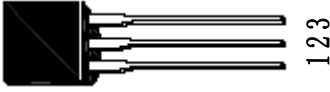
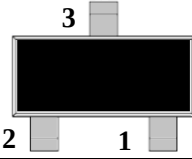


## 1、Features

- Lead(Pb)-Free
- Collector Current:  $I_C=1.5A$
- Collector Power Dissipation:  $P_C=1W(T_C=25^{\circ}C)$
- Complimentary to SS8550

## 2、Pinning information

| PIN | Description  | Simplified outline                                                                |                                                                                     |
|-----|--------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1   | Emitter(E)   |  |  |
| 2   | Base(B)      |                                                                                   |                                                                                     |
| 3   | Collector(C) |                                                                                   |                                                                                     |
|     |              | TO-92                                                                             | SOT-23                                                                              |

## 3、Limiting value

( $T_a = 25^{\circ}C$  unless otherwise noted).

| SYMBOL | PARAMETER                   |        | Limit       | UNIT        |
|--------|-----------------------------|--------|-------------|-------------|
| Vcbo   | Collector-Base Voltage      |        | 40          | V           |
| Vceo   | Collector-Emitter Voltage   |        | 25          | V           |
| Vebo   | Emitter-Base Voltage        |        | 6           | V           |
| Ic     | Collector Current           |        | 1.5         | A           |
| Pc     | Collector Power Dissipation | TO-92  | 1.0         | W           |
|        |                             | SOT-23 | 0.36        |             |
| Tj     | Junction Temperature        |        | +150        | $^{\circ}C$ |
| Tstg   | Storage Temperature         |        | -55 to +150 | $^{\circ}C$ |

## 4、Electrical Characteristics ( $T_a = 25^{\circ}C$ unless otherwise noted)

| SYMBOL   | PARAMETER                            | CONDITIONS                | MIN | Typ | MAX | UNIT |
|----------|--------------------------------------|---------------------------|-----|-----|-----|------|
| BVcbo    | Collector-Base Breakdown Voltage     | $I_C = 100\mu A, I_B = 0$ | 40  |     |     | V    |
| Bvceo    | Collector-Emitter Breakdown Voltage  | $I_C = 2mA, I_E = 0$      | 25  |     |     | V    |
| Bvebo    | Emitter-Base Breakdown Voltage       | $I_E = 100\mu A, I_C = 0$ | 6   |     |     | V    |
| Icbo     | Collector Cut-off Current            | $V_{CB} = 35V, I_E = 0$   |     |     | 100 | nA   |
| Iebo     | Emitter Cut-off Current              | $V_{EB} = 6V, I_C = 0$    |     |     | 100 | nA   |
| Vce(sat) | Collector-Emitter Saturation Voltage | $I_C=800mA$<br>$I_B=80mA$ |     |     | 0.5 | V    |
| Vbe(sat) | Base-Emitter Saturation Voltage      | $I_C=800mA$<br>$I_B=80mA$ |     |     | 1.2 | V    |
| Vbe(on)  | Base-Emitter On Voltage              | $V_{CE} = 1V, I_C=10mA$   |     |     | 1.0 | V    |
| $h_{FE}$ | DC Current Gain                      | $V_{CE} = 1V, I_C=100mA$  | 85  |     | 300 |      |
| $f_T$    | Current Gain Bandwidth Product       | $V_{CE}=10V, I_C= 50mA$   | 100 |     |     | MHz  |
| Cob      | Output Capacitance                   | $V_{CB}=10V, f = 1MHz$    |     | 9.0 |     | pF   |

### $h_{FE}$ Classification

|       |        |         |         |
|-------|--------|---------|---------|
| Rank  | B      | C       | D       |
| Range | 85-160 | 120-200 | 170-300 |

## 5. Electrical Characteristics Curve

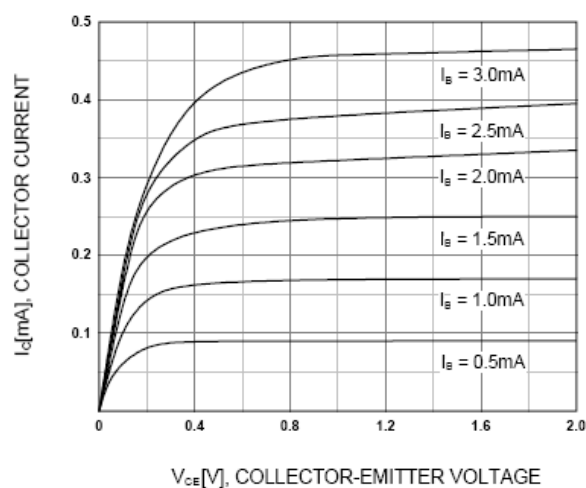


Figure 1. Static Characteristic

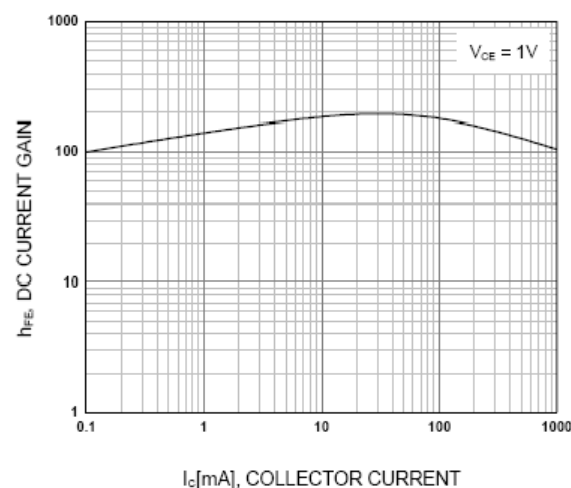


Figure 2. DC current Gain

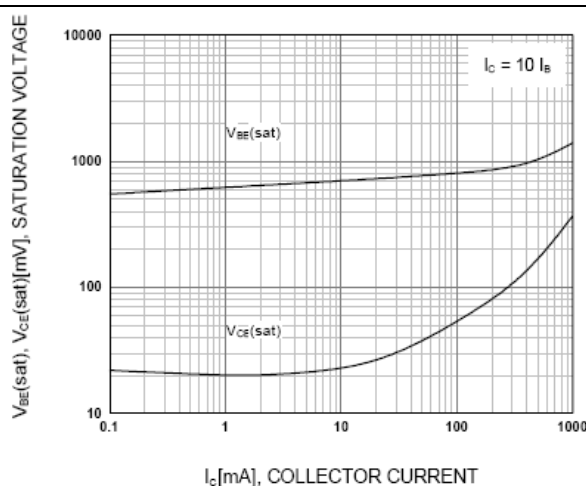
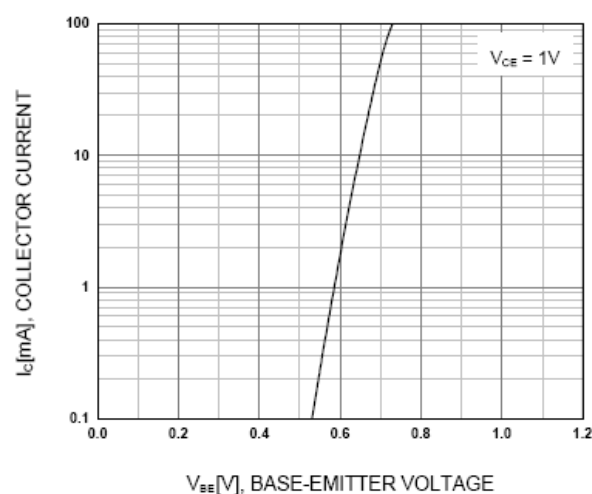
Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

Figure 4. Base-Emitter On Voltage

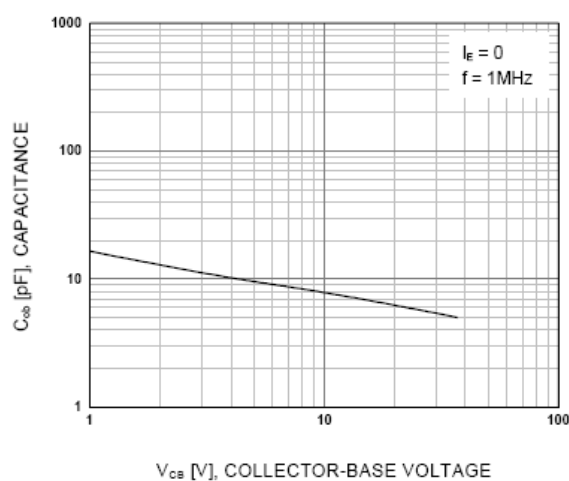


Figure 5. Collector Output Capacitance

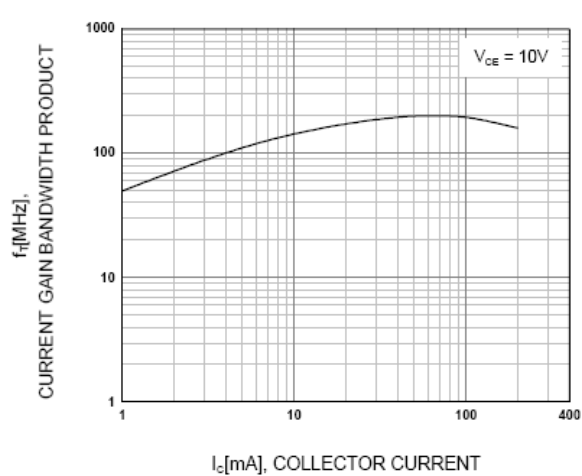
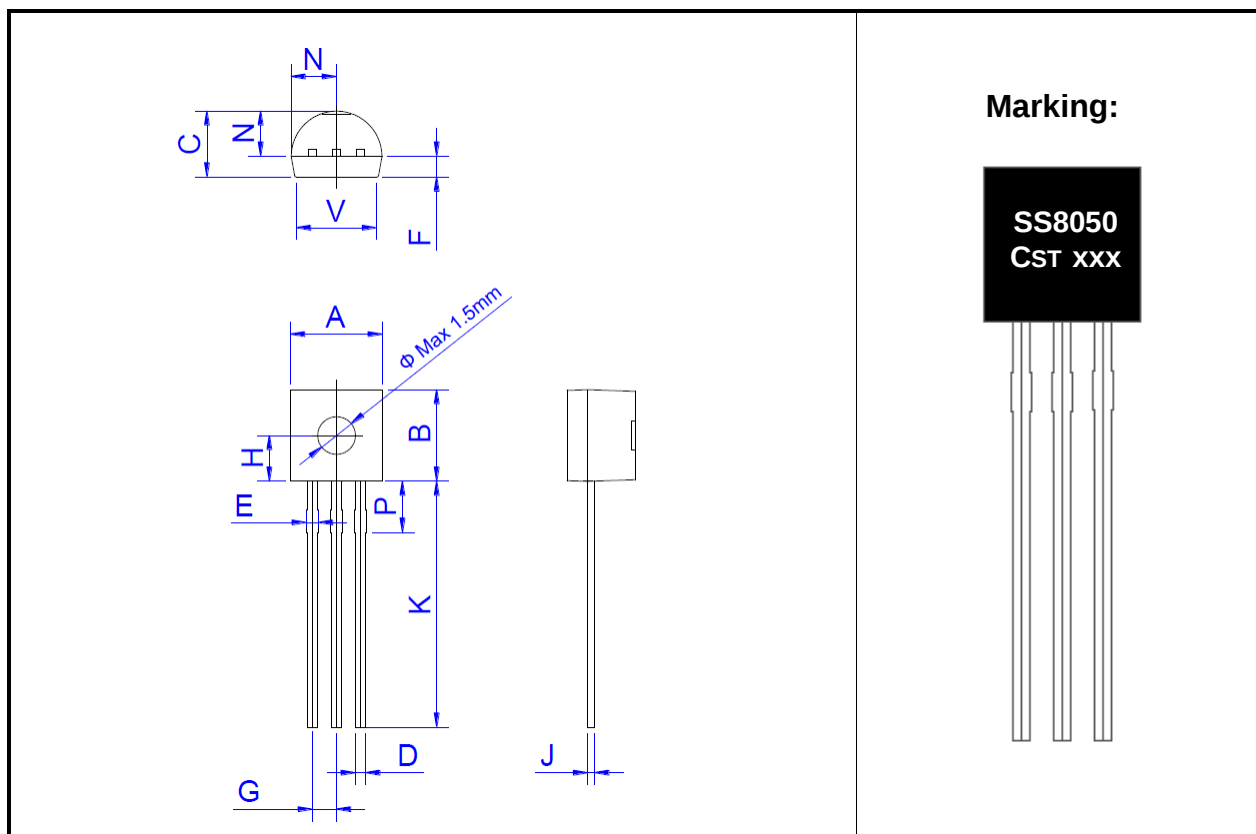


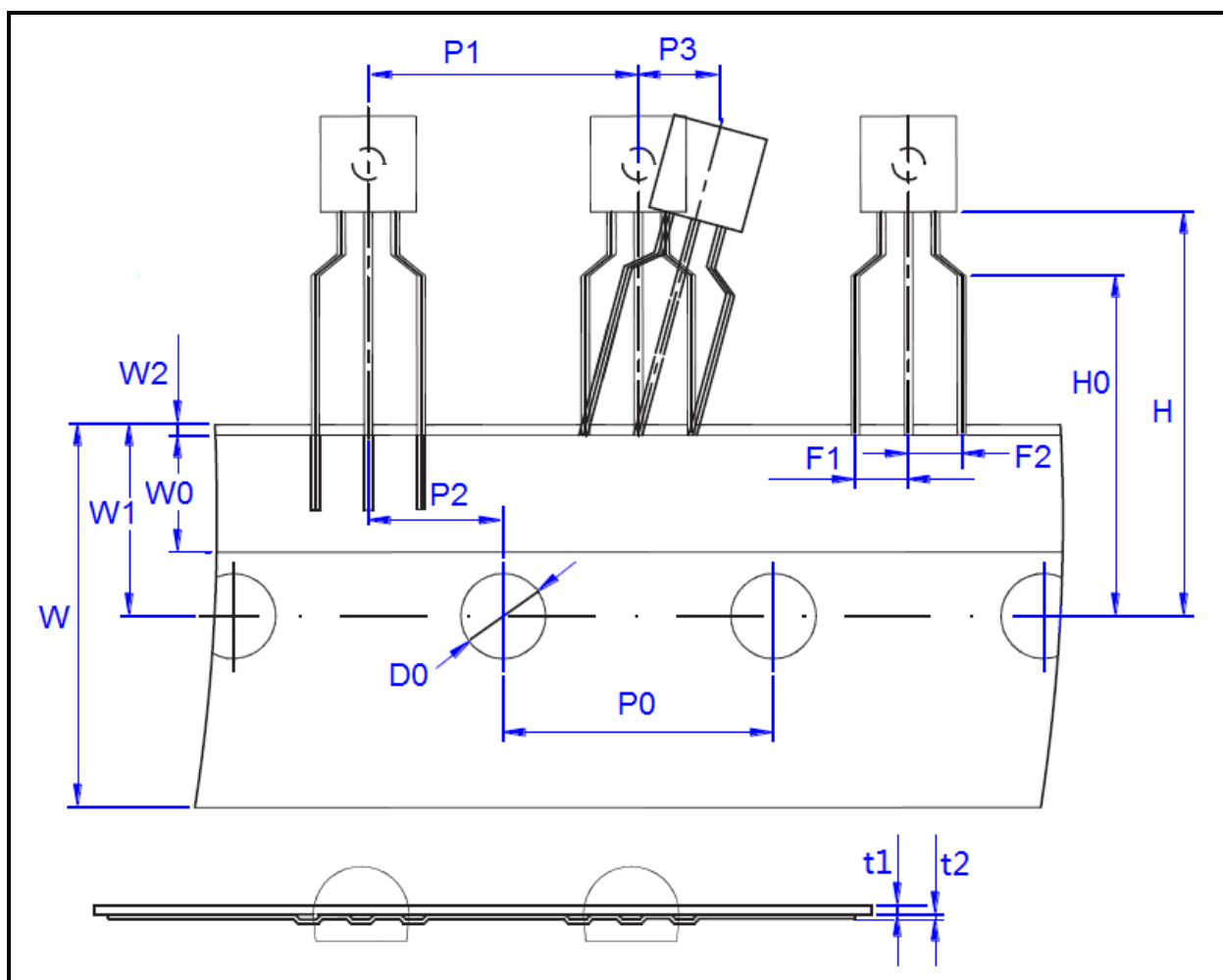
Figure 6. Current Gain Bandwidth Product

## 6、Package outline(TO-92)



| DIM | Inches |       |       | Millimeters |      |      |
|-----|--------|-------|-------|-------------|------|------|
|     | Min    | Type  | Max   | Min         | Type | Max  |
| A   | 0.175  | -     | 0.205 | 4.45        | -    | 5.20 |
| B   | 0.170  | -     | 0.210 | 4.32        | -    | 5.33 |
| C   | 0.125  | -     | 0.165 | 3.18        | -    | 4.19 |
| D   | 0.015  | -     | 0.020 | 0.38        | -    | 0.50 |
| E   | 0.016  | -     | 0.028 | 0.40        | -    | 0.70 |
| F   | -      | 0.043 | -     | -           | 1.10 | -    |
| G   | -      | 0.050 | -     | -           | 1.27 | -    |
| H   | -      | 0.091 | -     | -           | 2.30 | -    |
| J   | 0.010  | -     | 0.016 | 0.26        | -    | 0.40 |
| K   | 0.500  | -     | 0.591 | 12.7        | -    | 15.0 |
| N   | 0.080  | -     | 0.105 | 2.04        | -    | 2.66 |
| P   | 0.091  | -     | 0.106 | 2.30        | -    | 2.70 |
| V   | -      | -     | 0.177 | -           | -    | 4.50 |

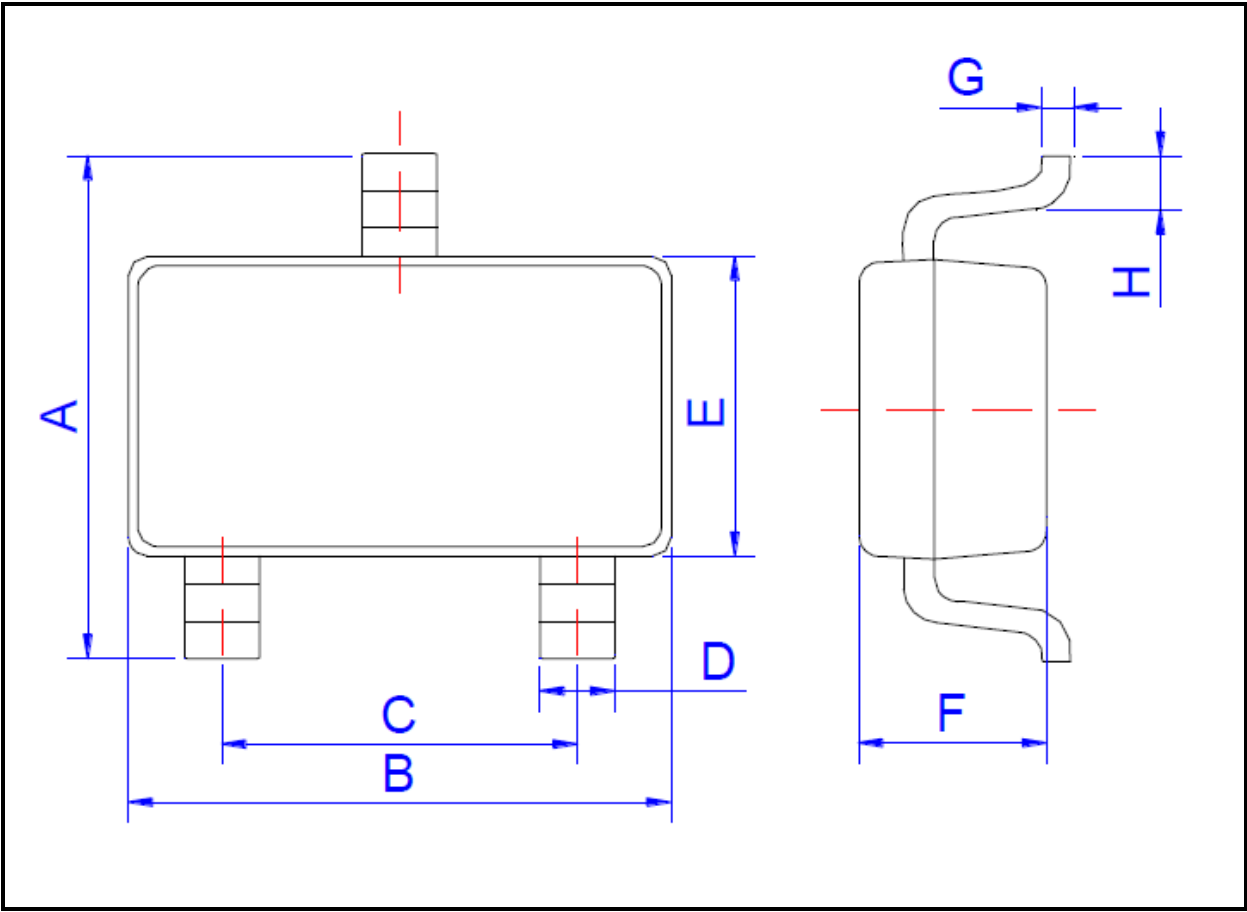
## 7、TO-92 Tape and Reel



| DIM | Inches |       |       | Millimeters |      |      |
|-----|--------|-------|-------|-------------|------|------|
|     | Min    | Type  | Max   | Min         | Type | Max  |
| P1  | -      | 0.500 | -     | -           | 12.7 | -    |
| P0  | -      | 0.500 | -     | -           | 12.7 | -    |
| P2  | -      | 0.250 | -     | -           | 6.35 | -    |
| F1  | -      | 0.098 | -     | -           | 2.50 | -    |
| F2  | -      | 0.098 | -     | -           | 2.50 | -    |
| W   | -      | 0.709 | -     | -           | 18.0 | -    |
| W0  | -      | 0.236 | -     | -           | 6.00 | -    |
| W1  | -      | 0.354 | -     | -           | 9.00 | -    |
| W2  | -      | -     | 0.039 | -           | -    | 1.00 |
| H   | -      | 0.748 | -     | -           | 19.0 | -    |
| H0  | -      | 0.630 | -     | -           | 16.0 | -    |
| D0  | -      | 0.157 | -     | -           | 4.00 | -    |
| t0  | -      | 0.016 | -     | -           | 0.40 | -    |
| t1  | -      | 0.008 | -     | -           | 0.20 | -    |
| P3  | -      | 0     | -     | -           | 0    | -    |

CST

8、Package outline(SOT-23)



| DIM | Inches |       |       | Milimeters |      |      |
|-----|--------|-------|-------|------------|------|------|
|     | Min    | Type  | Max   | Min        | Type | Max  |
| A   | 0.104  |       | 0.116 | 2.65       |      | 2.95 |
| B   |        | 0.115 |       |            | 2.92 |      |
| C   |        | 0.075 |       |            | 1.90 |      |
| D   | 0.014  |       | 0.018 | 0.35       |      | 0.45 |
| E   |        | 0.051 |       |            | 1.30 |      |
| F   |        | 0.043 |       |            | 1.10 |      |
| G   |        | 0.006 |       |            | 0.16 |      |
| H   | 0.010  |       | 0.022 | 0.25       |      | 0.55 |