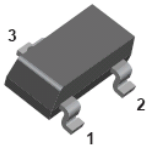
Leading Circuit Protection
Products and Solutions

BC846/847/848

NPN general purpose Transistor

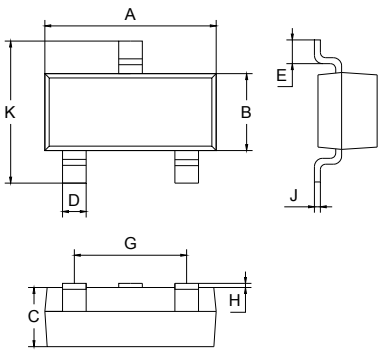
FEATURES

- 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.



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		

ORDERING INFORMATION

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

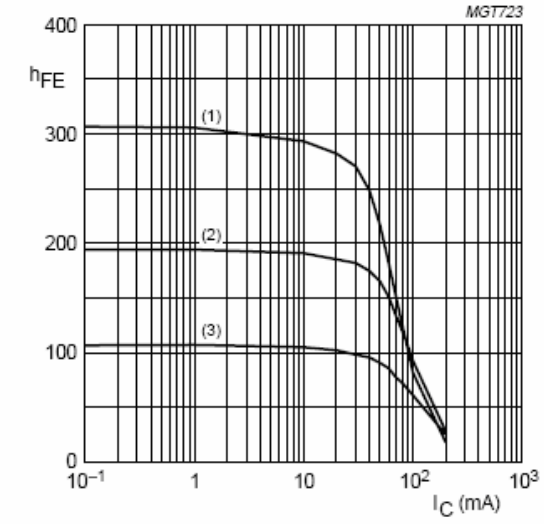
MAXIMUM RATING @ Ta=25℃ unless otherwise specified

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

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

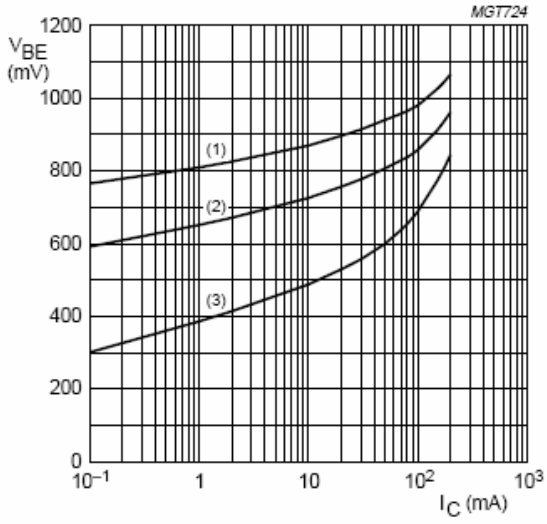
Parameter		Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	BC846 BC847 BC848	$V_{(BR)CBO}$	I_C=10μA, I_E=0	80 50 30			V
Collector-emitter breakdown voltage	BC846 BC847 BC848	$V_{(BR)CEO}$	I_C=10mA, I_B=0	65 45 30			V
Emitter-base breakdown voltage	BC846 BC847 BC848	$V_{(BR)EBO}$	I_E=10μA, 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℃			15 5	nA uA
Emitter-base cut-off current		I_{EBO}	V_{EB}=5V, I_C=0			100	nA
DC current gain	BC846A,847A,848 A BC846B,847B,848 B BC847C,848C	h_{FE}	V_{CE}=5V, I_C=10μA		90 150 270		
DC current gain	BC846A,847A,848 A BC846B,847B,848 B 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_e=0, f=1MHz		2.5		pF
Transition frequency		f_T	V_{CE}=5V, I_C=10mA f=100MHz	100			MHz

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified



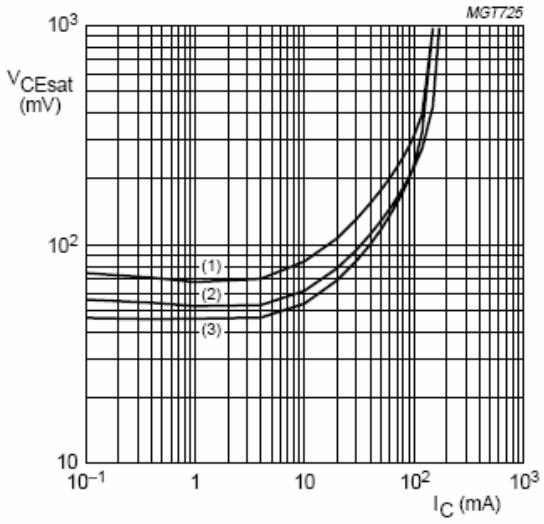
BC846A; V_{CE} = 5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

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



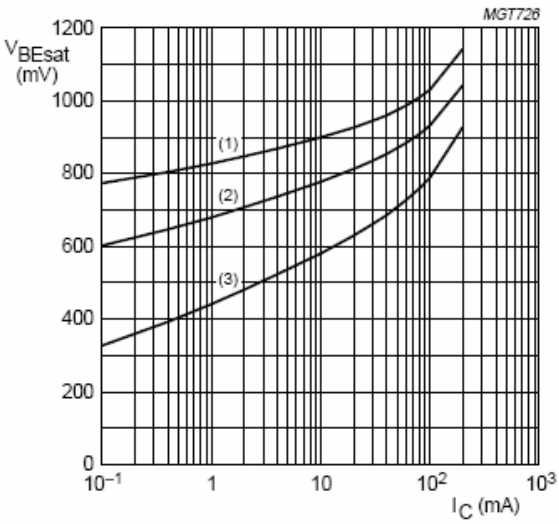
BC846A; V_{CE} = 5 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

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



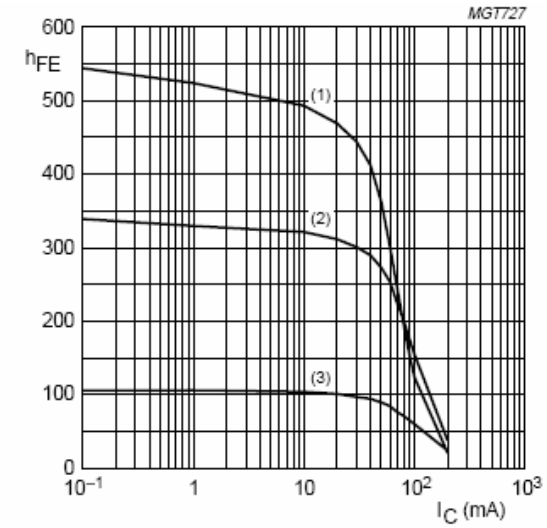
BC846A; I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

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



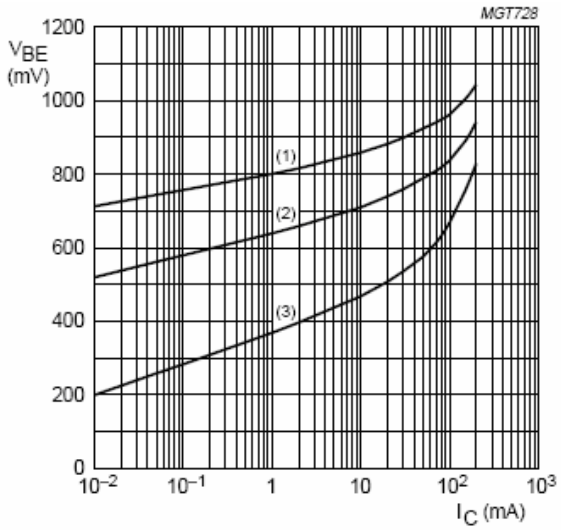
BC846A; I_C/I_B = 10.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

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



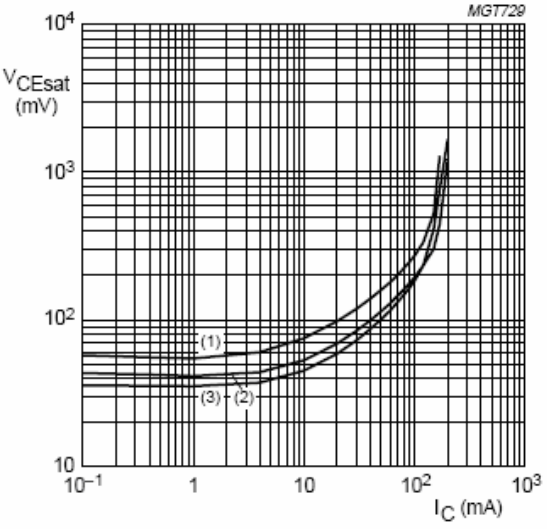
BC847B; V_{CE} = 5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

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



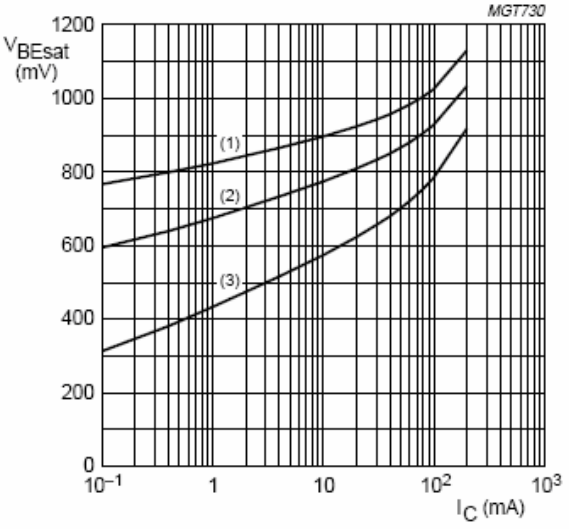
BC847B; V_{CE} = 5 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

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



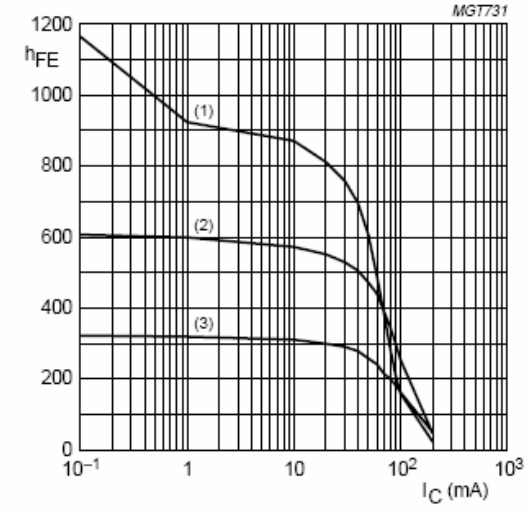
BC847B; I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

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



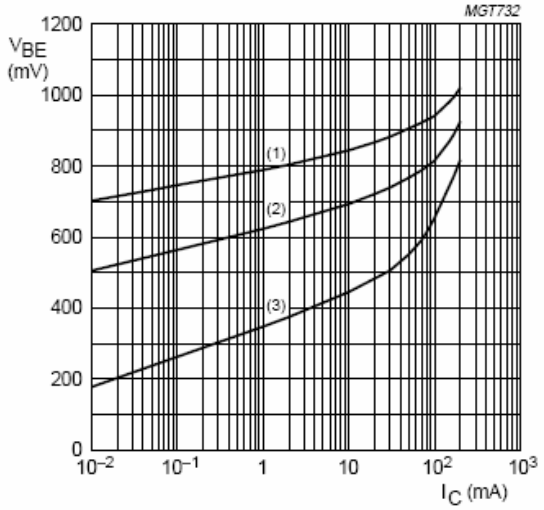
BC847B; I_C/I_B = 10.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

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



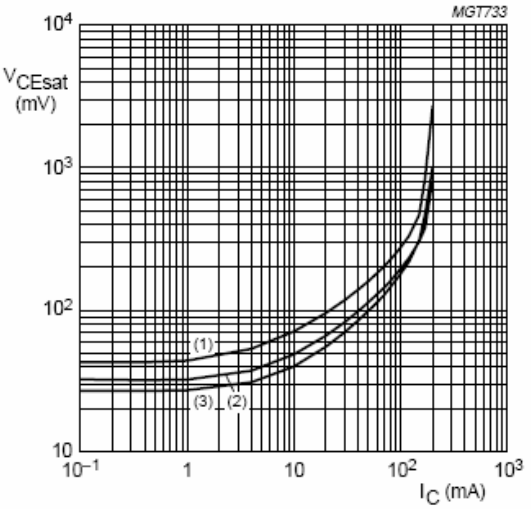
BC847C; V_{CE} = 5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

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



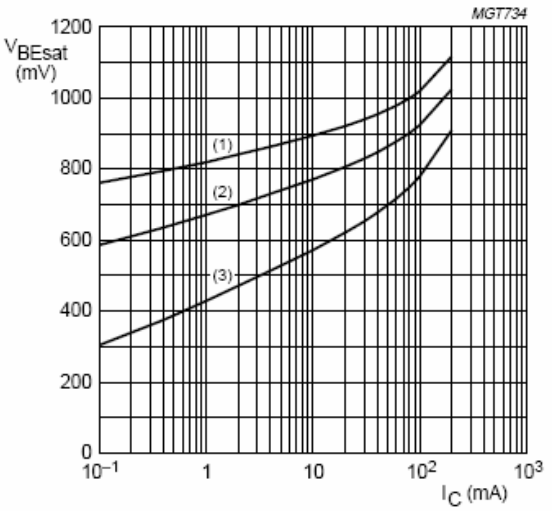
BC847C; V_{CE} = 5 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

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.

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