

### FEATURES

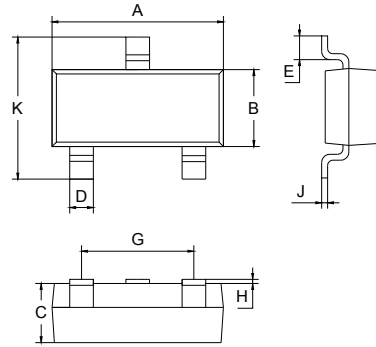
- High current gain.
- Excellent  $h_{FE}$  linearity .
- Low noise between 30Hz and 15kHz.
- For AF input stages and driver applications.

### APPLICATIONS

- General purpose switching and amplification.

### ORDERING INFORMATION

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



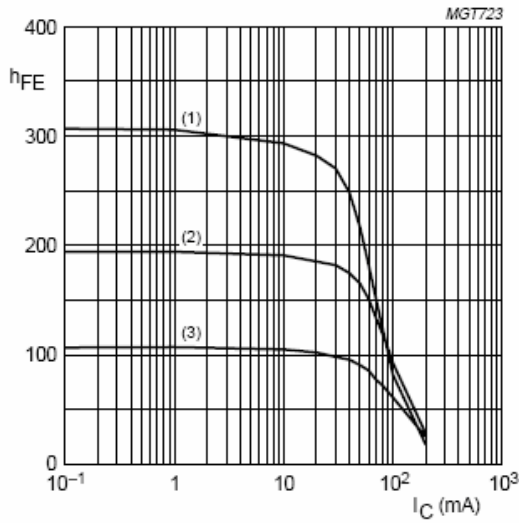
SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60
All Dimensions in mm		

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	BC846	80
		BC847	50
		BC848	30
$V_{CEO}$	Collector-Emitter Voltage	BC846	65
		BC847	45
		BC848	30
$V_{EBO}$	Emitter-Base Voltage	BC846	6
		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	°C/W
$T_j, T_{stg}$	Junction and Storage Temperature	-55 to +150	°C

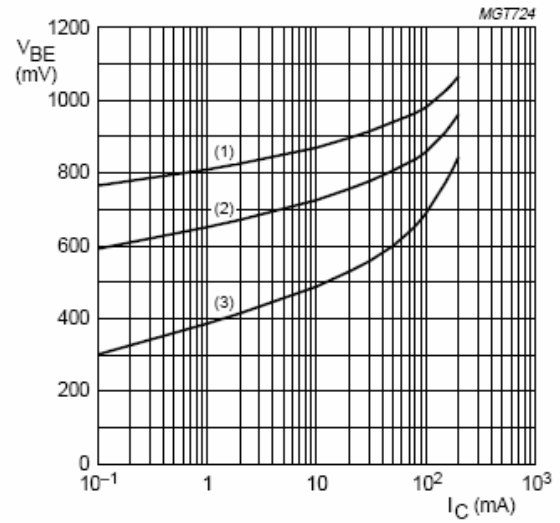
### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	BC846	80		V
			BC847	50		
			BC848	30		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	BC846	65		V
			BC847	45		
			BC848	30		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	BC846	6		V
			BC847	6		
			BC848	5		
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	nA
					5	uA
Emitter-base cut-off current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			100	nA
DC current gain	$h_{FE}$	$V_{CE}=5V, I_C=10\mu A$	BC846A, 847A, 848A	90		
			BC846B, 847B, 848B	150		
			BC847C, 848C	270		
DC current gain	$h_{FE}$	$V_{CE}=5V, I_C=2mA$	BC846A, 847A, 848A	110	220	
			BC846B, 847B, 848B	200	450	
			BC847C, 848C	420	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 @ Ta=25°C unless otherwise specified**


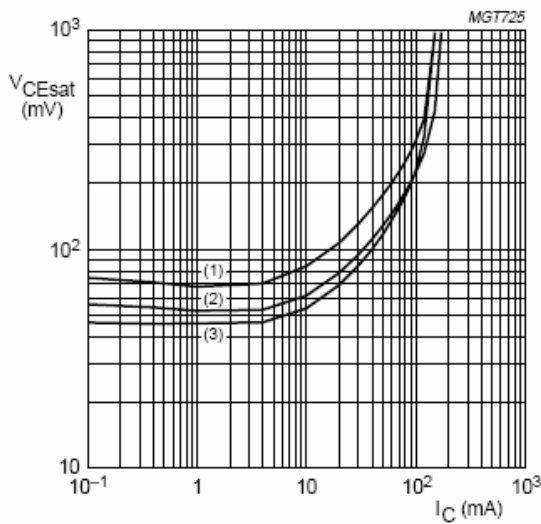
**BC846A;  $V_{CE} = 5\text{ V}$ .**  
 (1)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .  
 (2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
 (3)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .

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



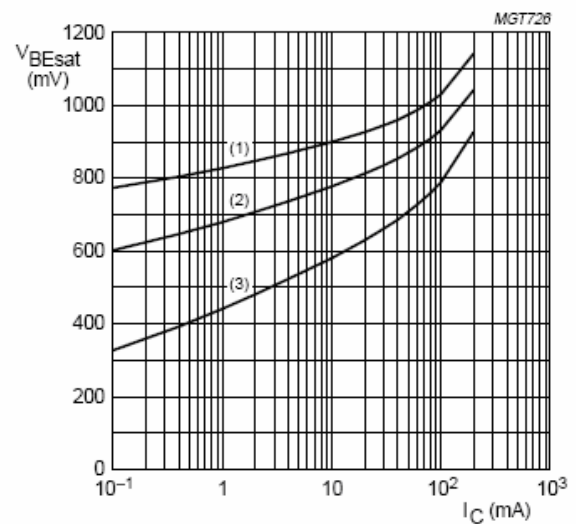
**BC846A;  $V_{CE} = 5\text{ V}$ .**  
 (1)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .  
 (2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
 (3)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .

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



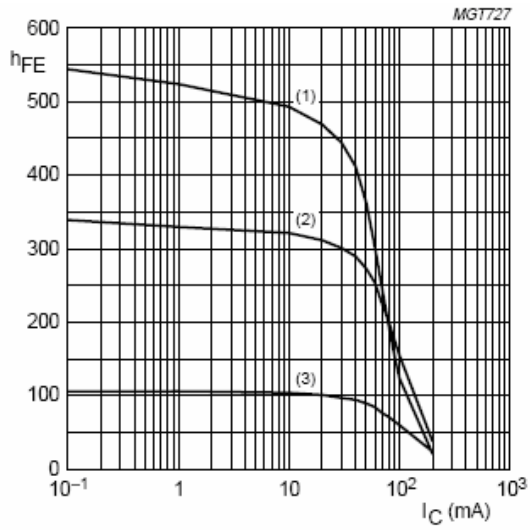
**BC846A;  $I_C/I_B = 20$ .**  
 (1)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .  
 (2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
 (3)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .

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



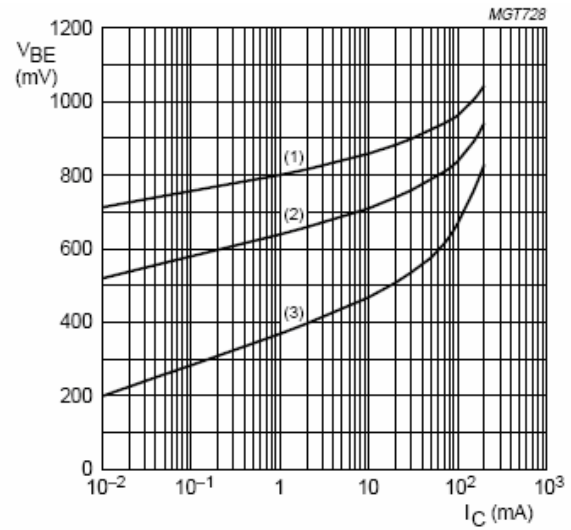
**BC846A;  $I_C/I_B = 10$ .**  
 (1)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .  
 (2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
 (3)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .

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



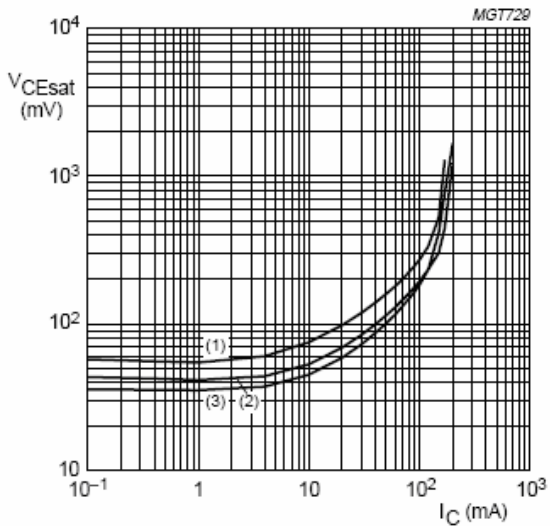
**BC847B;  $V_{CE} = 5\text{ V}$ .**  
 (1)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .  
 (2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
 (3)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .

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



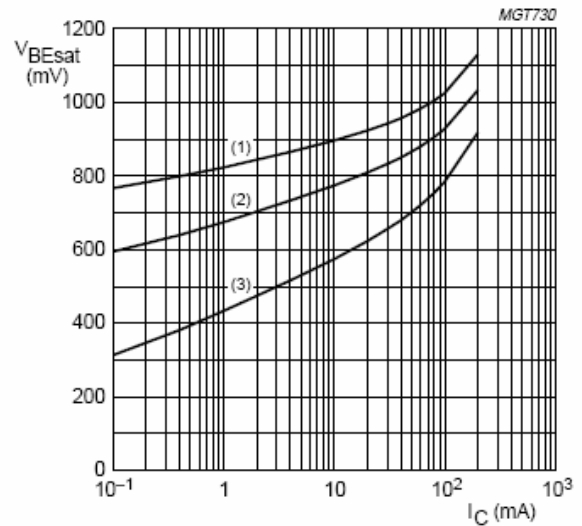
**BC847B;  $V_{CE} = 5\text{ V}$ .**  
 (1)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .  
 (2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
 (3)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .

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



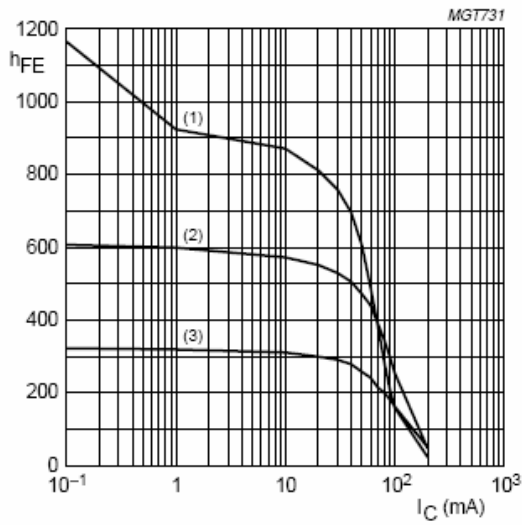
**BC847B;  $I_C/I_B = 20$ .**  
 (1)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .  
 (2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
 (3)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .

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



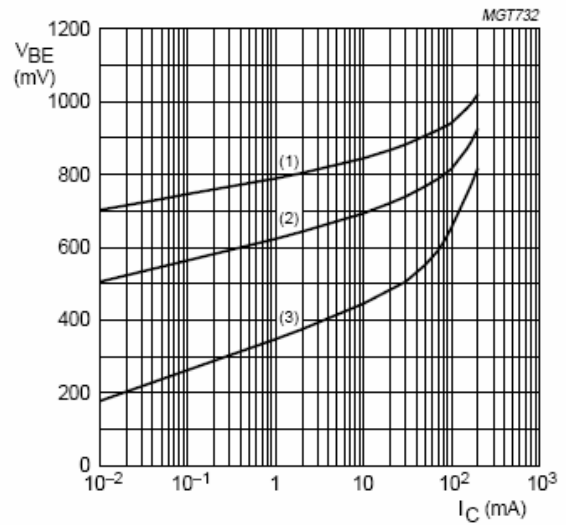
**BC847B;  $I_C/I_B = 10$ .**  
 (1)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .  
 (2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
 (3)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .

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



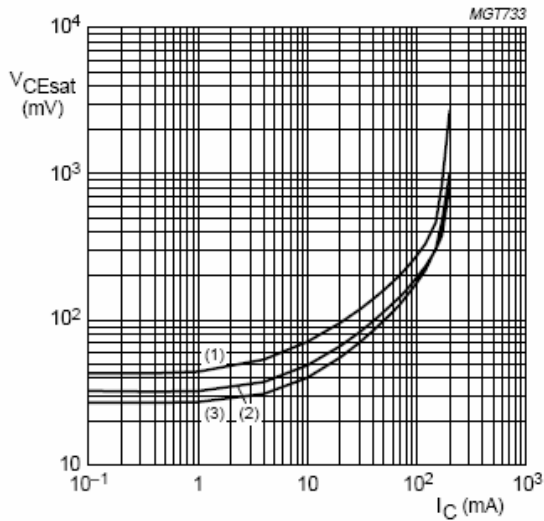
BC847C;  $V_{CE} = 5\text{ V}$ .  
 (1)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .  
 (2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
 (3)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .

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



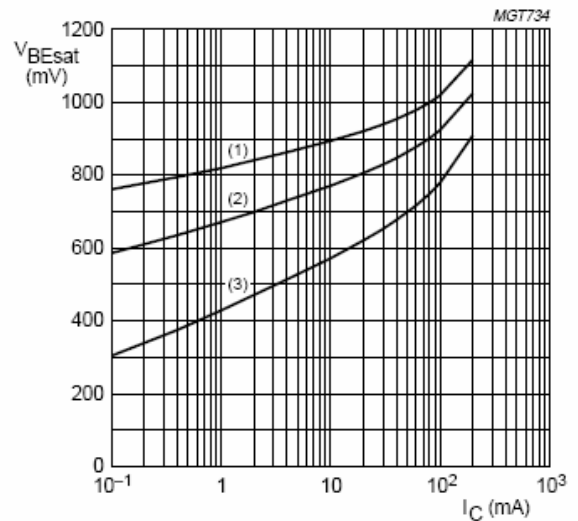
BC847C;  $V_{CE} = 5\text{ V}$ .  
 (1)  $T_{amb} = -55\text{ }^{\circ}\text{C}$ .  
 (2)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .  
 (3)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .

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.

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