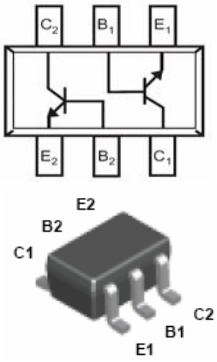
NPN general purpose Transistor BC846S

FEATURES

Lead-free

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



SOT-363

APPLICATIONS

- General purpose switching and amplification.

ORDERING INFORMATION

Type No.	Marking	Package Code
BC846AS/BS	1A/1B	SOT-363

MAXIMUM RATING @ Ta=25℃ 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	417	℃/W
T_j, T_{stg}	Junction and Storage Temperature	-55 to +150	℃

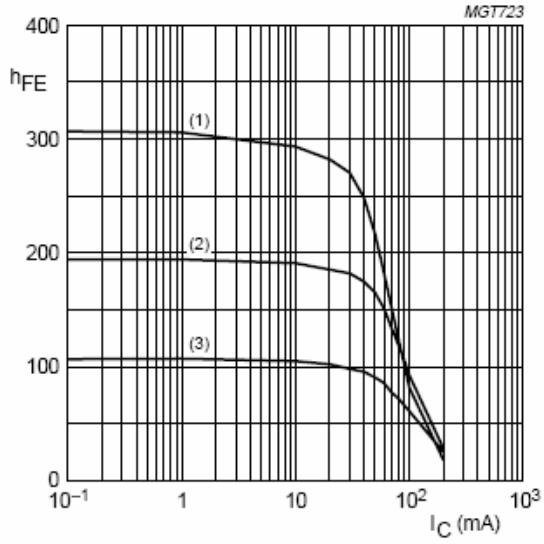
NPN general purpose Transistor BC846S

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=10μA,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=10μA,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℃			15 5	nA uA
Emitter-base cut-off current	I_{EBO}	V_{EB}=5V,I_C=0			100	nA
DC current gain BC846AS BC846BS	h_{FE}	V_{CE}=5V,I_C=10uA		90 150		
DC current gain BC846AS BC846BS	h_{FE}	V_{CE}=5V,I_C=2mA	110 200		220 450	
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		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

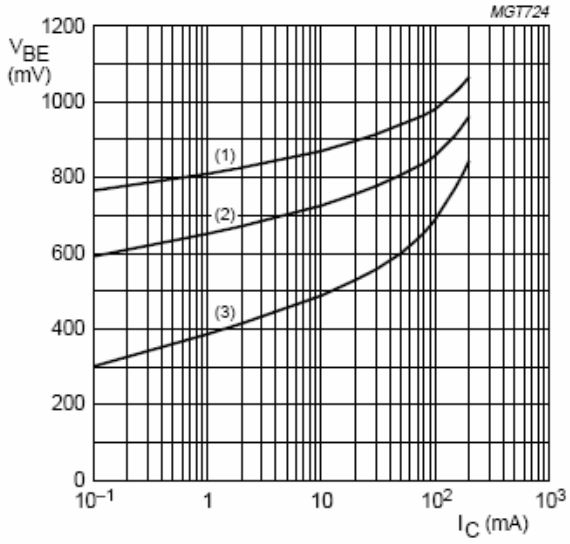
NPN general purpose Transistor BC846S

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified



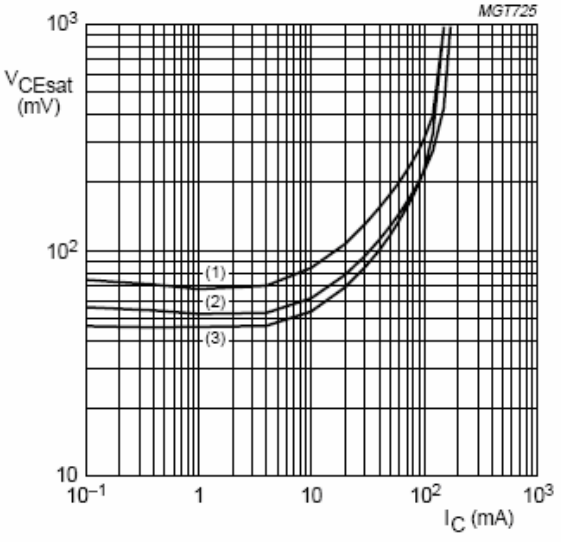
BC846AS; V_{CE} = 5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.2 DC current gain as a function of collector current; typical values.



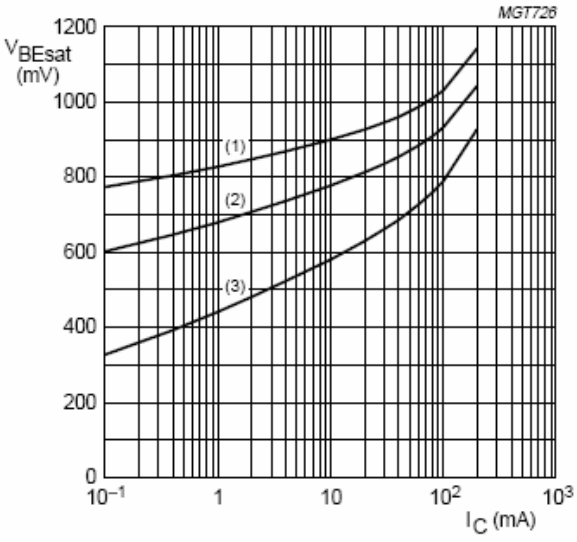
BC846AS; V_{CE} = 5 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

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



BC846AS; I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

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



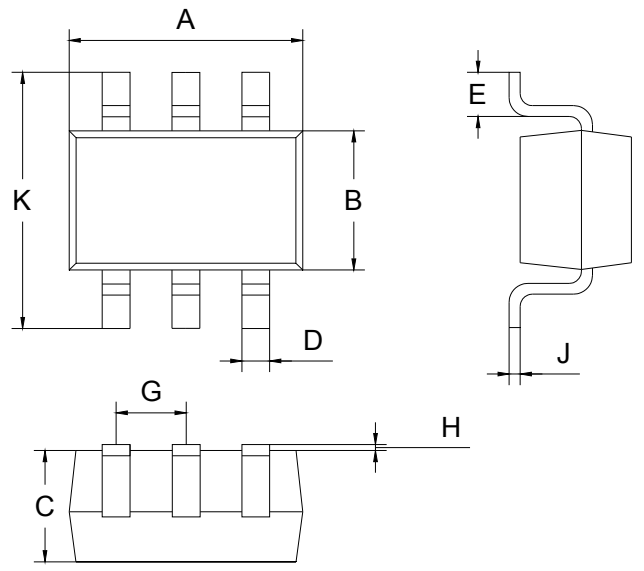
BC846AS; I_C/I_B = 10.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.5 Base-emitter saturation voltage as a function of collector current; typical values.

NPN general purpose Transistor BC846S

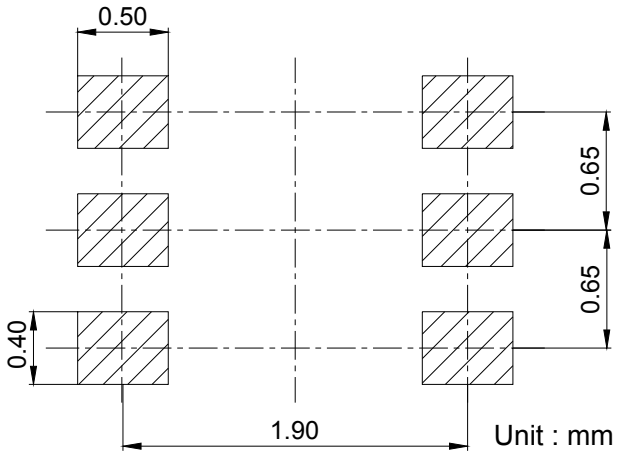
PACKAGE OUTLINE

Plastic surface mounted package SOT-363



SOT-363		
Dim	Min	Max
A	2.00	2.20
B	1.15	1.35
C	0.95 Typical	
D	0.25 Typical	
E	0.25	0.40
G	0.60	0.70
H	0.02	0.10
J	0.10 Typical	
K	2.2	2.4
All Dimensions in mm		

SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BC846S	SOT-363	3000/Tape&Reel