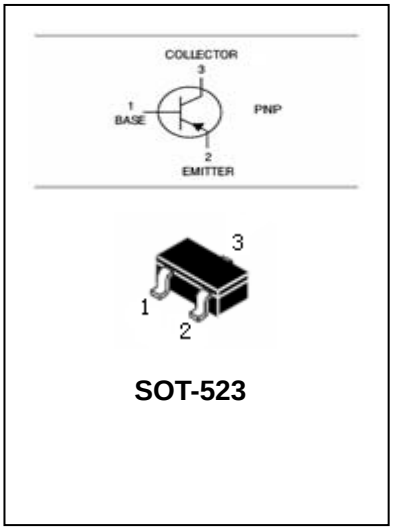
# PNP General Purpose Transistor BC856T/BC857T

## FEATURES

- Low current(max.100mA).
- Low voltage(max.65V).

Lead-free




**SOT-523**

## APPLICATIONS

- General purpose switching and amplification,especially In portable equipment.

## ORDERING INFORMATION

| Type No. | Marking | Package Code |
|---|---|---|
| BC856AT | 3A | SOT-523 |
| BC856BT | 3B | SOT-523 |
| BC857AT | 3E | SOT-523 |
| BC857BT | 3F | SOT-523 |
| BC857CT | 3G | SOT-523 |

## MAXIMUM RATING @ Ta=25℃ unless otherwise specified

| Symbol | Parameter | Limits | Unit |
|---|---|---|---|
| $V_{CBO}$ | collector-base voltage<br>BC856AT; BC856BT<br>BC857AT; BC857BT; BC857CT | <br>-80<br>-50 | V |
| $V_{CEO}$ | collector-emitter voltage<br>BC856AT; BC856BT<br>BC857AT; BC857BT; BC857CT | <br>-65<br>-45 | V |
| $V_{EBO}$ | emitter-base voltage | -5 | V |
| $I_C$ | collector current | -100 | mA |
| $I_{CM}$ | peak collector current | -200 | mA |
| $I_{BM}$ | peak base current | -100 | mA |
| $P_{tot}$ | Total power dissipation | 150 | mW |
| $R_{\theta JA}$ | Thermal resistance, junction to Ambient | 833 | °C/W |
| $T_{stg}$ | storage temperature range | -65 to +150 | °C |
| $T_j$ | junction temperature | 150 | °C |

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## ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN. | Typ. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| $V_{(BR)CBO}$ | Collector-base breakdown voltage<br>BC856AT; BC856BT<br>BC857AT; BC857BT; BC857CT | $I_C$=-10μA,$I_E$=0 | <br>-80<br>-50 | | | V |
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage<br>BC856AT; BC856BT<br>BC857AT; BC857BT; BC857CT | $I_C$=-10mA,$I_B$=0 | <br>-65<br>-45 | | | V |
| $V_{(BR)EBO}$ | Emitter-base breakdown voltage | $I_E$=-1μA,$I_C$=0 | -5 | | | V |
| $I_{CBO}$ | Collector cut-off current | $I_E$=0,$V_{CB}$=-30V | | | -15 | nA |
| | | $I_E$=0,$V_{CB}$=-30V,$T_j$=150℃ | | | -5 | uA |
| $I_{EBO}$ | Emitter cut-off current | $I_C$=0,$V_{EB}$=-5V | | | -100 | nA |
| $h_{FE}$ | DC current gain<br>BC856AT; BC857AT<br>BC856BT; BC857BT<br>BC857CT | $V_{CE}$=-5V,$I_C$=-2mA | <br>125<br>220<br>420 | <br>-<br>-<br>- | <br>250<br>475<br>800 | |
| $V_{CE(sat)}$ | collector-emitter saturation voltage | $I_C$=-10mA,$I_B$=-0.5mA | | | -200 | mV |
| | | $I_C$=-100mA,$I_B$=-5mA(note1) | | | -400 | mV |
| $V_{BE}$ | Base- emitter voltage | $I_C$=-2mA, $V_{CE}$=-5V | -580 | | -700 | mV |
| | | $I_C$=-10mA, $V_{CE}$=-5V | | | -770 | mV |
| $C_C$ | Collector capacitance | $I_E$=0,$V_{CB}$=-10V,f=1MHz | | | 2.5 | pF |
| $C_e$ | Emitter capacitance | $I_C$=0,$V_{EB}$=-0.5V,f=1MHz | | 10 | | pF |
| F | Noise figure | $I_C$=200uA,$V_{CE}$=-5V,<br>$R_S$=2kΩ,f=1kHZ,B=200Hz | | | 10 | dB |
| $f_T$ | transition frequency | $I_C$=-10mA,$V_{CE}$ =-5V,<br>f=100MHz | 100 | | | MHz |

Note 1.Pulse test:$t_p$≤300uS;δ≤0.02

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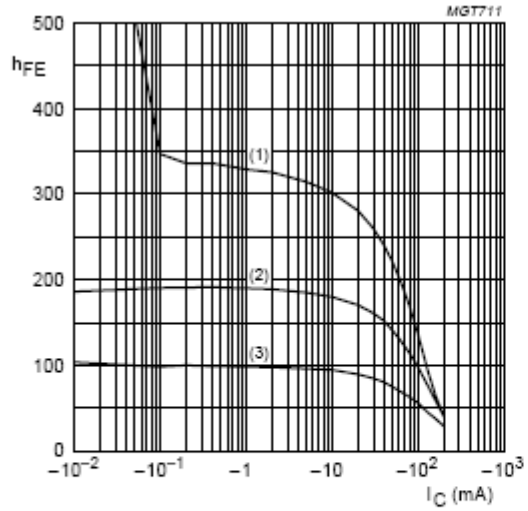
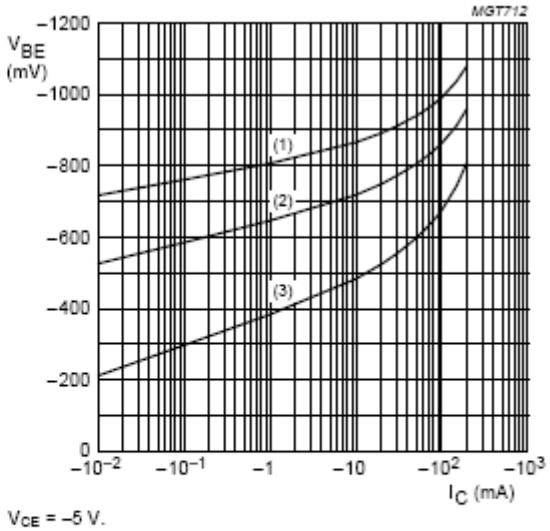
## TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified



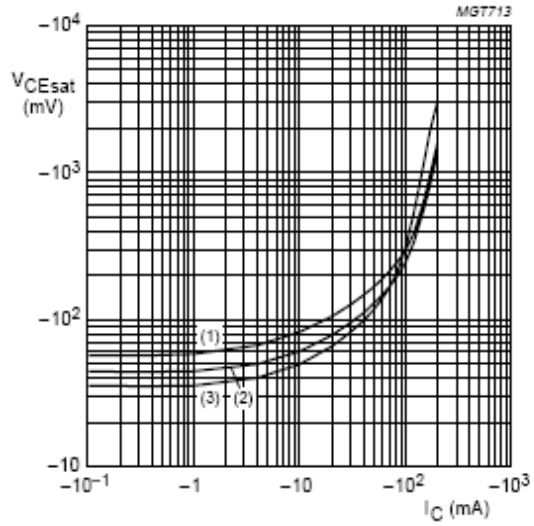

$V_{CE}$ = −5 V.
(1) $T_{amb}$ = 150 °C.
(2) $T_{amb}$ = 25 °C.
(3) $T_{amb}$ = −55 °C.

Fig.2 DC current gain; typical values.



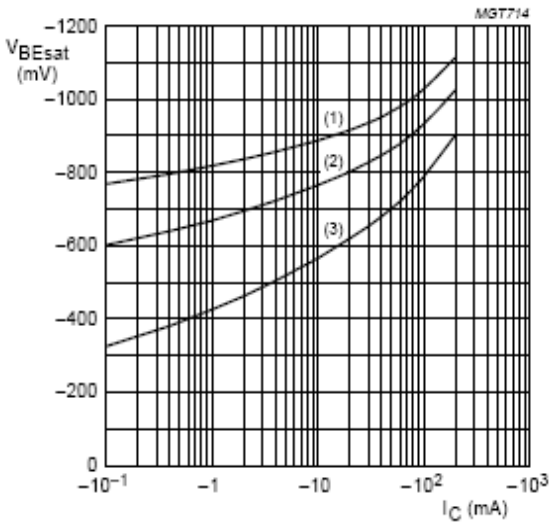

$V_{CE}$ = −5 V.
(1) $T_{amb}$ = −55 °C.
(2) $T_{amb}$ = 25 °C.
(3) $T_{amb}$ = 150 °C.

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




$I_C/I_B$ = 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.




$I_C/I_B$ = 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.

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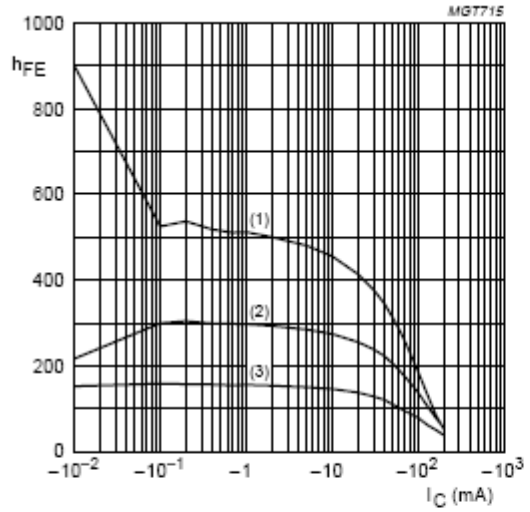
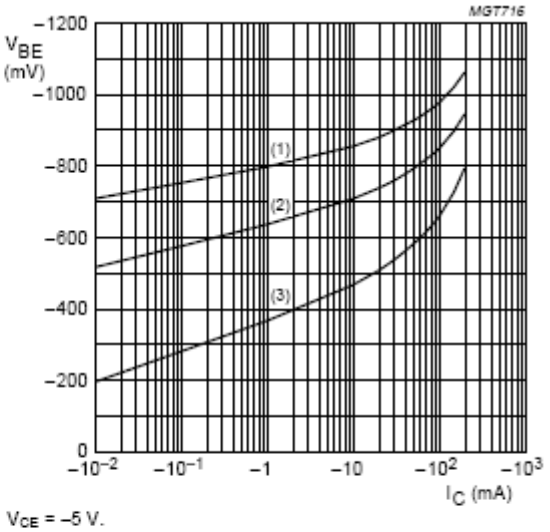



$V_{CE}$ = −5 V.
(1) $T_{amb}$ = 150 °C.
(2) $T_{amb}$ = 25 °C.
(3) $T_{amb}$ = −55 °C.

Fig.6 DC current gain; typical values.

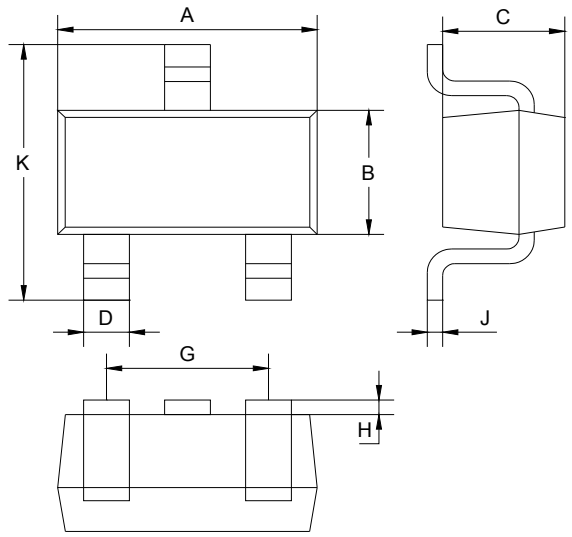



$V_{CE}$ = −5 V.
(1) $T_{amb}$ = −55 °C.
(2) $T_{amb}$ = 25 °C.
(3) $T_{amb}$ = 150 °C.

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

## PACKAGE OUTLINE

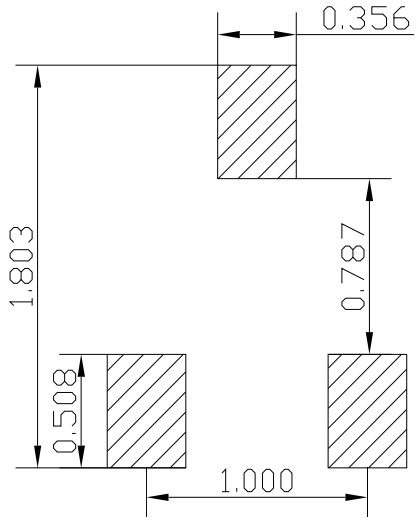
Plastic surface mounted package SOT-523




| SOT-523 | | |
|---|---|---|
| Dim | Min | Max |
| A | 1.5 | 1.7 |
| B | 0.75 | 0.85 |
| C | 0.6 | 0.8 |
| D | 0.15 | 0.3 |
| G | 0.9 | 1.1 |
| H | 0.02 | 0.1 |
| J | 0.1Typical | |
| K | 1.45 | 1.75 |
| All Dimensions in mm | | |

# PNP General Purpose Transistor BC856T/BC857T

## SOLDERING FOOTPRINT




Unit : mm

## PACKAGE INFORMATION

| Device | Package | Shipping |
|---|---|---|
| BC856T/BC857T | SOT-523 | 3000/Tape&Reel |