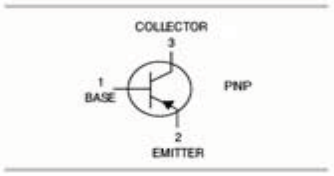
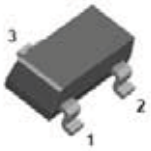
PNP General Purpose Transistor: BC856/857/858

Features:
- Low current (max.100mA)
- Low voltage (max.65v)

Applications:
- General purpose switching and amplification





SOT-23

Ordering Information

Type No.	Marking:	Package Code:
BC856A/B	3D/3A/3B	SOT-23
BC857A/B/C	3H/3E/3F/3G	SOT-23
BC858A/B/C	3J/3K/3L	SOT-23

Maximum Ratings & Characteristics: Tamb=25°C unless otherwise specified

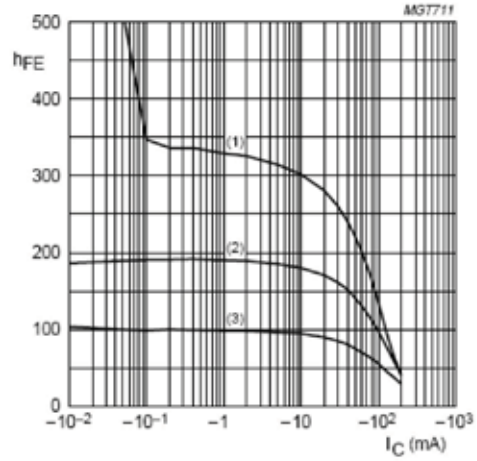
Parameter:		Symbol:	Value:	Unit:
Collector - Base Voltage	- BC856 - BC857 - BC858	V_{CBO}	-80 -50 -30	V
Collector - Emitter Voltage	- BC856 - BC857 - BC858	V_{CEO}	-65 -45 -30	V
Emitter - Base Voltage		V_{ebo}	-5	V
Collector Current - Continuous		I_C	-0.1	A
Collector Dissipation		P_C	250	mW
Junction and Storage Temperature		T_j, T_{stg}	-65 to +150	°C

Maximum Ratings & Characteristics: Tamb=25°C unless otherwise specified

Parameter:	Symbol:	Test Conditions:	Min:	Typ:	Max:	Unit:
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=-10µA I_E=0 BC856 BC857 BC858	-80 -50 -30			V
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=-10mA I_B=0 BC856 BC857 BC858	-65 -45 -30			V
Emmiter - Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=-1µA I_C=0	-5			V
Collector Cut-off Current	I_{CBO}	V_{CB}=-30V I_E=0		-1	-15	nA
Emitter Cut-off Current	I_{EBO}	V_{EB}=-5V,I_C=0			-0.1	µA
DC Current Gain BC856,857 BC856A,857A,858A BC856B,857B,858B BC857C,858C	h_{FE}	V_{CE}=-5V,I_C=-2mA	125 125 220 420		475 250 475 800	
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=-100mA, I_B=-5mA I_C=-10mA, I_B=-0.5mA			-0.65 -0.3	V
Base - Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=-10mA, I_B=-0.5mA I_C=-100mA, I_B=-5mA		-0.7 -0.85		V
Base Emitter Voltage	V_{BE}	I_C=-2mA,V_{CE}=-5V I_C=-10mA,V_{CE}=-5V	-0.6	-0.65	-0.75 -0.82	V
Collector Capacitance	C_C	V_{CB}=-10V,I_E=I_e=0 f=1MHz		4.5		pF
Transition Frequency	F	I_C=-200uA,V_{CE}=-5V, R_S=2kΩ,f=1kHz, B=200Hz		2	10	dB
Transition Frequency	f_T	V_{CE}=-10 I_C=-50, f=20MH	100			MHz

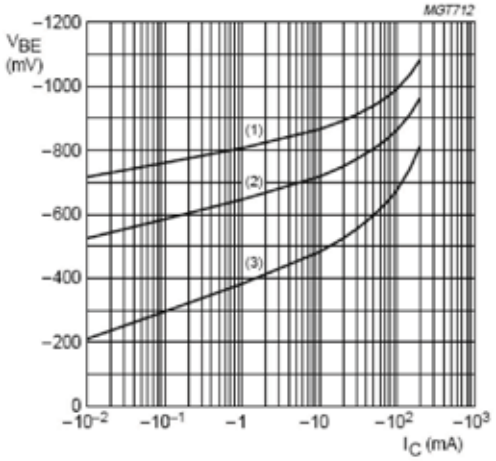
Typical Characteristics: Tamb=25°C unless otherwise specified

Ratings & Characteristic Curves



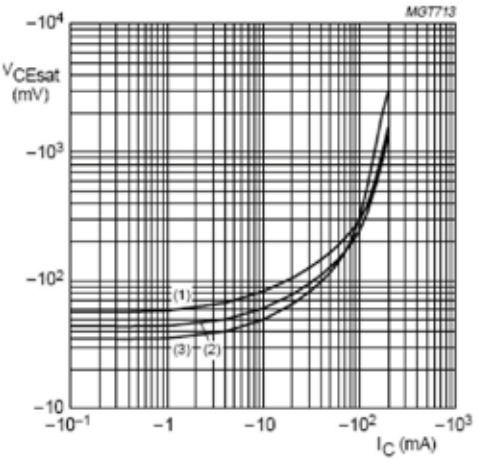
BC857A; V_{CE} = −5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

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



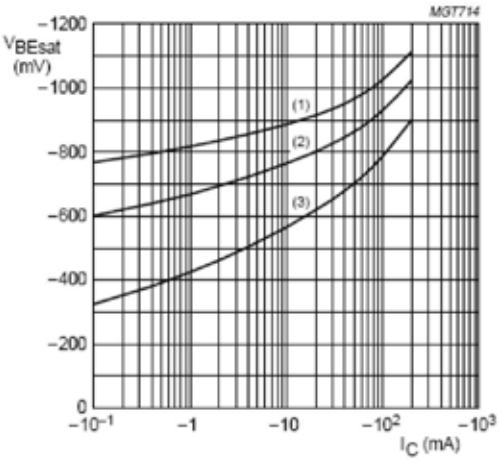
BC857A; V_{CE} = −5 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

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



BC857A; 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.

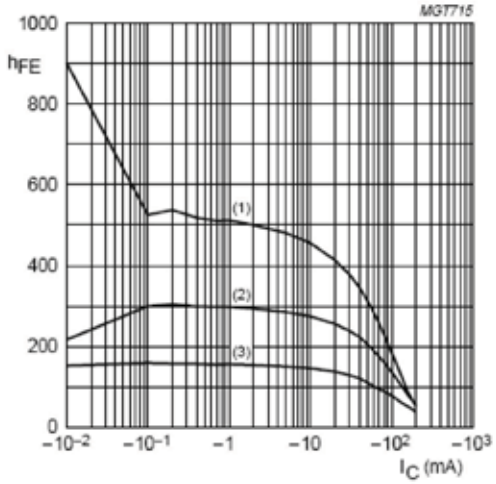


BC857A; I_C/I_B = 20.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

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

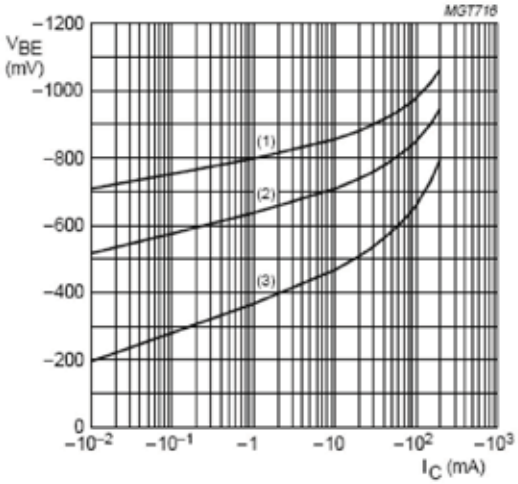
Typical Characteristics: Tamb=25°C unless otherwise specified

Ratings & Characteristic Curves



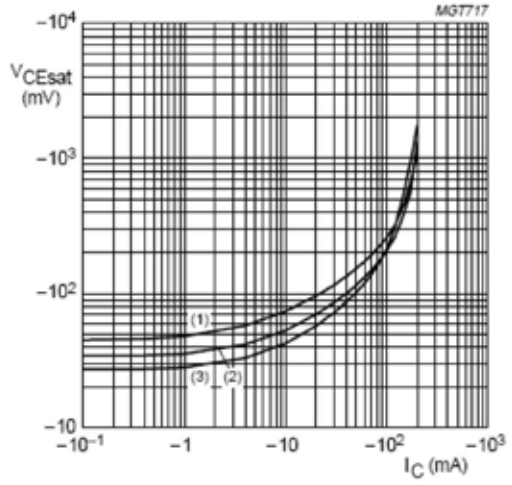
BC857B; V_{CE} = −5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.6 DC current gain as a function of collector current; typical values.



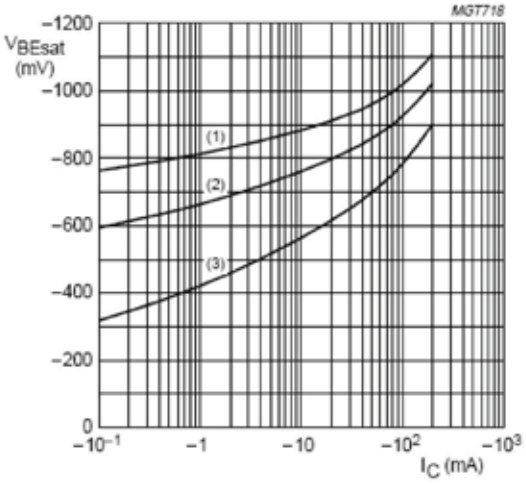
BC857B; V_{CE} = −5 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

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



BC857B; I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

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

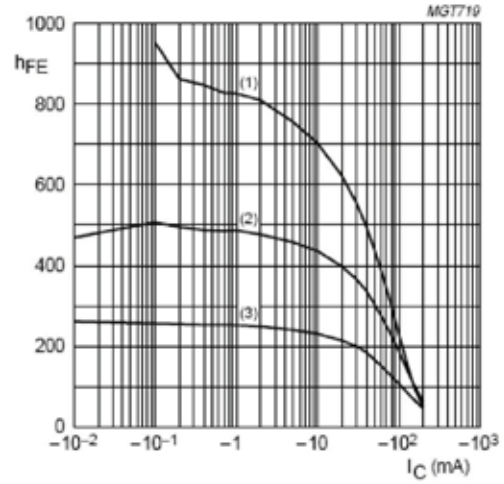


BC857B; I_C/I_B = 20.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.9 Base-emitter saturation voltage as a function of collector current; typical values.

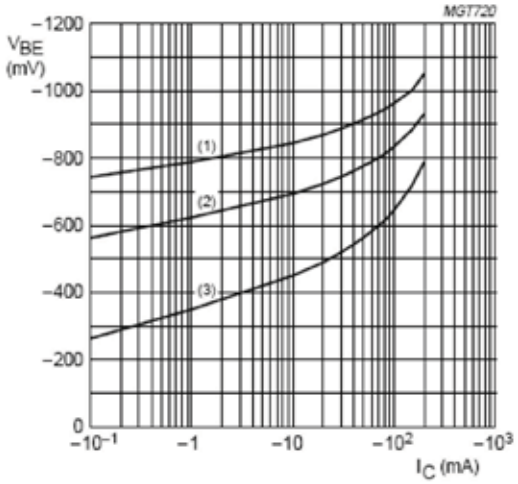
Typical Characteristics: Tamb=25°C unless otherwise specified

Ratings & Characteristic Curves



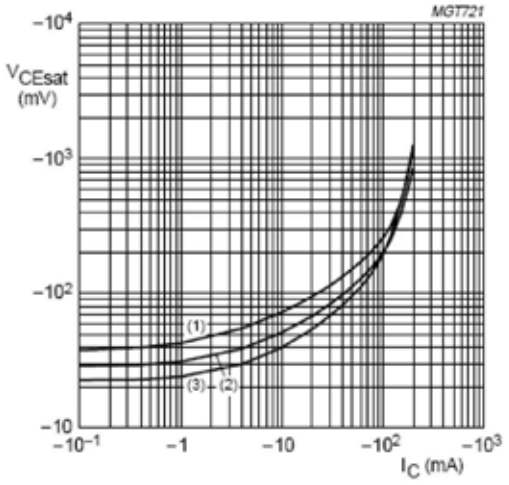
BC857C; V_{CE} = −5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.10 DC current gain as a function of collector current; typical values.



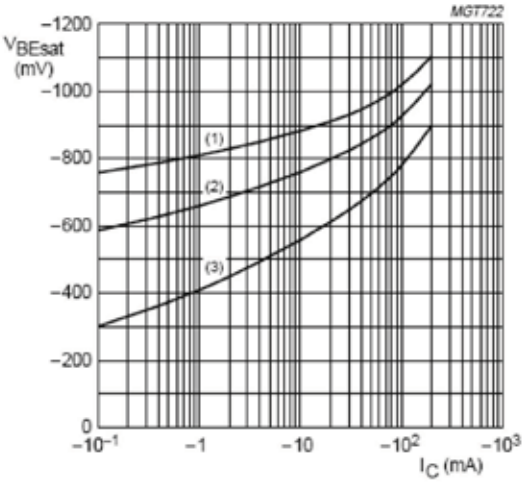
BC857C; V_{CE} = −5 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

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



BC857C; I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

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

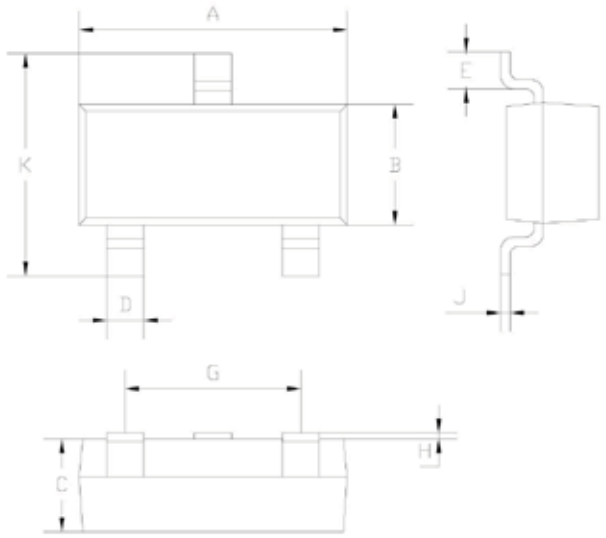


BC857C; I_C/I_B = 20.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.13 Base-emitter saturation voltage as a function of collector current; typical values.

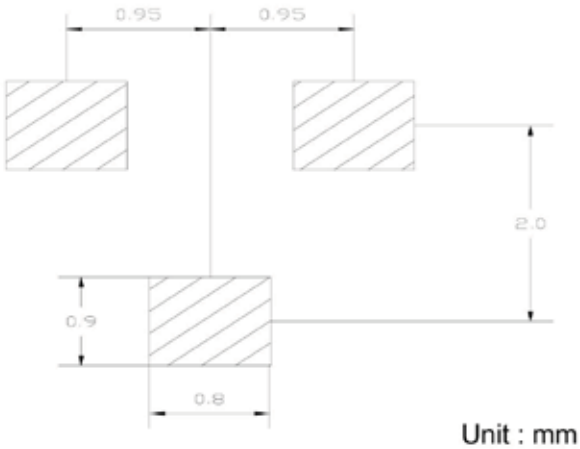
Package Outline

Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.85	2.95
B	1.25	1.35
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.85	1.95
H	0.02	0.1
J	0.1 Typical	
K	2.35	2.45
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
BC856/857/858	SOT-23	3000/Tape&Reel