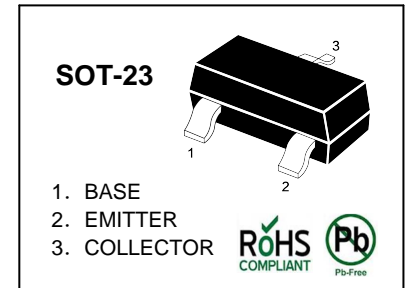


NPN Silicon Epitaxial Planar Transistor

Marking:491A

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

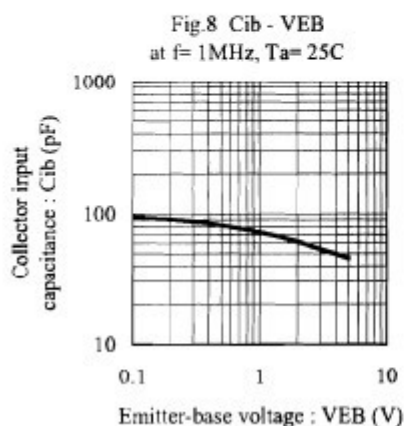
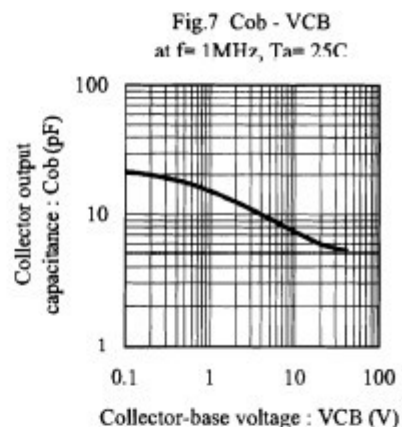
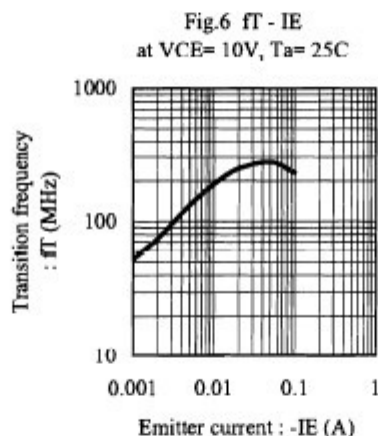
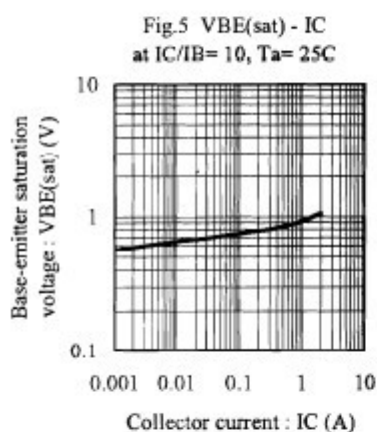
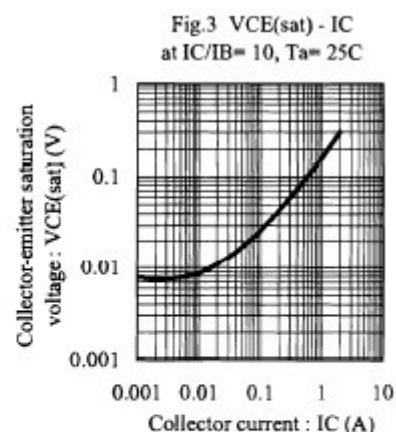
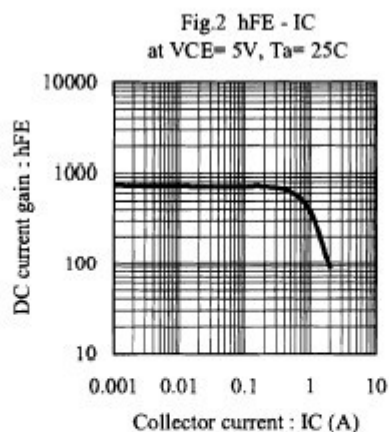
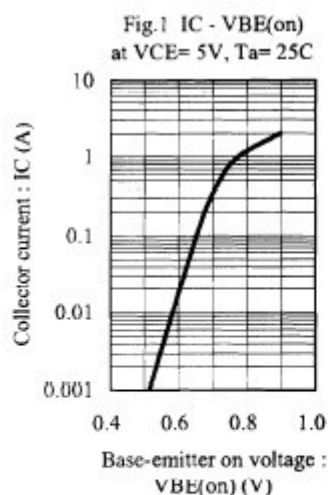
| Parameter | Symbol | Value | Unit |
|---------------------------|-----------|---------------|--------------------|
| Collector Base Voltage | V_{CBO} | 40 | V |
| Collector Emitter Voltage | V_{CEO} | 40 | V |
| Emitter Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 1 | A |
| Peak Pulse Current | I_{CM} | 2 | A |
| 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 $T_a = 25\text{ }^{\circ}\text{C}$

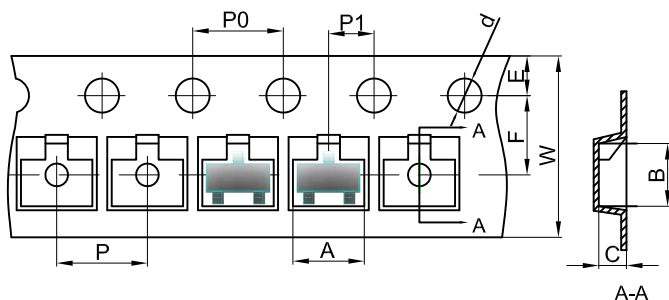
| Parameter | Symbol | Min. | Max. | Unit |
|--|----------------------------------|-------------------|---------------|-------------|
| DC Current Gain at $V_{CE} = 5\text{ V}$, $I_C = 1\text{ mA}$ at $V_{CE} = 5\text{ V}$, $I_C = 500\text{ mA}$ at $V_{CE} = 5\text{ V}$, $I_C = 1\text{ A}$ | h_{FE} h_{FE} h_{FE} | 300 300 200 | - 900 - | - - - |
| Collector Base Cutoff Current at $V_{CB} = 30\text{ V}$ | I_{CBO} | - | 100 | nA |
| Collector Emitter Cutoff Current at $V_{CE} = 30\text{ V}$ | I_{CES} | - | 100 | nA |
| Emitter Base Cutoff Current at $V_{EB} = 4\text{ V}$ | I_{EBO} | - | 100 | nA |
| Collector Emitter Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ at $I_C = 1\text{ A}$, $I_B = 100\text{ mA}$ | V_{CEsat} | - - | 0.3 0.5 | V |
| Base Emitter Saturation Voltage at $I_C = 1\text{ A}$, $I_B = 100\text{ mA}$ | V_{BEsat} | - | 1.2 | V |
| Base Emitter Voltage at $I_C = 1\text{ A}$, $V_{CE} = 5\text{ V}$ | V_{BE} | - | 1.1 | V |
| Collector Output Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$ | C_{ob} | - | 10 | pF |
| Gain Bandwidth Product at $V_{CE} = 10\text{ V}$, $I_C = 50\text{ mA}$, $f = 100\text{ MHz}$ | f_T | 150 | - | MHz |

Typical Characteristics



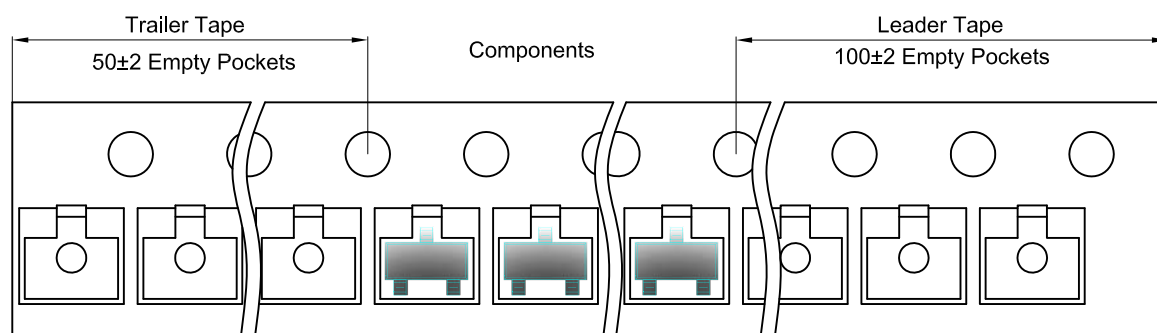
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

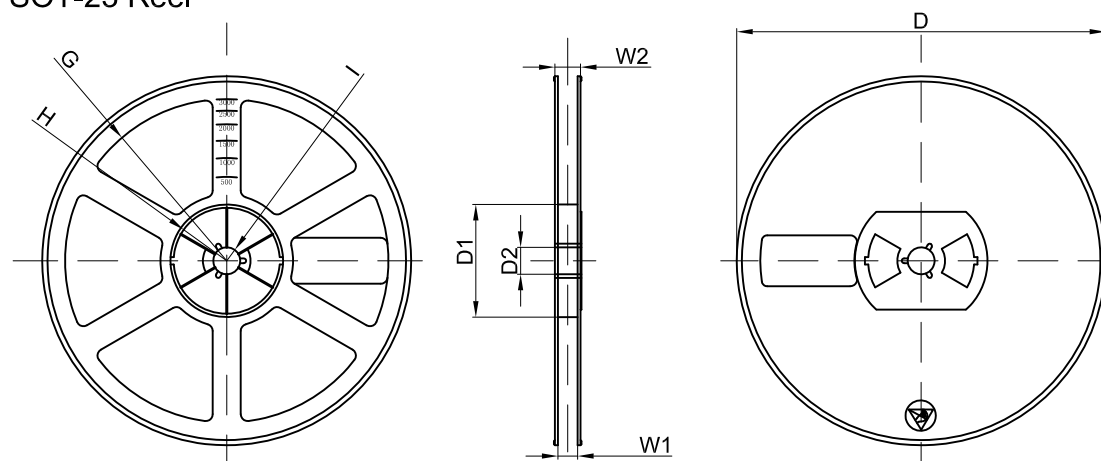


| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| SOT-23 | 3.15 | 2.77 | 1.22 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

SOT-23 Tape Leader and Trailer

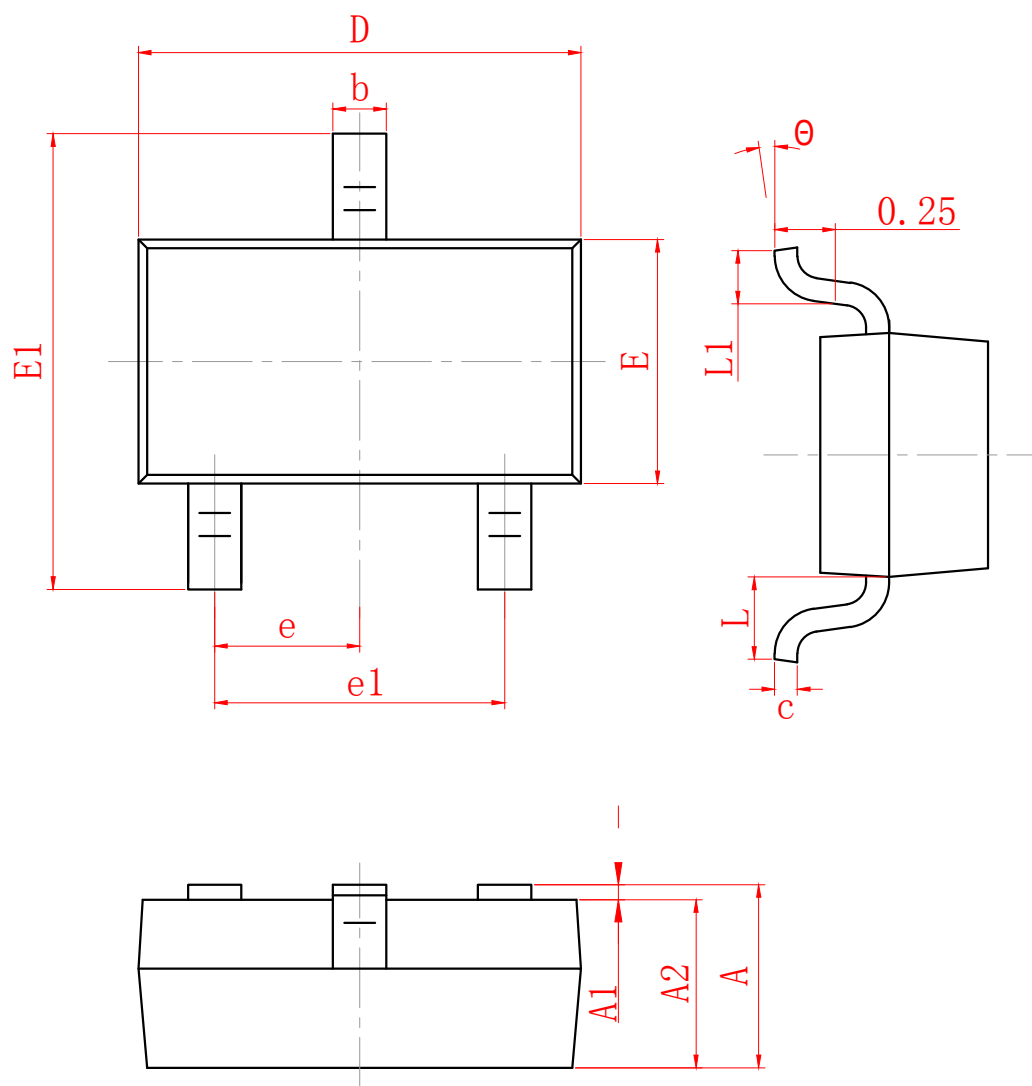


SOT-23 Reel



| 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 |
| θ | 0° | 8° |

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