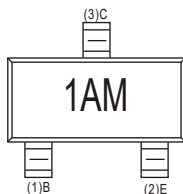


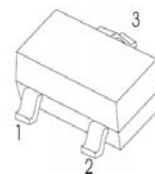
## FEATURES

- Complementary Type The PNP Transistor MMBT3906 is Recommended
- Epitaxial Planar Die Construction

MARKING: 1AM



SOT-23



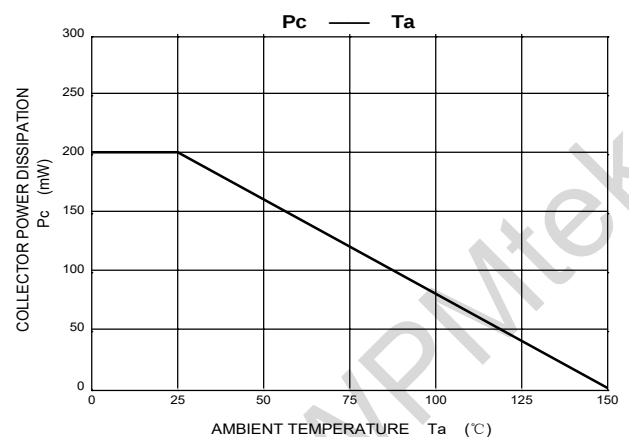
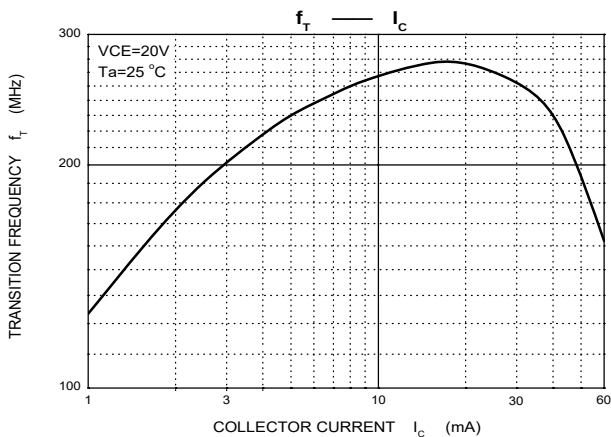
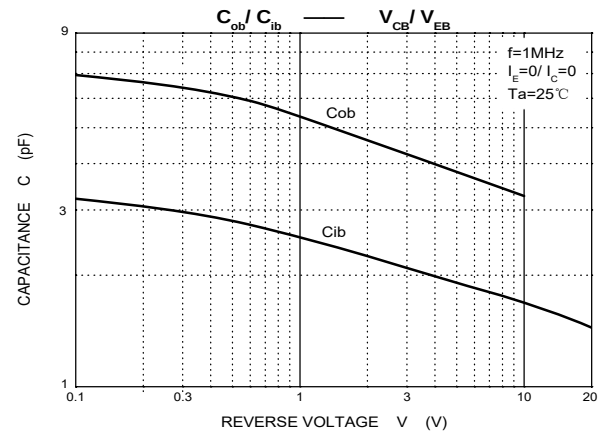
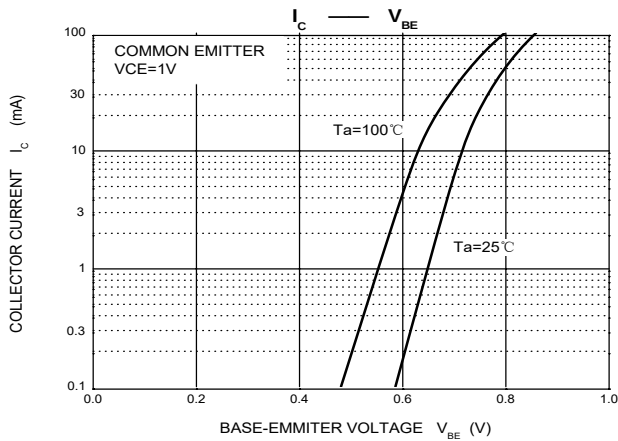
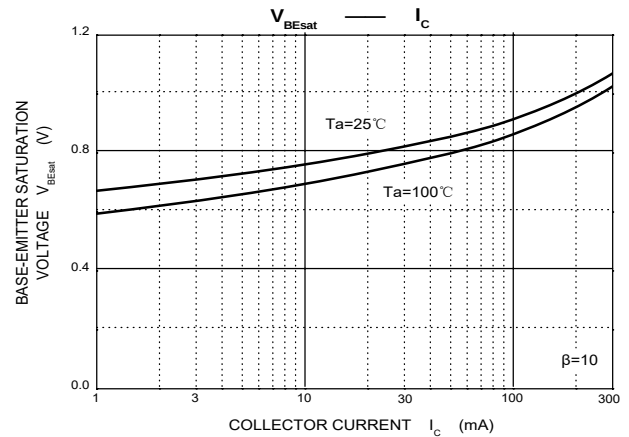
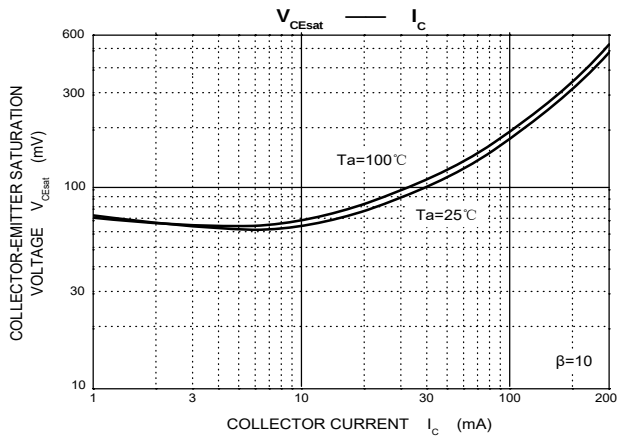
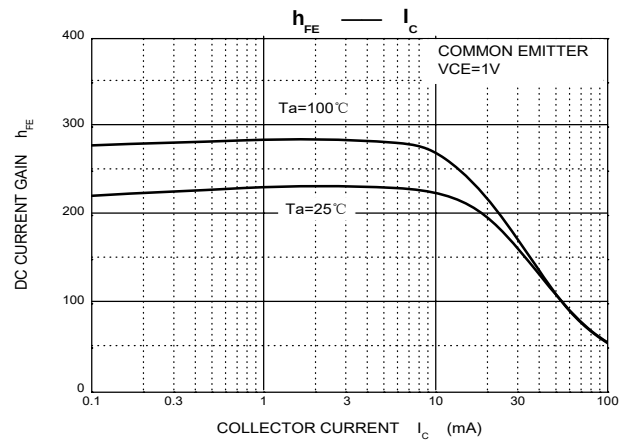
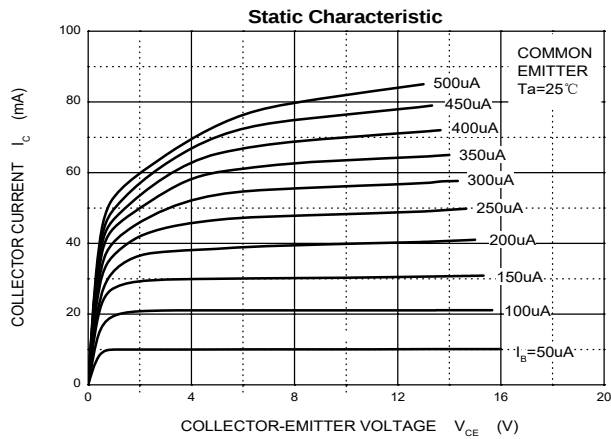
1. BASE
2. EMITTER
3. COLLECTOR

## MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

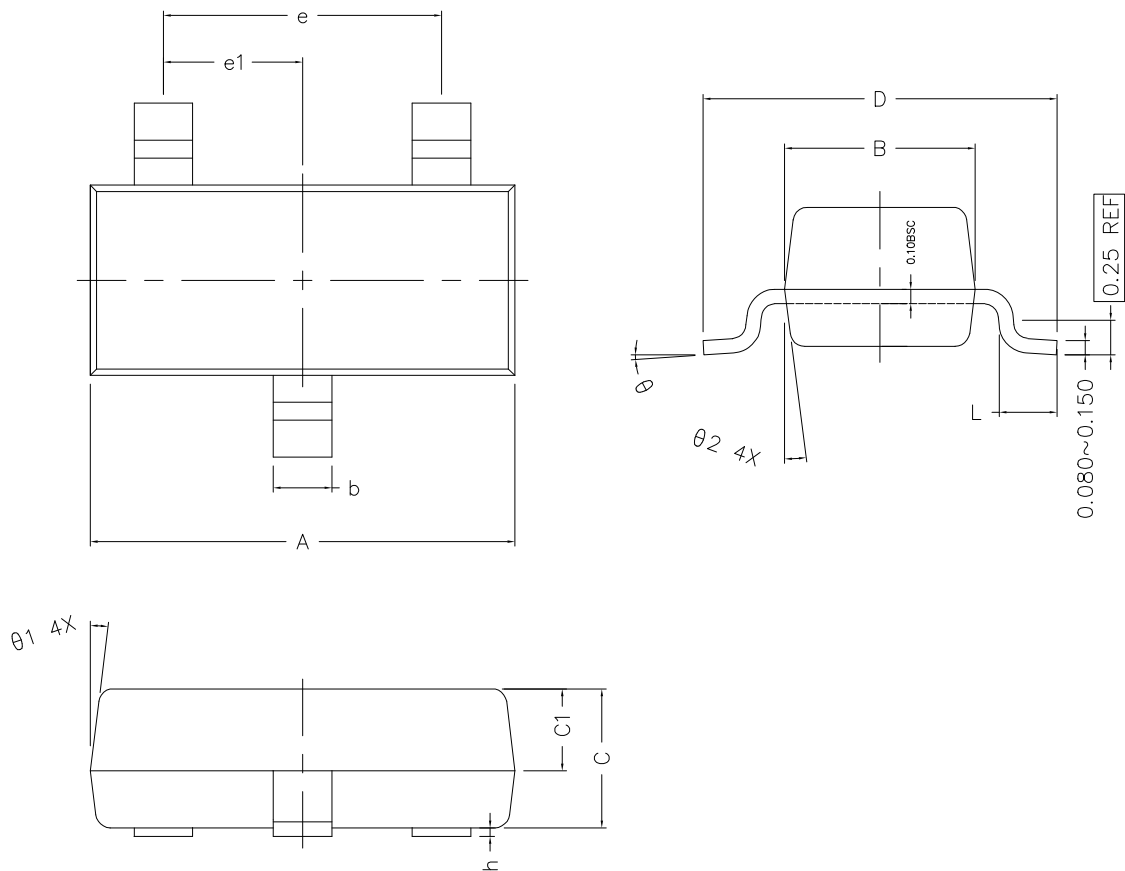
| Symbol           | Parameter                                   | Value      | Unit |
|------------------|---------------------------------------------|------------|------|
| V <sub>CBO</sub> | Collector-Base Voltage                      | 60         | V    |
| V <sub>CEO</sub> | Collector-Emitter Voltage                   | 40         | V    |
| V <sub>EBO</sub> | Emitter-Base Voltage                        | 6          | V    |
| I <sub>C</sub>   | Collector Current                           | 200        | mA   |
| P <sub>C</sub>   | Total Device Dissipation                    | 200        | mW   |
| R <sub>θJA</sub> | Thermal Resistance From Junction to Ambient | 625        | °C/W |
| T <sub>J</sub>   | Junction Temperature                        | 150        | °C   |
| T <sub>stg</sub> | Storage Temperature                         | -55 ~ +150 | °C   |

## ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

| Parameter                            | Symbol               | Test conditions                                                | Min | Max  | Unit |
|--------------------------------------|----------------------|----------------------------------------------------------------|-----|------|------|
| Collector-base breakdown voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> = 10μA, I <sub>E</sub> =0                       | 60  |      | V    |
| Collector-emitter breakdown voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> = 1mA, I <sub>B</sub> =0                        | 40  |      | V    |
| Emitter-base breakdown voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> =10μA, I <sub>C</sub> =0                        | 6   |      | V    |
| Collector cut-off current            | I <sub>CBO</sub>     | V <sub>CB</sub> =60V, I <sub>E</sub> =0                        |     | 0.1  | μA   |
| Collector cut-off current            | I <sub>CEX</sub>     | V <sub>CE</sub> =30V, V <sub>BE(off)</sub> =3V                 |     | 50   | nA   |
| Emitter cut-off current              | I <sub>EBO</sub>     | V <sub>EB</sub> =5V, I <sub>C</sub> =0                         |     | 0.1  | μA   |
| DC current gain                      | h <sub>FE(1)</sub>   | V <sub>CE</sub> =1V, I <sub>C</sub> =10mA                      | 100 | 300  |      |
|                                      | h <sub>FE(2)</sub>   | V <sub>CE</sub> =1V, I <sub>C</sub> = 50mA                     | 60  |      |      |
|                                      | h <sub>FE(3)</sub>   | V <sub>CE</sub> =1V, I <sub>C</sub> = 100mA                    | 30  |      |      |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =50mA, I <sub>B</sub> = 5mA                     |     | 0.3  | V    |
| Base-emitter saturation voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> = 50mA, I <sub>B</sub> = 5mA                    |     | 0.95 | V    |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> =20V, I <sub>C</sub> =10mA, f=100MHz           | 300 |      | MHz  |
| Delay Time                           | t <sub>d</sub>       | V <sub>CC</sub> =3V, V <sub>BE</sub> =-0.5V                    |     | 35   | nS   |
| Rise Time                            | t <sub>r</sub>       | I <sub>C</sub> =10mA, I <sub>B1</sub> =-I <sub>B2</sub> =1.0mA |     | 35   | nS   |
| Storage Time                         | t <sub>s</sub>       | V <sub>CC</sub> =3V, I <sub>C</sub> =10mA,                     |     | 200  | nS   |
| Fall Time                            | t <sub>f</sub>       | I <sub>B1</sub> =-I <sub>B2</sub> =1mA                         |     | 50   | nS   |



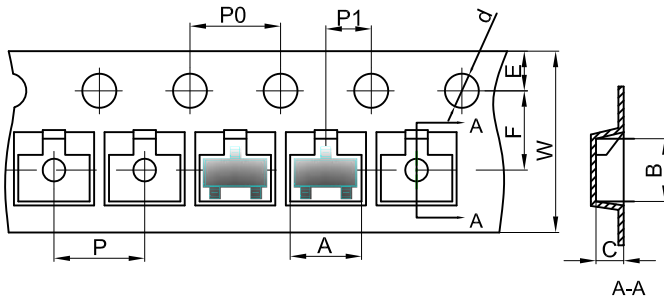
**SOT-23 Package Outline Dimensions (Units: mm)**



| COMMON DIMENSIONS<br>(UNITS OF MEASURE IS mm) |           |        |       |
|-----------------------------------------------|-----------|--------|-------|
|                                               | MIN       | NORMAL | MAX   |
| A                                             | 2.800     | 2.900  | 3.000 |
| B                                             | 1.200     | 1.300  | 1.400 |
| C                                             | 0.900     | 1.000  | 1.100 |
| C1                                            | 0.500     | 0.550  | 0.600 |
| D                                             | 2.250     | 2.400  | 2.550 |
| L                                             | 0.300     | 0.400  | 0.500 |
| h                                             | 0.010     | 0.050  | 0.100 |
| b                                             | 0.300     | 0.400  | 0.500 |
| e                                             | 1.90 TYPE |        |       |
| e1                                            | 0.95 TYPE |        |       |
| $\theta 1$                                    | 7° TYPE   |        |       |
| $\theta 2$                                    | 7° TYPE   |        |       |
| $\theta$                                      | 0° ~ 7°   |        |       |

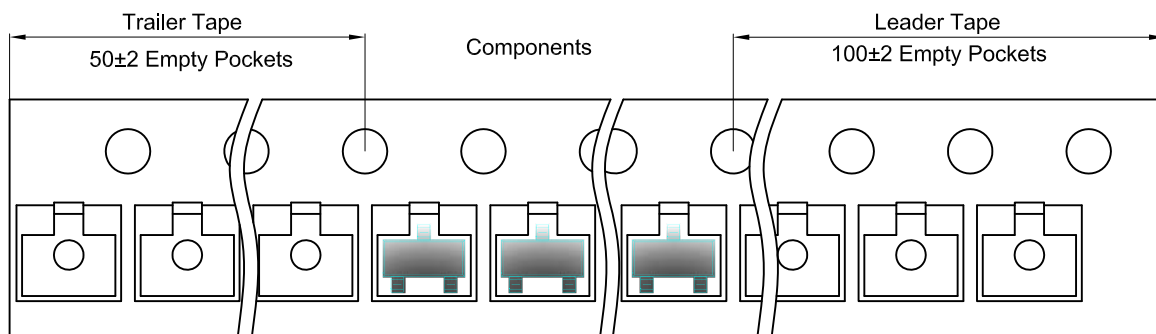
## SOT-23 Tape and Reel

### SOT-23 Embossed Carrier Tape

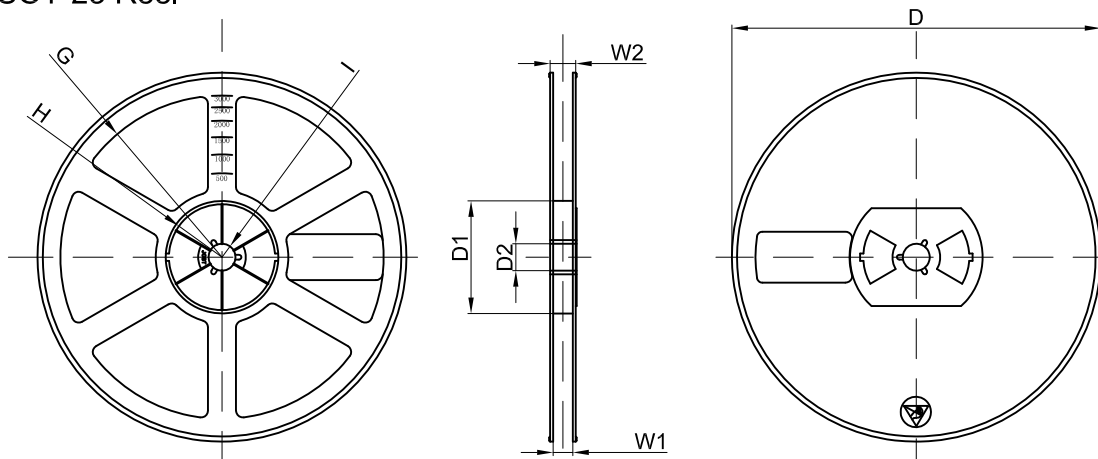


| Dimensions are in millimeter |      |      |      |       |      |      |      |      |      |      |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type                     | A    | B    | C    | d     | E    | F    | P0   | P    | P1   | 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 | 192x182x182  | 180,000 pcs | 400x385x205     |          |

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