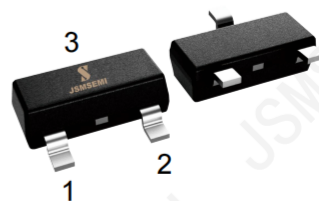


FEATURES

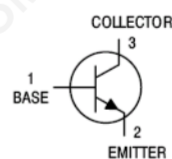
- High current gain
- Excellent h_{FE} linearity
- Low noise between 30Hz and 15kHz
- For AF input stages and driver applications

APPLICATIONS

- General purpose switching and amplification



SOT-23



ORDERING INFORMATION

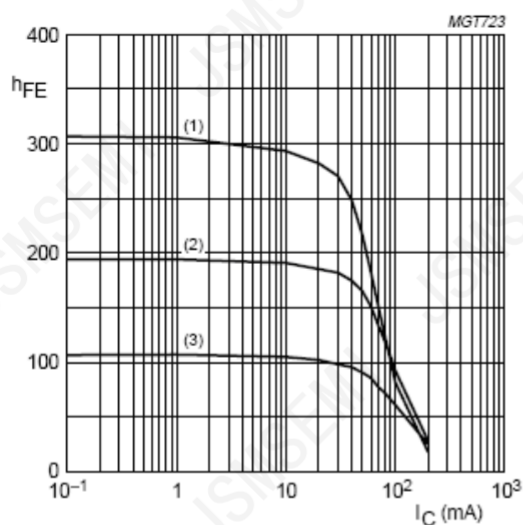
Type No.	Marking	Package Code
BC846B-QR-JSM	1B	SOT-23

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	80	V
V_{CEO}	Collector-Emitter Voltage	65	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	0.1	A
P_C	Collector Dissipation	250	mW
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	500	$^{\circ}\text{C/W}$
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	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	65			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Collector-base cut-off current	I_{CBO}	$V_{CB}=30V, I_E=0$ $V_{CB}=30V, I_E=0, T_j=150^\circ C$			155	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	h_{FE}	$V_{CE}=5V, I_C=10\mu A$		250		
DC current gain	h_{FE}	$V_{CE}=5V, I_C=2mA$	200		450	
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


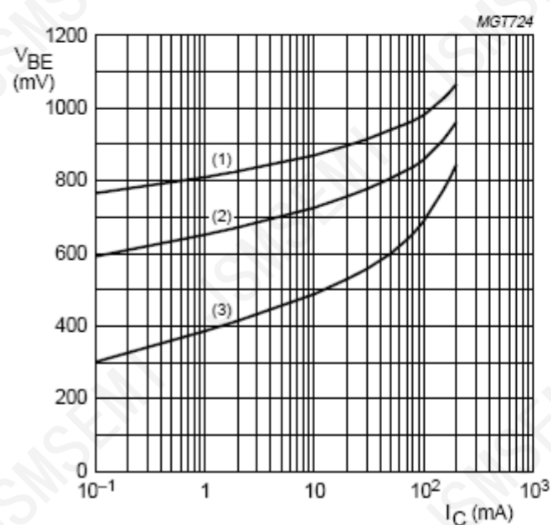
BC846A; $V_{CE} = 5\text{ V}$.

(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.



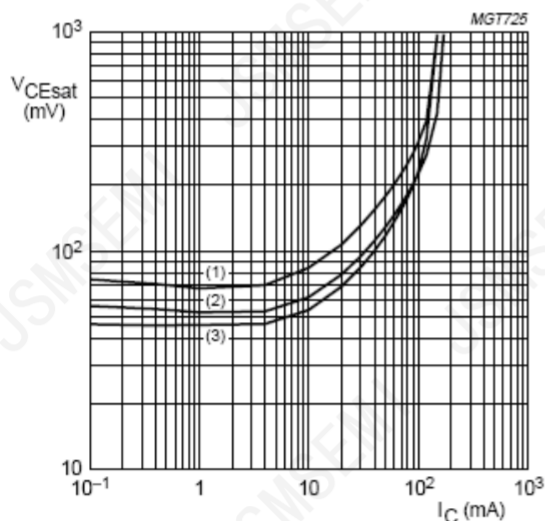
BC846A; $V_{CE} = 5\text{ V}$.

(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.



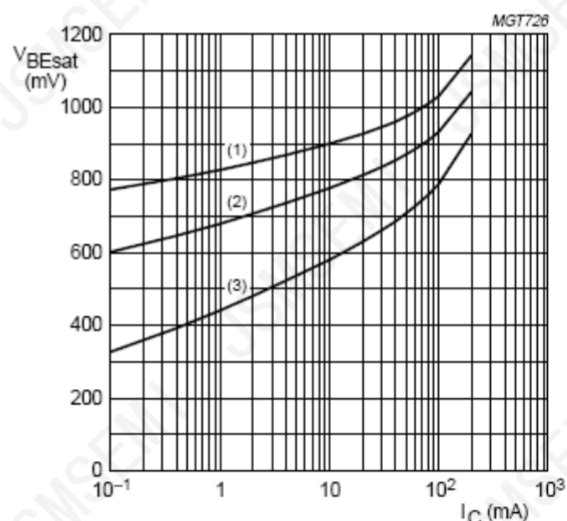
BC846A; $I_C/I_B = 20$.

(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.



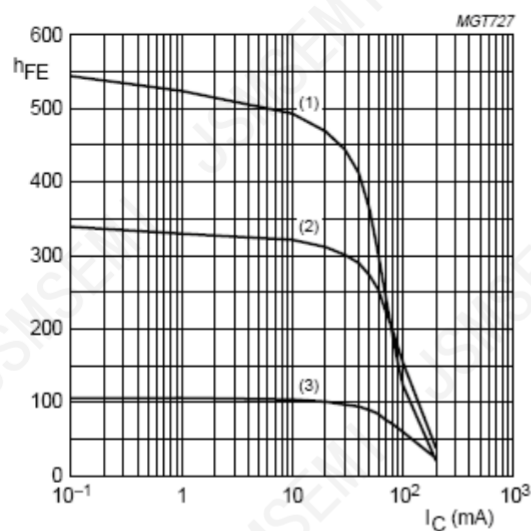
BC846A; $I_C/I_B = 10$.

(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.



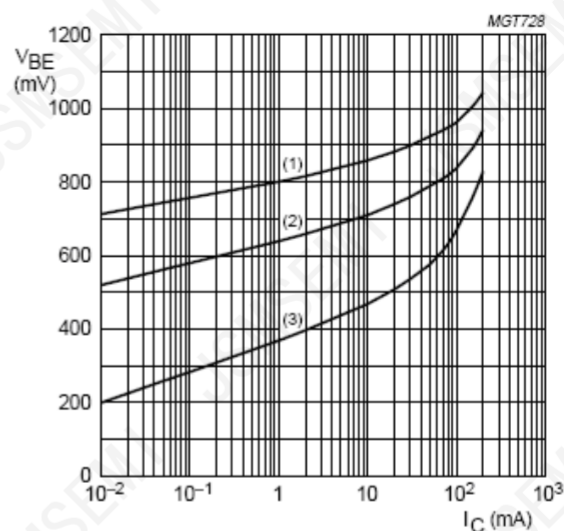
BC847B; $V_{CE} = 5\text{ V}$.

(1) $T_{amb} = 150^\circ\text{C}$.

(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.



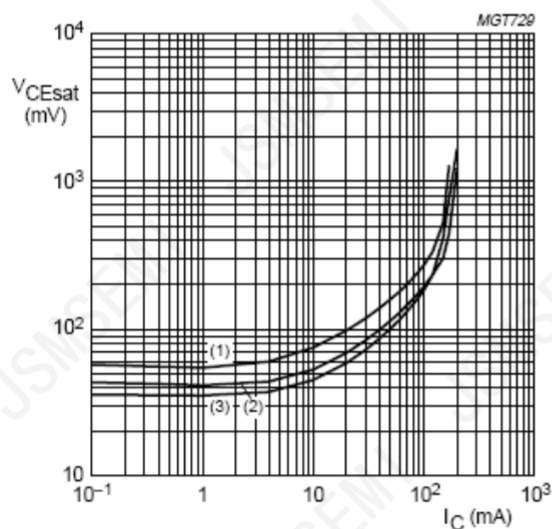
BC847B; $V_{CE} = 5\text{ V}$.

(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.



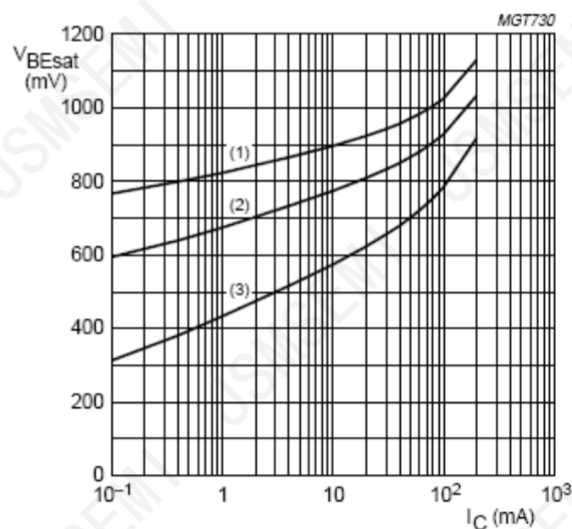
BC847B; $I_C/I_B = 20$.

(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.



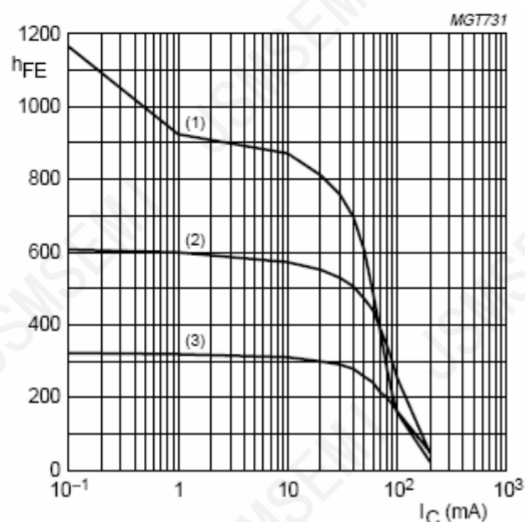
BC847B; $I_C/I_B = 10$.

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

(2) $T_{amb} = 25^\circ\text{C}$.

(3) $T_{amb} = 150^\circ\text{C}$.

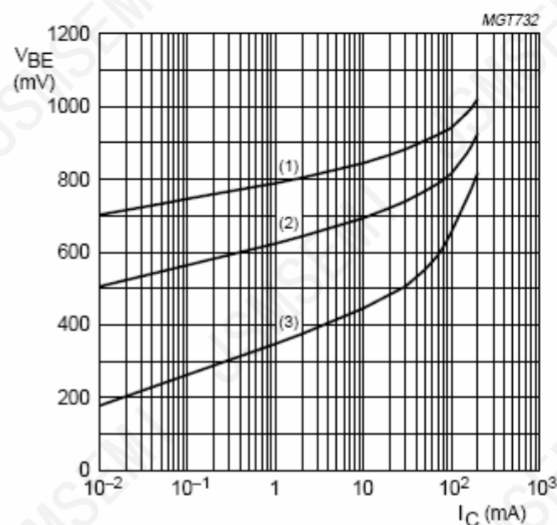
Fig.8 Base-emitter saturation voltage as a function of collector current; typical values.



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

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

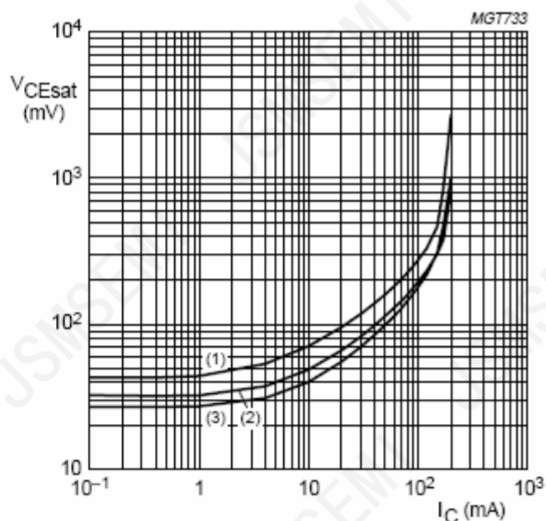
Fig.9 DC current gain as a function of collector current; typical values.



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

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

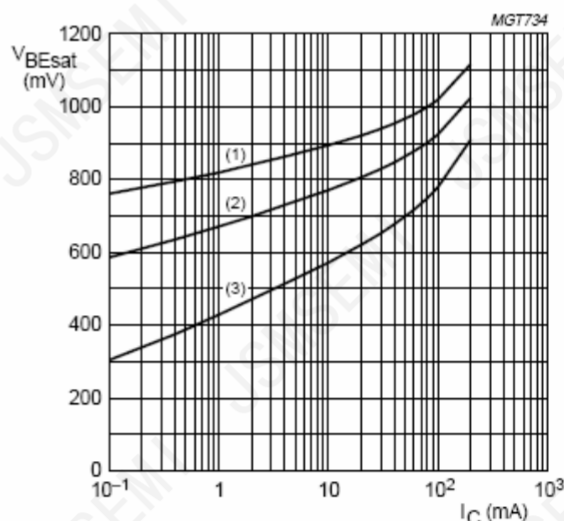
Fig.10 Base-emitter voltage as a function of collector current; typical values.



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; $I_C/I_B = 10$.

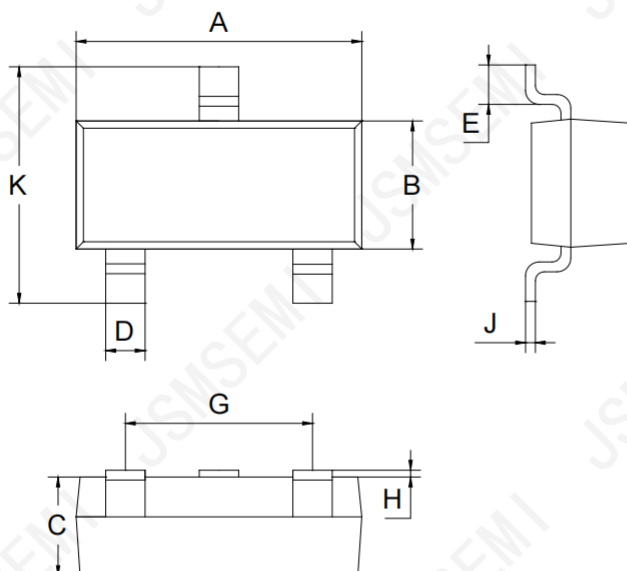
- (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$.
- (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
- (3) $T_{amb} = 150\text{ }^{\circ}\text{C}$.

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

PACKAGE OUTLINE

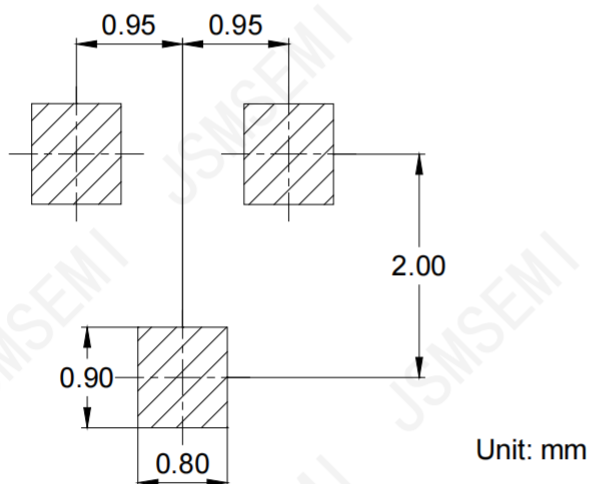
Plastic surface mounted package

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



PACKAGE INFORMATION

Device	Package	Shipping
BC846B-QR-JSM	SOT-23	3000 pcs / Tape & Reel

Revision History

Rev.	Change	Date
V1.0	Initial version	2/23/2024

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