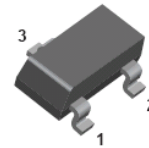


FEATURES

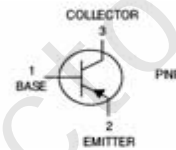
- Low current.(max.100mA).
- Low voltage..



SOT-23

APPLICATIONS

- General purpose switching and amplification.



ORDERING INFORMATION

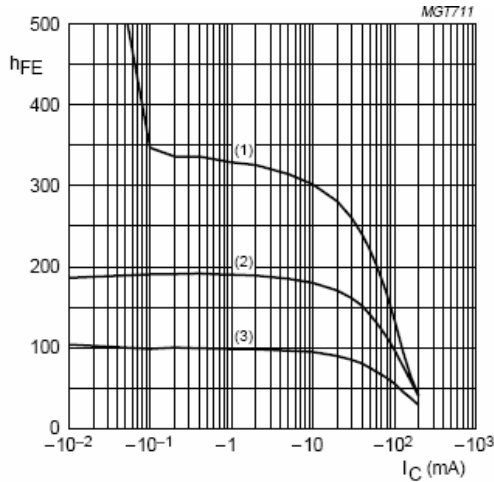
| Type No. | Marking | Package Code |
|------------|----------|--------------|
| BC856A/B | 3A/3B | SOT-23 |
| BC857A/B/C | 3E/3F/3G | SOT-23 |
| BC858A/B/C | 3J/3K/3L | SOT-23 |

MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Value | Units |
|-----------------------------------|----------------------------------|-------------|-------|
| V _{CBO} | Collector-Base Voltage | BC856 | -80 |
| | | BC857 | -50 |
| | | BC858 | -30 |
| V _{CEO} | Collector-Emitter Voltage | BC856 | -65 |
| | | BC857 | -45 |
| | | BC858 | -30 |
| V _{EBO} | Emitter-Base Voltage | -5 | V |
| I _C | Collector Current -Continuous | -0.1 | A |
| P _C | Collector Dissipation | 250 | mW |
| T _j , T _{stg} | Junction and Storage Temperature | -65 to +150 | °C |

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

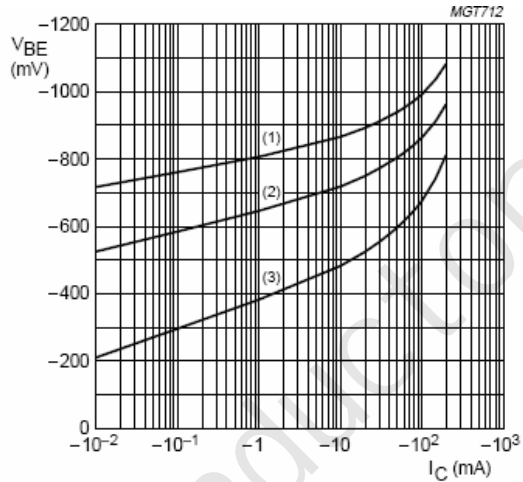
| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|--------------------------------------|---|---|-------------------|---------------|-------------------|---------|
| Collector-base breakdown voltage | BC856 BC857 BC858 | $V_{(BR)CBO}$ $I_C=-10\mu A, I_E=0$ | -80 -50 -30 | | | V |
| Collector-emitter breakdown voltage | BC856 BC857 BC858 | $V_{(BR)CEO}$ $I_C=-10mA, I_B=0$ | -65 -45 -30 | | | V |
| Emitter-base breakdown voltage | | $V_{(BR)EBO}$ $I_E=-1\mu A, I_C=0$ | -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 | BC856A,857A,858A BC856B,857B,858B BC857C,858C | h_{FE} $V_{CE}=-5V, I_C=-2mA$ | 125 220 420 | | 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 | | $V_{BE(on)}$ $I_C=-2mA, V_{CE}=-5V$ $I_C=-10mA, V_{CE}=-5V$ | -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 $I_C=-200\mu A, V_{CE}=-5V,$ $R_S=2k\Omega, f=1kHz,$ $B=200Hz$ | | 2 | 10 | dB |
| 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


BC857A; $V_{CE} = -5\text{ V}$.

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

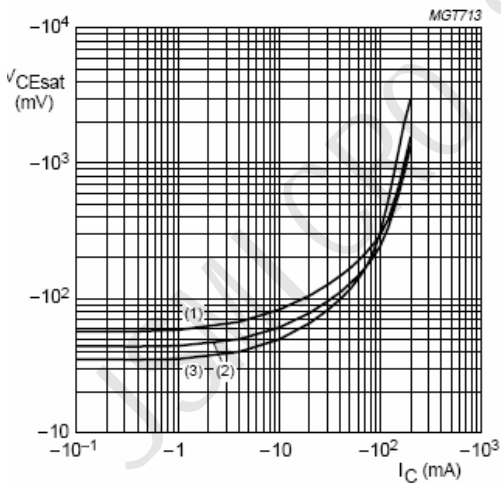
Fig.1 DC current gain as a function of collector current; typical values.



BC857A; $V_{CE} = -5\text{ V}$.

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

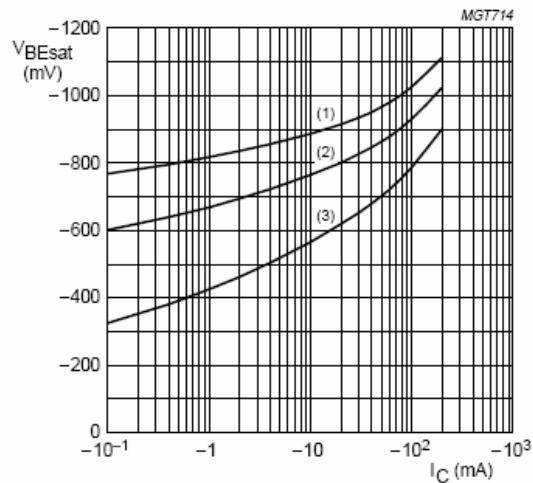
Fig.2 Base-emitter voltage as a function of collector current; typical values.



BC857A; $I_C/I_B = 20$.

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

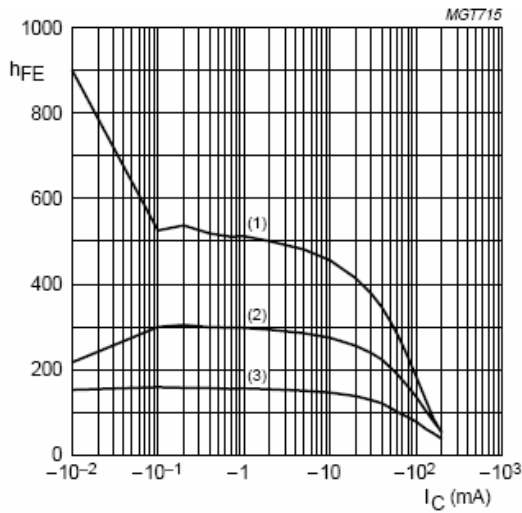
Fig.3 Collector-emitter saturation voltage as a function of collector current; typical values.



BC857A; $I_C/I_B = 20$.

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

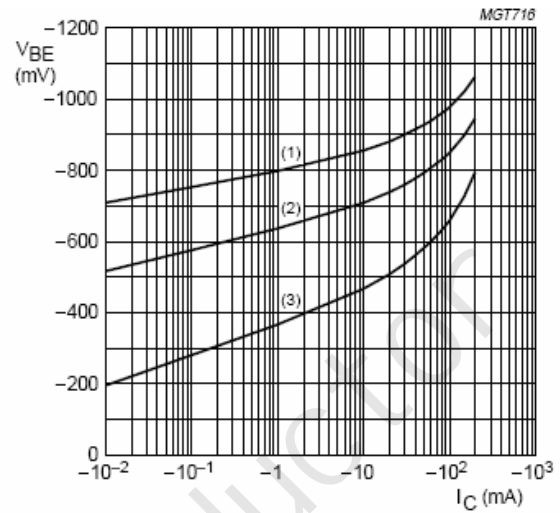
Fig.4 Base-emitter saturation voltage as a function of collector current; typical values.



BC857B; $V_{CE} = -5\text{ V}$.

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

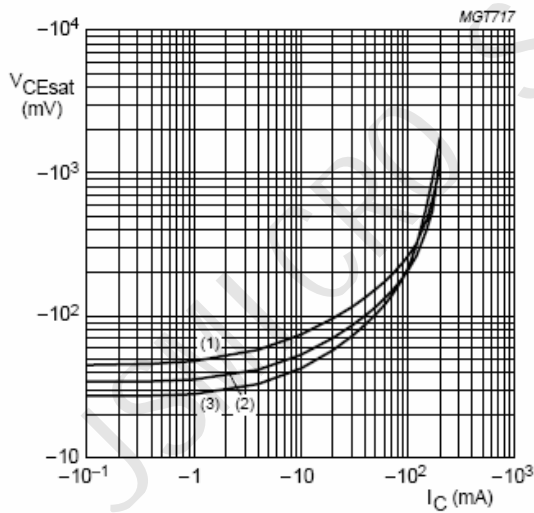
Fig.5 DC current gain as a function of collector current; typical values.



BC857B; $V_{CE} = -5\text{ V}$.

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

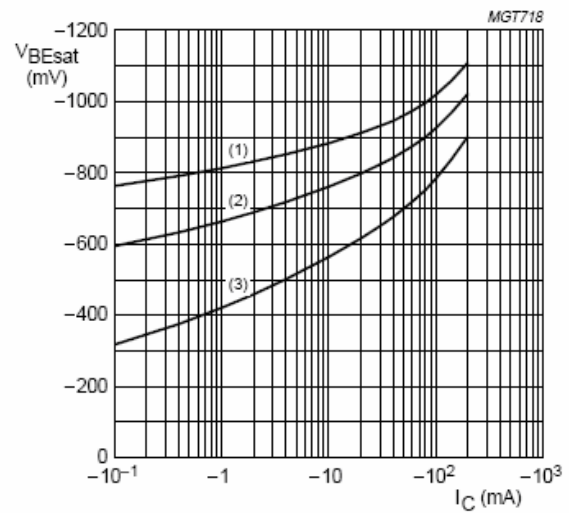
Fig.6 Base-emitter voltage as a function of collector current; typical values.



BC857B; $I_C/I_B = 20$.

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

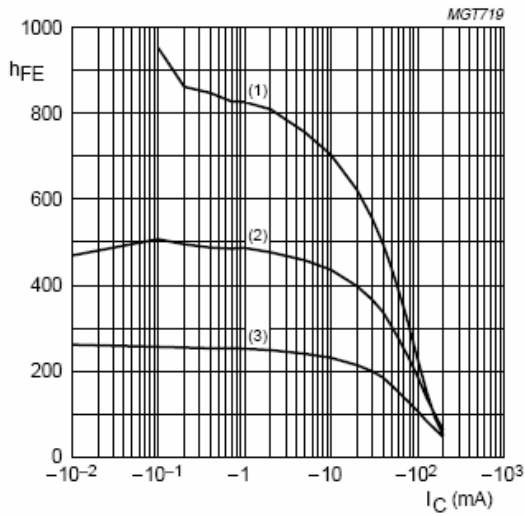
Fig.7 Collector-emitter saturation voltage as a



BC857B; $I_C/I_B = 20$.

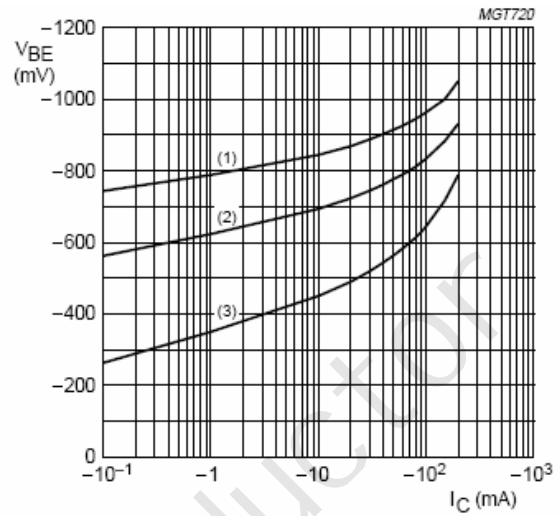
- (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$.
- (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
- (3) $T_{amb} = 150\text{ }^{\circ}\text{C}$.

Fig.8 Base-emitter saturation voltage as a



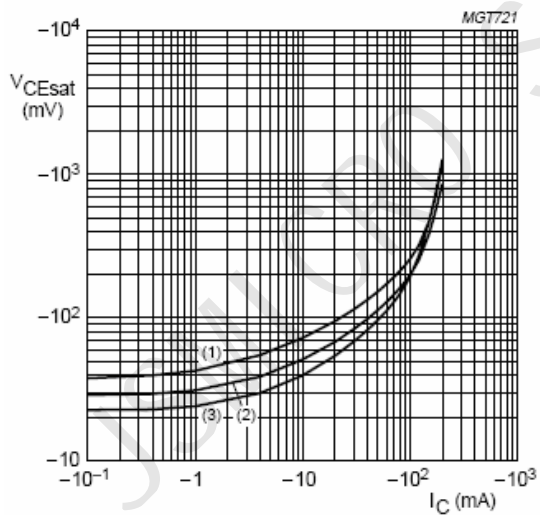
BC857C; $V_{CE} = -5\text{ V}$.
 (1) $T_{amb} = 150\text{ }^{\circ}\text{C}$.
 (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
 (3) $T_{amb} = -55\text{ }^{\circ}\text{C}$.

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



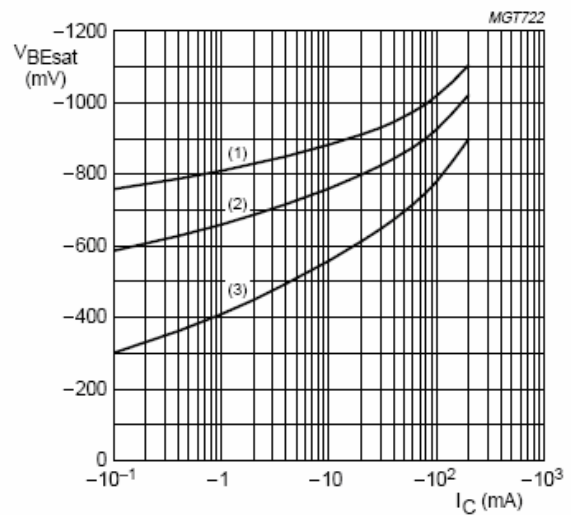
BC857C; $V_{CE} = -5\text{ V}$.
 (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$.
 (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
 (3) $T_{amb} = 150\text{ }^{\circ}\text{C}$.

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



BC857C; $I_C/I_B = 20$.
 (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.



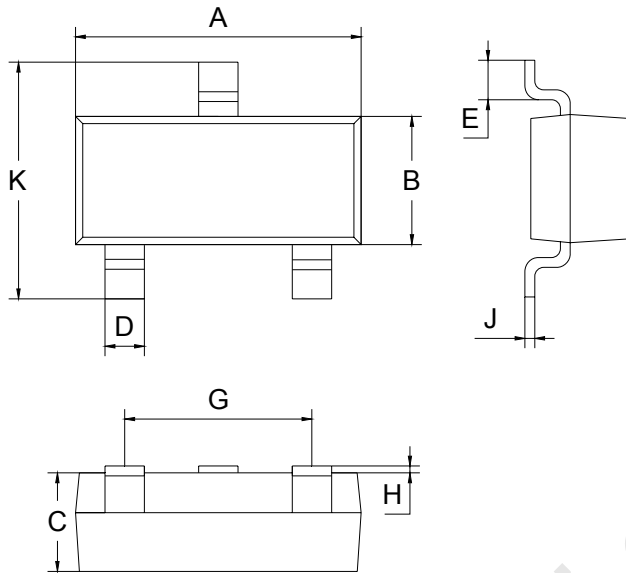
BC857C; $I_C/I_B = 20$.
 (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$.
 (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
 (3) $T_{amb} = 150\text{ }^{\circ}\text{C}$.

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

PACKAGE OUTLINE

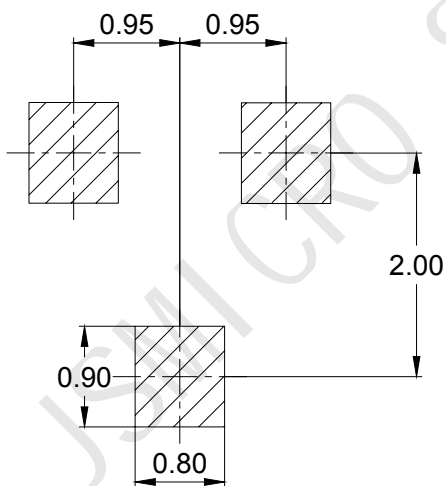
Plastic surface mounted package

SOT-23



| SOT-23 | | |
|----------------------|-------------|------|
| Dim | Min | Max |
| A | 2.70 | 3.10 |
| B | 1.10 | 1.50 |
| C | 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 | | |

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

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