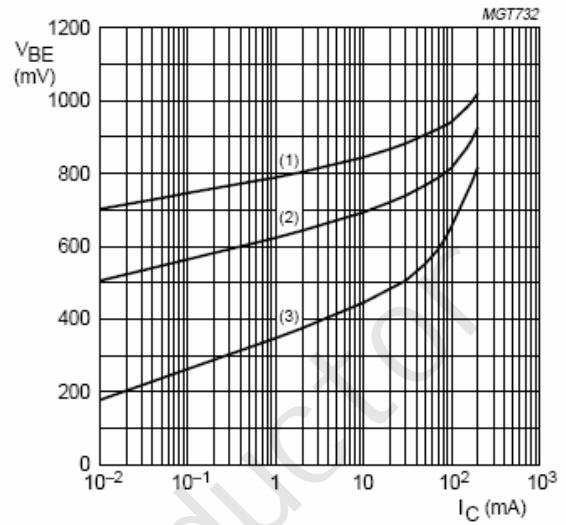
BC847B;  $I_C/I_B = 10$ .  
(1)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .  
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
(3)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .

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



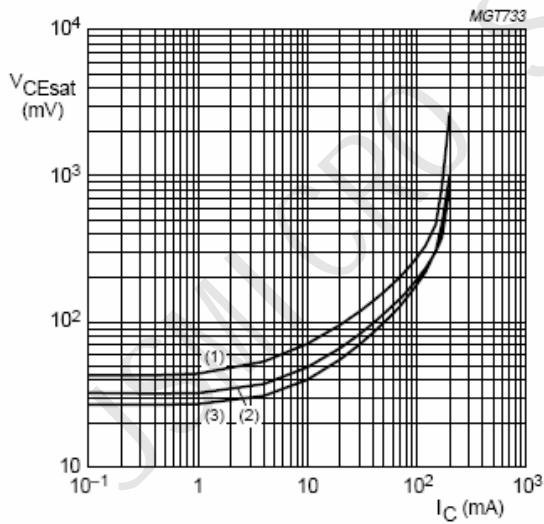
BC847C;  $V_{CE} = 5\text{ V}$ .  
(1)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .  
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
(3)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .

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



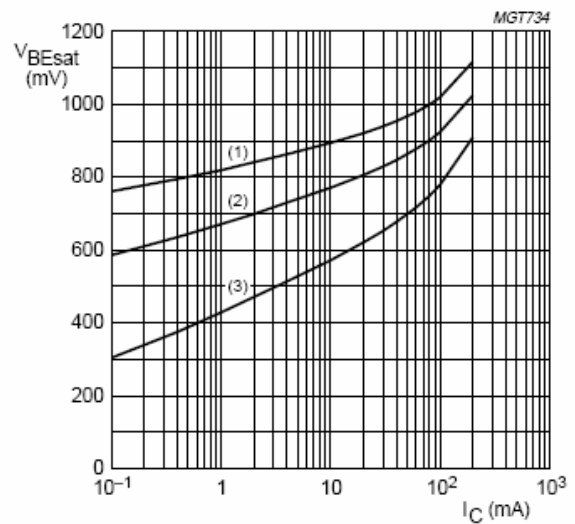
BC847C;  $V_{CE} = 5\text{ V}$ .  
(1)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .  
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
(3)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .

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



BC847C;  $I_C/I_B = 20$ .  
(1)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .  
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
(3)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .

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



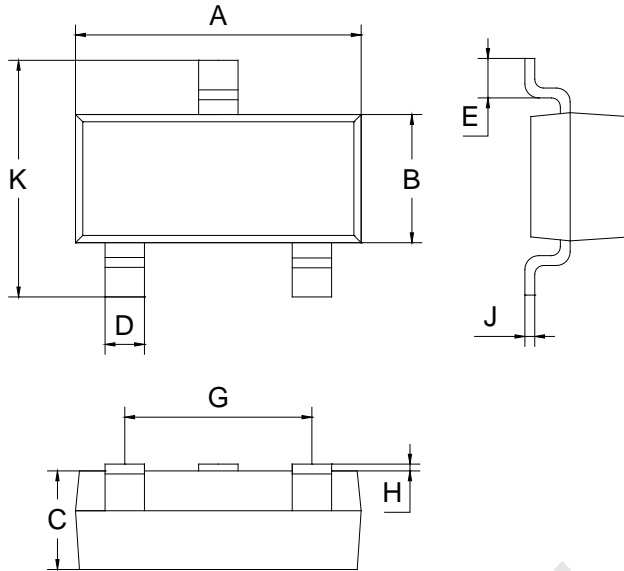
BC847C;  $I_C/I_B = 10$ .  
(1)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .  
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
(3)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .

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

## PACKAGE OUTLINE

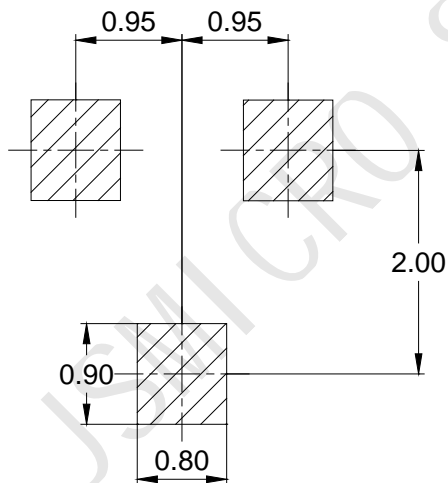
Plastic surface mounted package

SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60
All Dimensions in mm		

## SOLDERING FOOTPRINT



Unit: mm

## PACKAGE INFORMATION

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