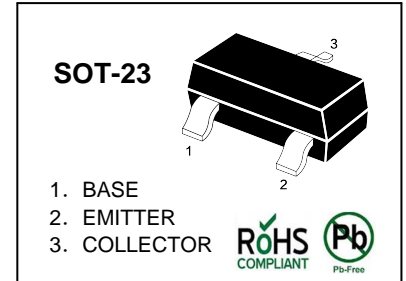


### NPN Silicon Epitaxial Planar Transistor

for general purpose application

The transistor is subdivided into three groups O, Y and G according to its DC current gain.



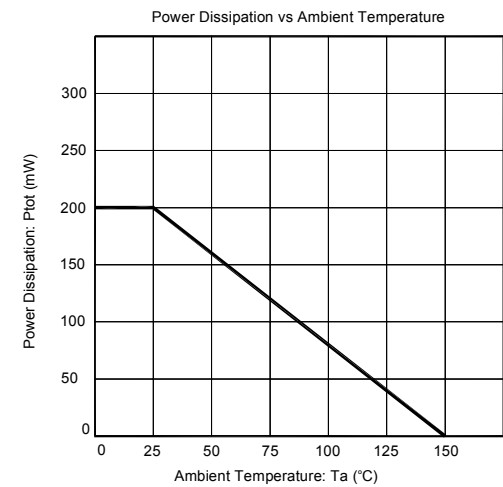
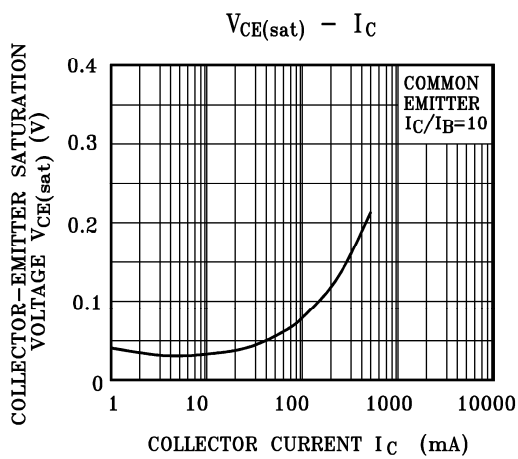
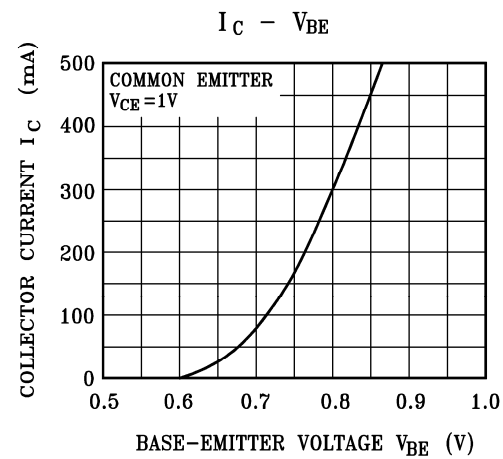
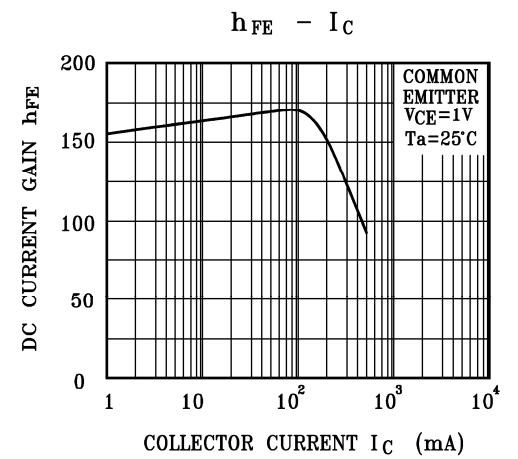
#### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

| Parameter                 | Symbol    | Value         | Unit             |
|---------------------------|-----------|---------------|------------------|
| Collector Base Voltage    | $V_{CBO}$ | 35            | V                |
| Collector Emitter Voltage | $V_{CEO}$ | 30            | V                |
| Emitter Base Voltage      | $V_{EBO}$ | 5             | V                |
| Collector Current         | $I_C$     | 500           | mA               |
| Base Current              | $I_B$     | 50            | mA               |
| Power Dissipation         | $P_{tot}$ | 200           | mW               |
| Junction Temperature      | $T_j$     | 150           | $^\circ\text{C}$ |
| Storage Temperature Range | $T_S$     | - 55 to + 150 | $^\circ\text{C}$ |

#### Characteristics at $T_a = 25^\circ\text{C}$

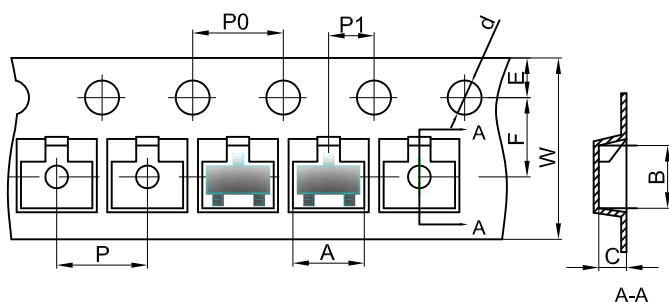
| Parameter   | Symbol        | Min.     | Typ. | Max. | Unit          |   |
|---|---------------|----------|------|------|---------------|---|
| DC Current Gain<br>at $V_{CE} = 1\text{ V}$ , $I_C = 100\text{ mA}$<br><br>at $V_{CE} = 6\text{ V}$ , $I_C = 400\text{ mA}$ | O             | $h_{FE}$ | 70   | -    | 140           | - |
|   | Y             | $h_{FE}$ | 120  | -    | 240           | - |
|   | G             | $h_{FE}$ | 200  | -    | 400           | - |
|   | O             | $h_{FE}$ | 25   | -    | -             | - |
|   | Y             | $h_{FE}$ | 40   | -    | -             | - |
|   | G             |          |      |      |               |   |
| Collector Cutoff Current<br>at $V_{CB} = 35\text{ V}$   | $I_{CBO}$     | -        | -    | 0.1  | $\mu\text{A}$ |   |
| Emitter Cutoff Current<br>at $V_{EB} = 5\text{ V}$  | $I_{EBO}$     | -        | -    | 0.1  | $\mu\text{A}$ |   |
| Collector Emitter Saturation Voltage<br>at $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$                                     | $V_{CE(sat)}$ | -        | -    | 0.25 | V             |   |
| Base Emitter Voltage<br>at $V_{CE} = 1\text{ V}$ , $I_C = 100\text{ mA}$  | $V_{BE}$      | -        | -    | 1    | V             |   |
| Transition Frequency<br>at $V_{CE} = 6\text{ V}$ , $I_C = 20\text{ mA}$   | $f_T$         | -        | 300  | -    | MHz           |   |
| Collector Base Capacitance<br>at $V_{CB} = 6\text{ V}$ , $f = 1\text{ MHz}$   | $C_{cb}$      | -        | 7    | -    | pF            |   |

Typical Characteristics



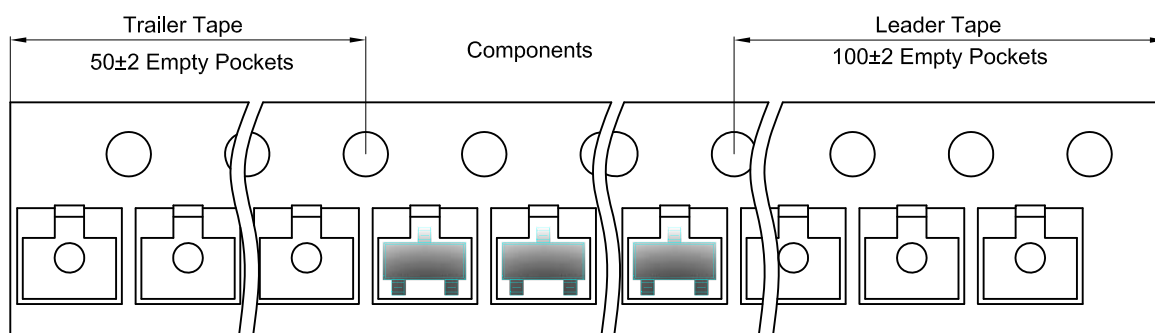
### SOT-23 Tape and Reel

#### SOT-23 Embossed Carrier Tape

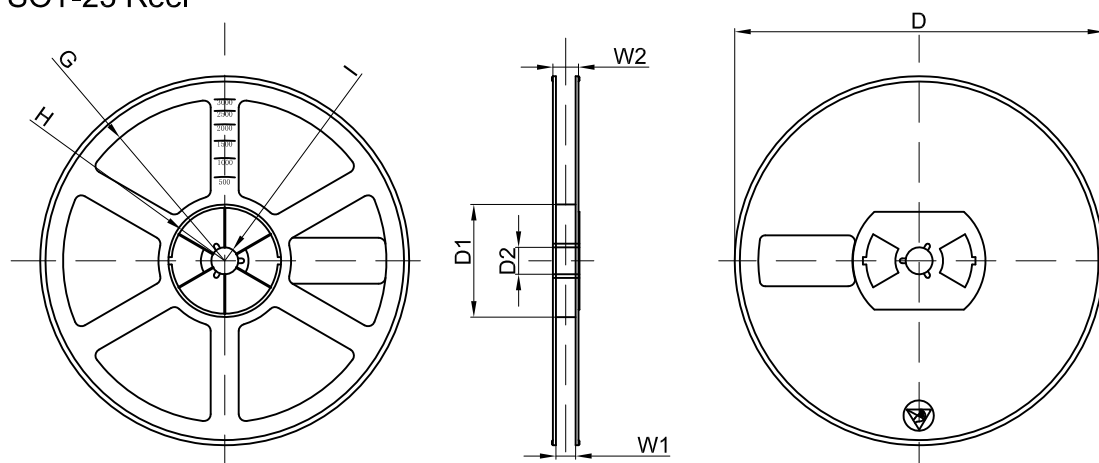


| Dimensions are in millimeter |      |      |      |       |      |      |      |      |      |      |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type                     | A    | B    | C    | d     | E    | F    | P0   | P    | P1   | W    |
| SOT-23                       | 3.15 | 2.77 | 1.22 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

#### SOT-23 Tape Leader and Trailer

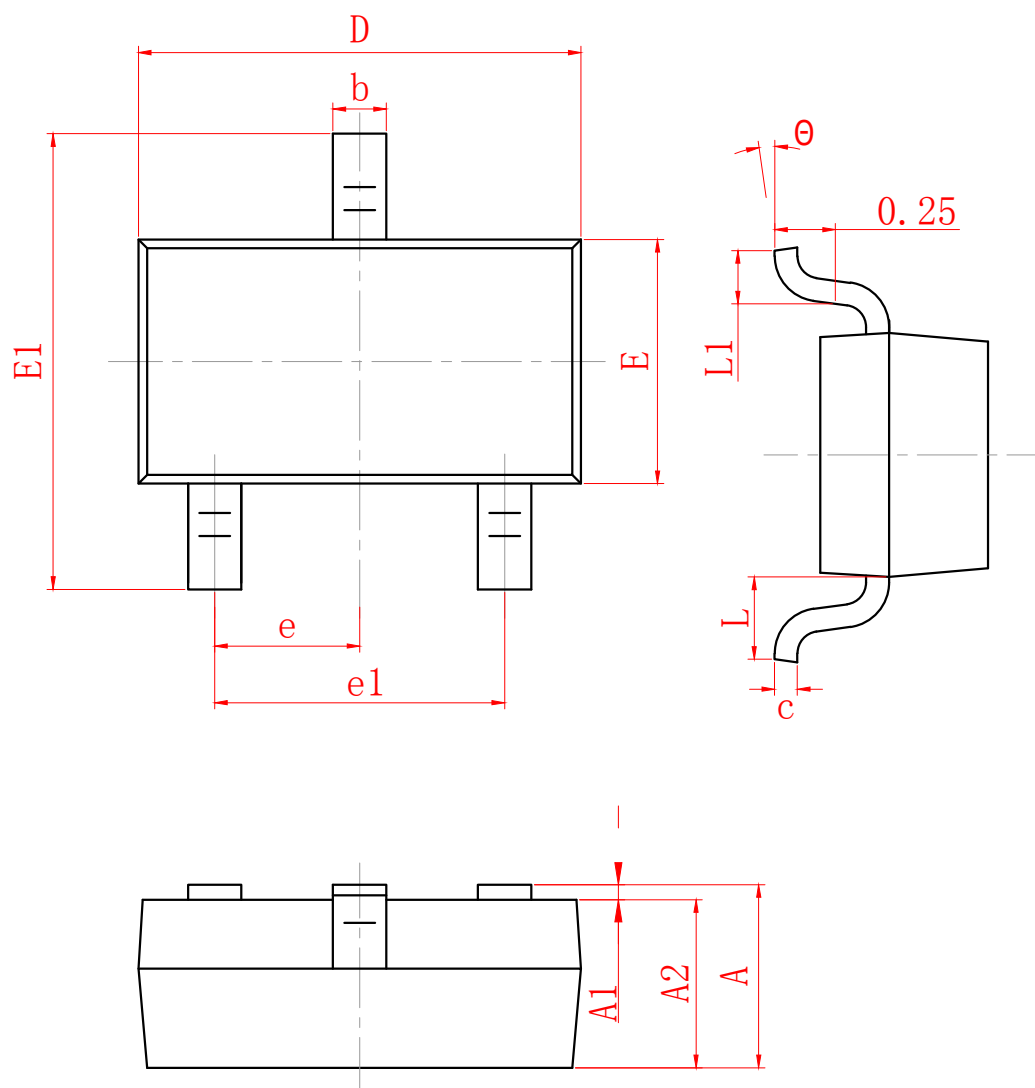


#### SOT-23 Reel



| Dimensions are in millimeter |         |       |       |        |        |       |      |       |
|------------------------------|---------|-------|-------|--------|--------|-------|------|-------|
| Reel Option                  | D       | D1    | D2    | G      | H      | I     | W1   | W2    |
| 7"Dia                        | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |

| REEL     | Reel Size | Box        | Box Size(mm) | Carton      | Carton Size(mm) | G.W.(kg) |
|----------|-----------|------------|--------------|-------------|-----------------|----------|
| 3000 pcs | 7 inch    | 45,000 pcs | 203×203×195  | 180,000 pcs | 438×438×220     |          |



| SYMBOL   | MILLIMETER |       |
|----------|------------|-------|
|          | MIN        | MAX   |
| A        | 0.900      | 1.150 |
| A1       | 0.000      | 0.100 |
| A2       | 0.900      | 1.050 |
| b        | 0.300      | 0.500 |
| c        | 0.080      | 0.150 |
| D        | 2.800      | 3.000 |
| E        | 1.200      | 1.400 |
| E1       | 2.250      | 2.550 |
| e        | 0.950 TYP  |       |
| e1       | 1.800      | 2.000 |
| L        | 0.550 REF  |       |
| L1       | 0.300      | 0.500 |
| $\theta$ | 0°         | 8°    |

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