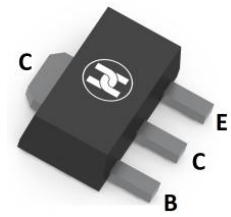
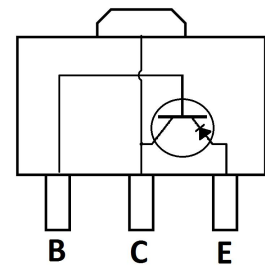


BIPOLAR TRANSISTOR (PNP)
FEATURES

- Power Transistor
- Excellent DC current gain
- Low Collector-emitter saturation voltage
- Surface Mount device


SOT-89

MECHANICAL DATA

- Case: SOT-89
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.055 grams (approximate)

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|------------------|------------|------|
| Collector-Base Voltage | V _{CB0} | -30 | V |
| Collector-Emitter Voltage | V _{CEO} | -20 | V |
| Emitter-Base Voltage | V _{EBO} | -6 | V |
| Collector Current | I _C | -3 | A |
| Collector Power Dissipation | P _C | 500 | mW |
| Thermal Resistance From Junction To Ambient | R _{θJA} | 250 | °C/W |
| Junction Temperature | T _J | 150 | °C |
| Storage Temperature | T _{STG} | -55 ~ +150 | °C |

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

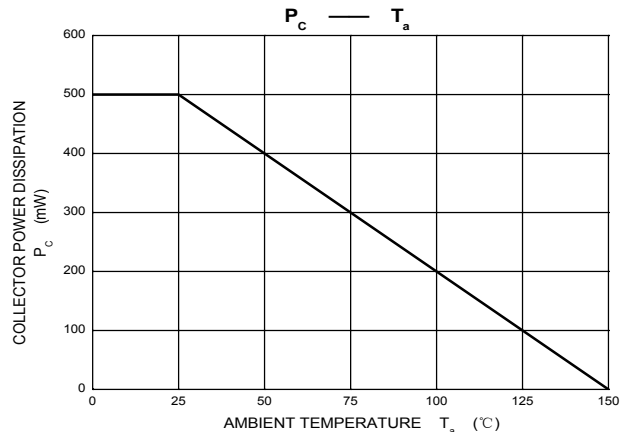
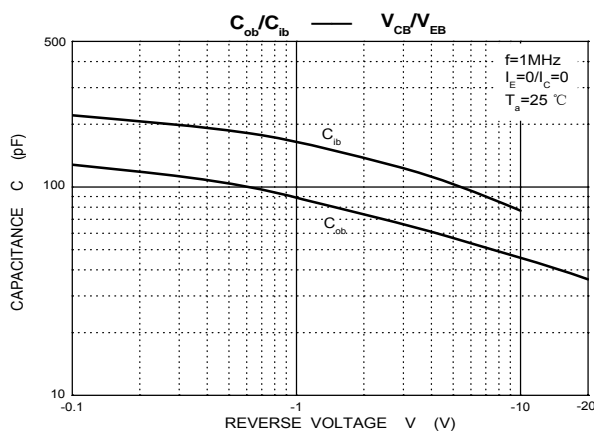
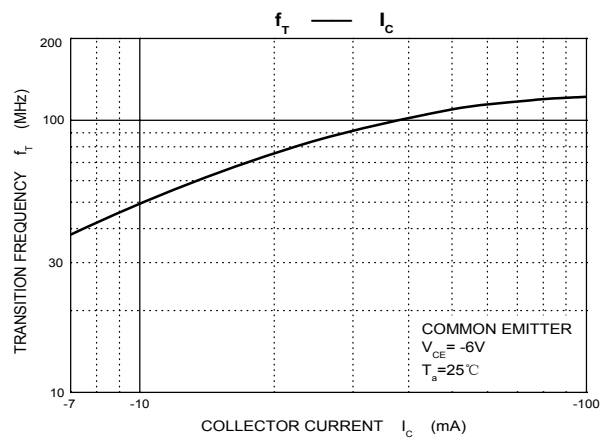
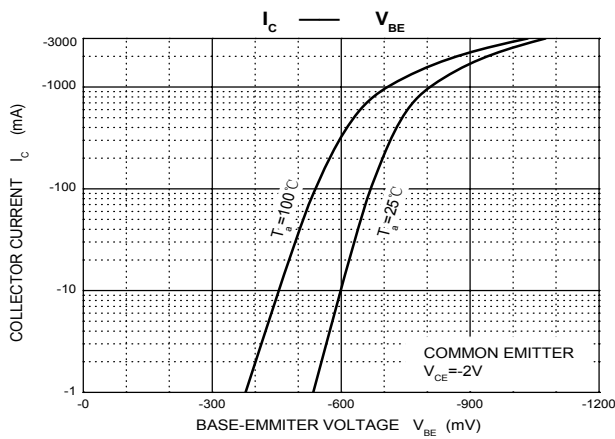
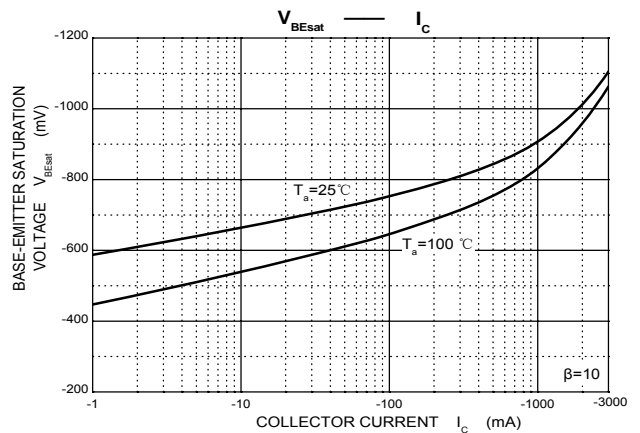
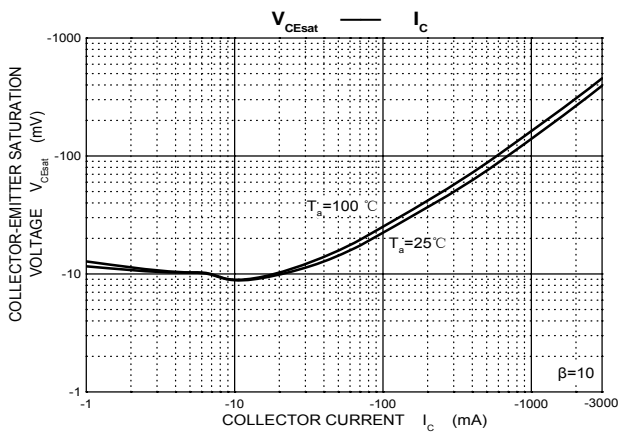
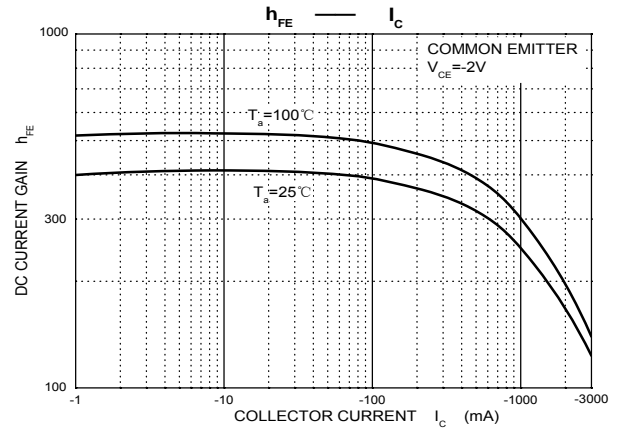
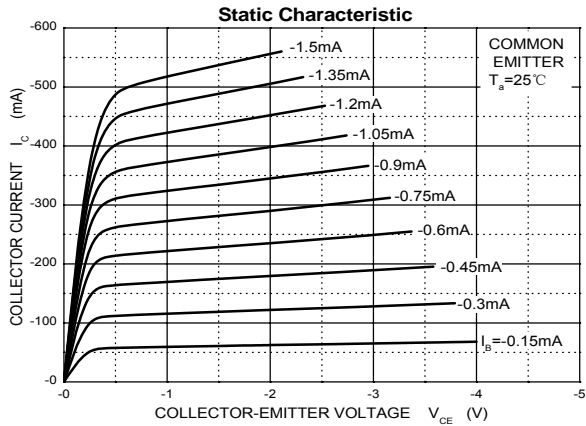
| Parameter | Symbol | Min | Typ | Max | Unit | Conditions |
|--------------------------------------|----------------------|-----|-----|-------|------|--|
| Collector-base breakdown voltage | V _{(BR)CBO} | -30 | | | V | I _C =-50uA, I _E =0 |
| Collector-emitter breakdown voltage | V _{(BR)CEO} | -20 | | | V | I _C =-1mA, I _B =0 |
| Emitter-base breakdown voltage | V _{(BR)EBO} | -6 | | | V | I _E =-50uA, I _C =0 |
| Collector cut-off current | I _{CBO} | | | -0.5 | uA | V _{CB} =-20V, I _E =0 |
| Emitter cut-off current | I _{EBO} | | | -0.5 | uA | V _{EB} =-5V, I _C =0 |
| DC current gain | h _{FE} | 80 | | 390 | | V _{CE} =-2V, I _C =-0.5A |
| Collector-emitter saturation voltage | V _{CE(sat)} | | | -0.45 | V | I _C =-1.5A, I _B =-0.15A |
| Transition frequency | f _T | | 120 | | MHz | V _{CE} =-6V, I _C =-50mA, f=30MHz |
| Collector output capacitance | C _{ob} | | 60 | | pF | V _{CE} =-20V, I _E =0, f=1MHz |

CLASSIFICATION OF h_{FE}

| Rank | P | Q | R |
|---------|--------|---------|---------|
| Range | 82-180 | 120-270 | 180-390 |
| Marking | BFP | BFQ | BFR |

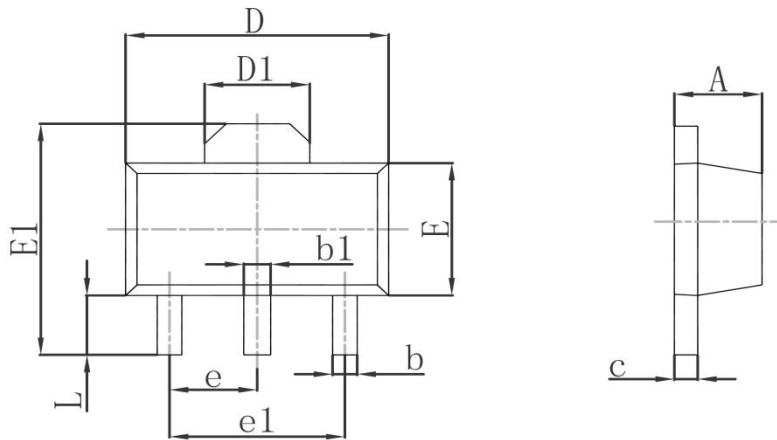
BIPOLAR TRANSISTOR (PNP)

Typical Characteristics



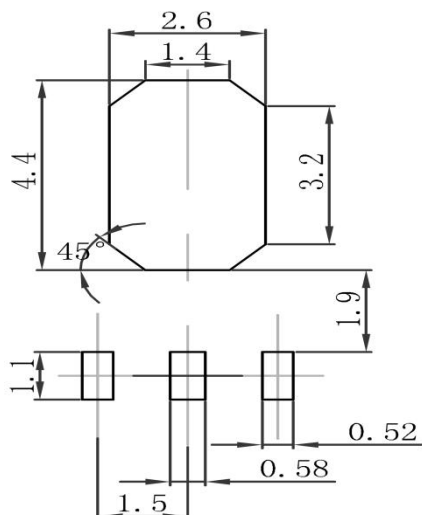
BIPOLAR TRANSISTOR (PNP)

SOT-89 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.400 | 1.600 | 0.055 | 0.063 |
| b | 0.320 | 0.520 | 0.013 | 0.020 |
| b1 | 0.400 | 0.580 | 0.016 | 0.023 |
| c | 0.350 | 0.440 | 0.014 | 0.017 |
| D | 4.400 | 4.600 | 0.173 | 0.181 |
| D1 | 1.550REF | | 0.061REF | |
| E | 2.300 | 2.600 | 0.091 | 0.102 |
| E1 | 3.940 | 4.250 | 0.155 | 0.167 |
| e | 1.500TYP | | 0.060TYP | |
| e1 | 3.000TYP | | 0.118TYP | |
| L | 0.900 | 1.200 | 0.035 | 0.047 |

SOT-89 Suggested Pad Layout



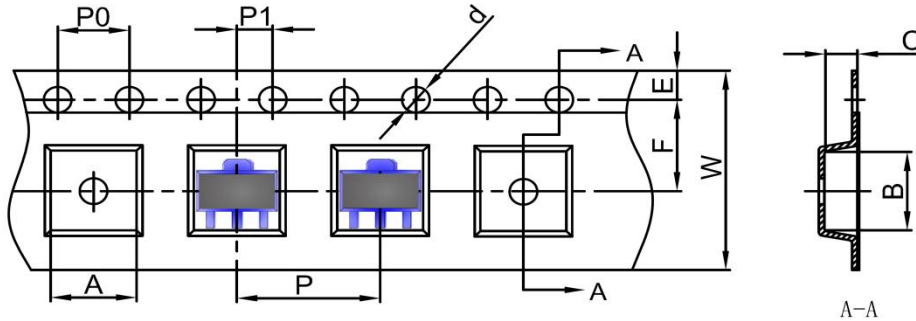
Note:

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

BIPOLAR TRANSISTOR (PNP)

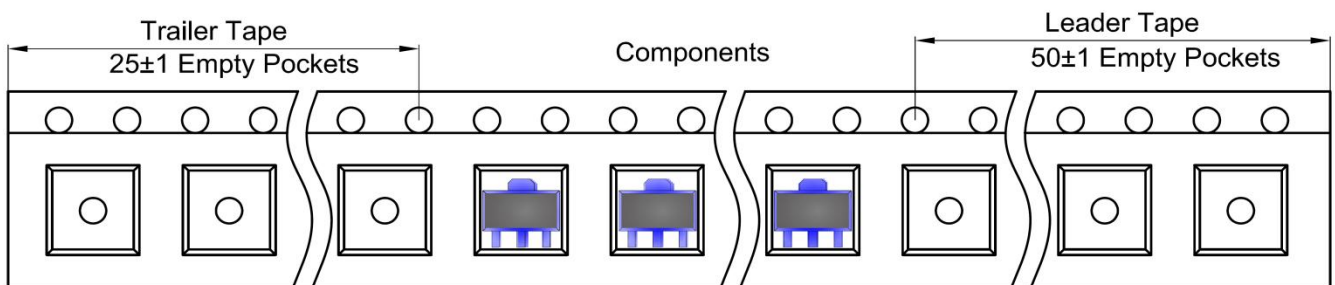
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

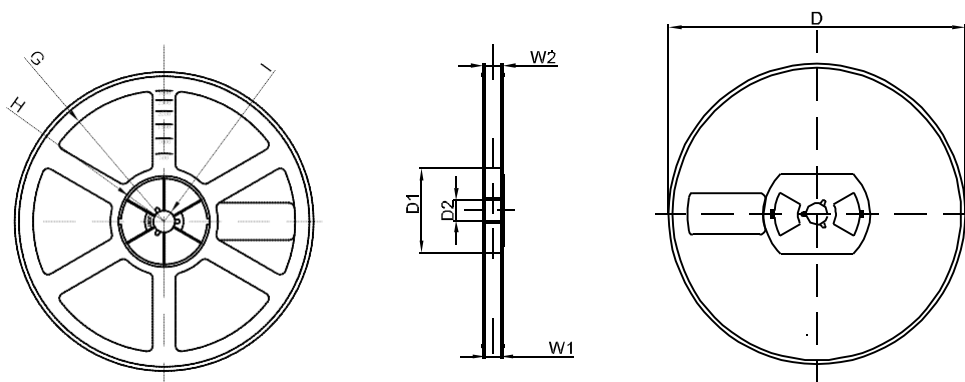


| DIMENSIONS ARE IN MILLIMETER | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|-------|
| TYPE | A | B | C | d | E | F | P0 | P | P1 | W |
| SOT-89 | 4.85 | 4.45 | 1.85 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00 |
| TOLERANCE | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 |

SOT-89 Tape Leader and Trailer



SOT-89 Reel



| DIMENSIONS ARE IN MILLIMETER | | | | | | | | |
|------------------------------|------|-------|-------|-----|--------|-------|-------|-------|
| REEL OPTION | D | D1 | D2 | G | H | I | W1 | W2 |
| 7" DIA | Ø178 | 54.40 | 13.00 | R78 | R25.60 | R6.50 | 13.20 | 16.50 |
| TOLERANCE | ±2 | ±1 | ±1 | ±1 | ±1 | ±1 | ±1 | ±1 |