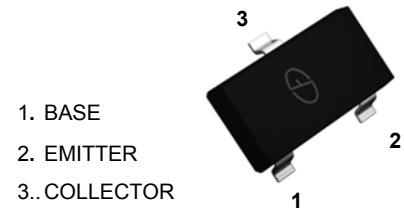


## Feature

- Power dissipation of 150mW
- Ideally suited for automatic insertion
- For switching and AF amplifier applications



SOT-323

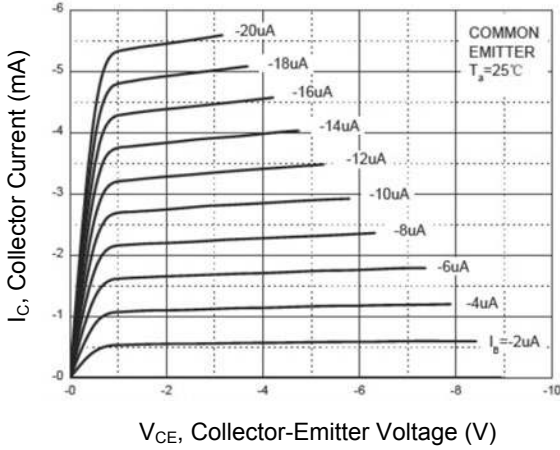
## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)

| Parameter                                   | Symbol           | Value      | Unit |
|---|------------------|------------|------|
| Collector - Base Voltage                    | V <sub>CB0</sub> | -50        | V    |
| Collector - Emitter Voltage                 | V <sub>CEO</sub> | -45        | V    |
| Emitter - Base Voltage                      | V <sub>EBO</sub> | -5         | V    |
| Collector Current - Continuous              | I <sub>C</sub>   | -100       | mA   |
| Collector Power Dissipation                 | P <sub>C</sub>   | 150        | mW   |
| Junction Temperature                        | T <sub>J</sub>   | 150        | °C   |
| Storage Temperature                         | T <sub>STG</sub> | -55 to 150 | °C   |
| Thermal Resistance from Junction to Ambient | R <sub>θJA</sub> | 833        | °C/W |

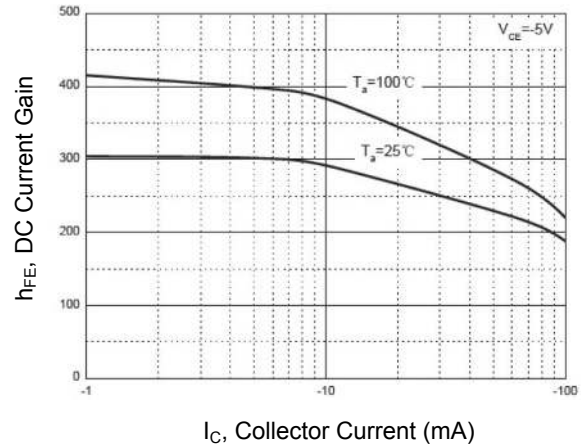
## Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

| Parameter                              | Symbol               | Test Condition   | Value     |       | Unit |  |
|--|----------------------|--|-----------|-------|------|--|
|  |                      |  | Min       | Max   |      |  |
| Collector - Base Breakdown Voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> =-10μA, I <sub>E</sub> =0                 | -50       | -     | V    |  |
| Collector - Emitter Breakdown Voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> =-10mA, I <sub>B</sub> =0                 | -45       | -     | V    |  |
| Emitter - Base Breakdown Voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> =-1μA, I <sub>C</sub> =0                  | -5        | -     | V    |  |
| Collector Cut - Off Current            | I <sub>CB0</sub>     | V <sub>CB</sub> =-30V, I <sub>E</sub> =0                 | -         | -15   | nA   |  |
| DC Current Gain                        | h <sub>FE</sub>      | V <sub>CE</sub> =-5V<br>I <sub>C</sub> =-2mA             | GSBC857AW | 125   | 250  |  |
|  |                      |  | GSBC857BW | 220   | 475  |  |
|  |                      |  | GSBC857CW | 420   | 800  |  |
| Collector - Emitter Saturation Voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =-100mA, I <sub>B</sub> =-5mA             | -         | -0.65 | V    |  |
| Base - Emitter Saturation Voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> =-100mA, I <sub>B</sub> =-5mA             | -         | -1.1  | V    |  |
| Transition Frequency                   | f <sub>T</sub>       | V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA,<br>F=100MHz | 100       | -     | MHz  |  |
| Collector Output Capacitance           | C <sub>ob</sub>      | V <sub>CB</sub> =-10V, F=1MHz                            | -         | 4.5   | pF   |  |

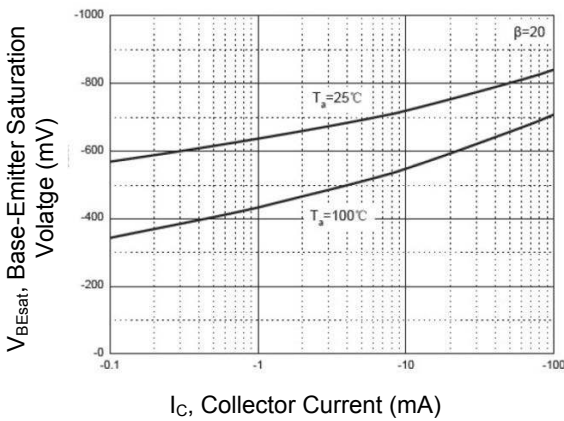
**Typical Characteristic Curves**



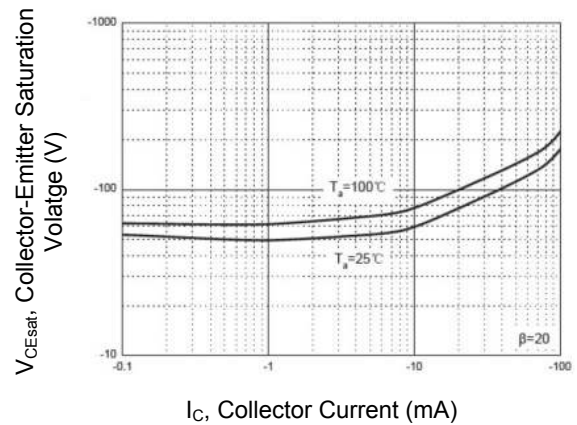
**Figure 1. Static Characteristic**



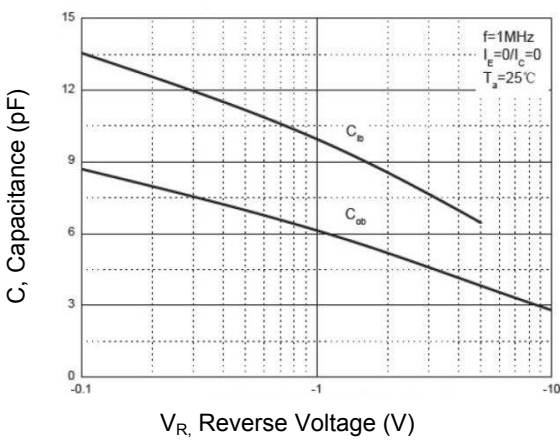
**Figure 2. DC Current Gain vs. Collector Current**



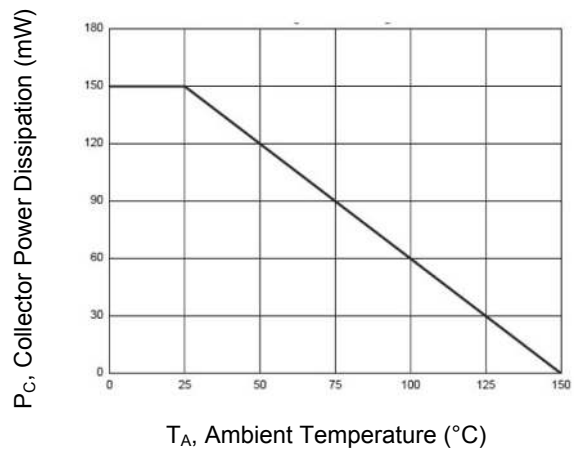
**Figure 3. Base Emitter Saturation Voltage vs. Ic**



**Figure 4. Collector Emitter Saturation Voltage vs. Ic**

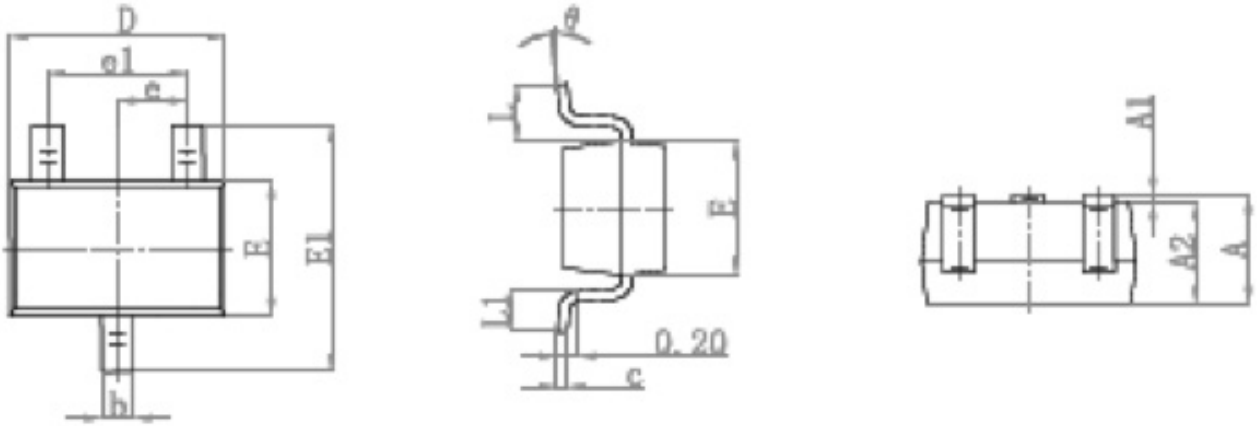


**Figure 5. Capacitance Characteristics**



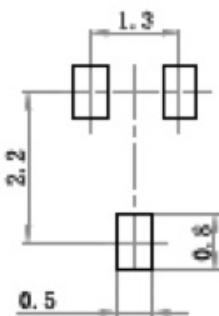
**Figure 6. Power Derating**

**Package Outline Dimensions SOT-323**



| Symbol   | Dimensions in Millimeters |       | Dimensions in Inches |       |
|----------|---------------------------|-------|----------------------|-------|
|          | Min                       | Max   | Min                  | Max   |
| A        | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1       | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2       | 0.900                     | 1.000 | 0.035                | 0.039 |
| b        | 0.200                     | 0.400 | 0.008                | 0.016 |
| c        | 0.080                     | 0.150 | 0.003                | 0.006 |
| D        | 2.000                     | 2.200 | 0.079                | 0.087 |
| E        | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1       | 2.150                     | 2.450 | 0.085                | 0.096 |
| e        | 0.650 TYP                 |       | 0.026 TYP            |       |
| e1       | 1.200                     | 1.400 | 0.047                | 0.055 |
| L        | 0.525 REF                 |       | 0.021 REF            |       |
| L1       | 0.260                     | 0.460 | 0.010                | 0.018 |
| $\theta$ | 0°                        | 8°    | 0°                   | 8°    |

**Recommended Pad Layout**



Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.



# **GSBC857xW**

## **PNP Transistor**

### **Order Information**

| <b>Device</b> | <b>Package</b> | <b>Marking</b> | <b>Carrier</b> | <b>Quantity</b> |
|---------------|----------------|----------------|----------------|-----------------|
| GSBC857AW     | SOT-323        | 3E             | Tape & Reel    | 3,000 Reel      |
| GSBC857BW     | SOT-323        | 3F             | Tape & Reel    | 3,000 Reel      |
| GSBC857CW     | SOT-323        | 3G             | Tape & Reel    | 3,000 Reel      |