

SOT-723 Plastic-Encapsulate Transistors

MMBT3906M TRANSISTOR (PNP)

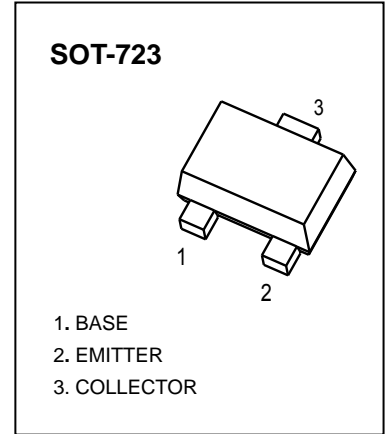
FEATURE

- Complementary to MMBT3904M
- Small Package

MARKING: 3N

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

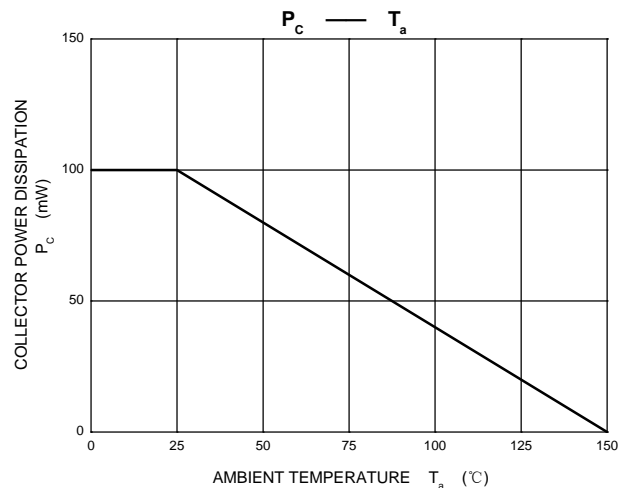
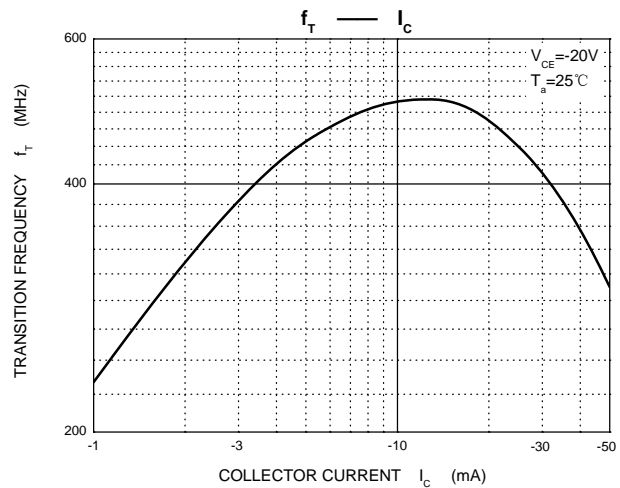
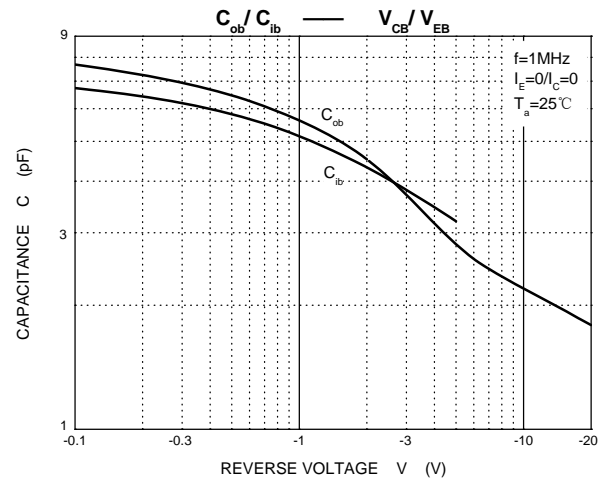
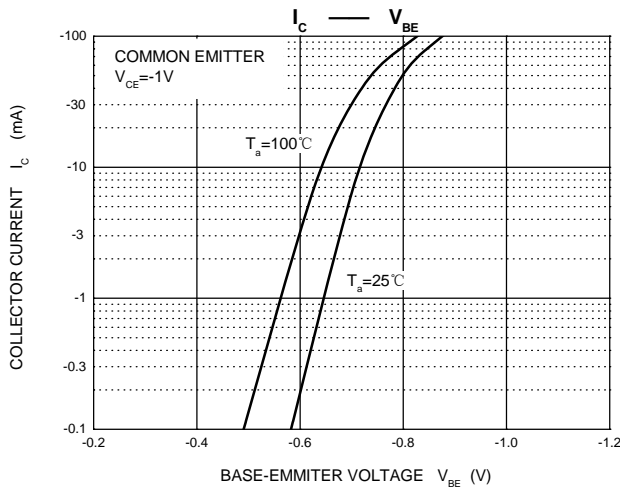
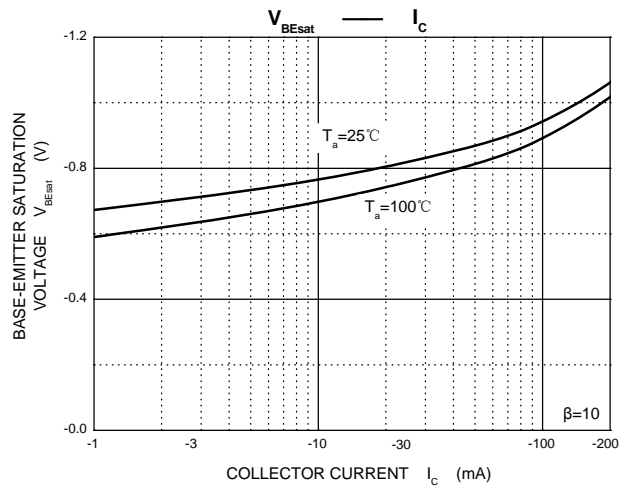
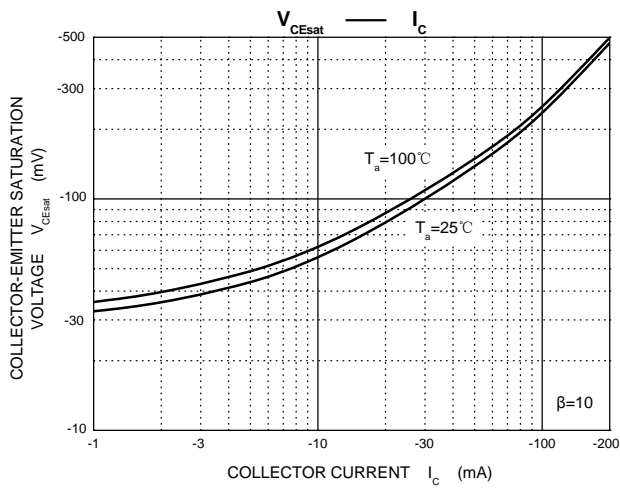
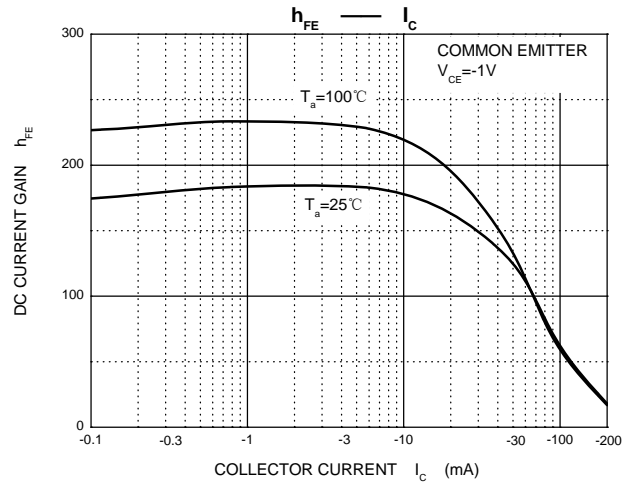
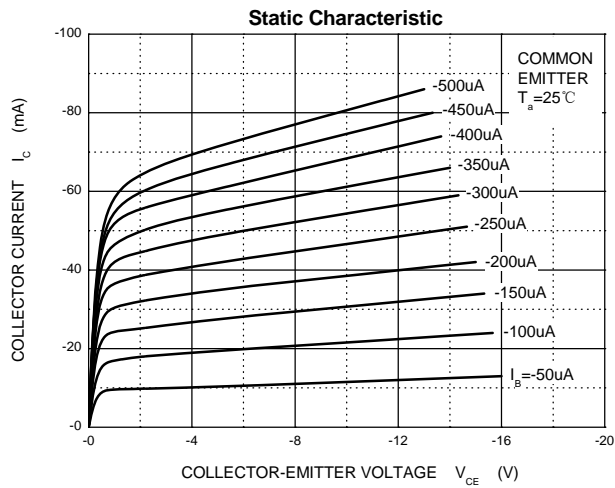
| Symbol | Parameter | Value | Unit |
|-----------------------------------|--|----------|------|
| V _{CB0} | Collector-Base Voltage | -40 | V |
| V _{CE0} | Collector-Emitter Voltage | -40 | V |
| V _{EB0} | Emitter-Base Voltage | -5 | V |
| I _c | Collector Current -Continuous | -0.2 | A |
| P _c | Power Dissipation | 100 | mW |
| R _{θJA} | Thermal Resistance from Junction to Ambient | 1250 | °C/W |
| T _J , T _{stg} | Operation Junction and Storage Temperature Range | -55~+150 | °C |



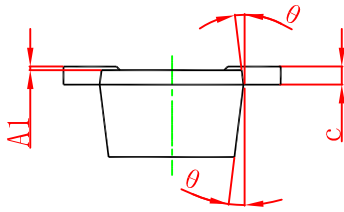
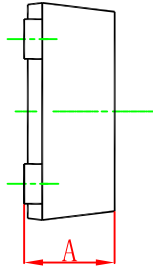
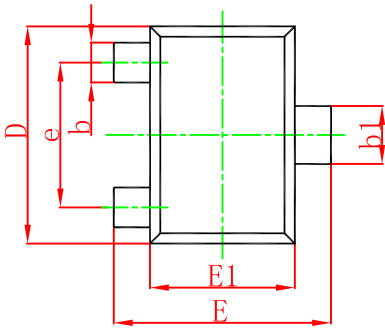
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|----------------------|--|-----|-----|-------|------|
| Collector-base breakdown voltage | V _{(BR)CBO} | I _c =-10μA, I _E =0 | -40 | | | V |
| Collector-emitter breakdown voltage | V _{(BR)CEO} | I _c =-1mA, I _B =0 | -40 | | | V |
| Emitter-base breakdown voltage | V _{(BR)EBO} | I _E =-10μA, I _c =0 | -5 | | | V |
| Collector cut-off current | I _{CB0} | V _{CB} =-40V, I _E =0 | | | -100 | nA |
| Collector cut-off current | I _{CEx} | V _{CE} =-30V, V _{BE(off)} =-3V | | | -50 | nA |
| Emitter cut-off current | I _{EBO} | V _{EB} =-5V, I _c =0 | | | -100 | nA |
| DC current gain | h _{FE(1)} | V _{CE} =-1V, I _c =-10mA | 100 | | 300 | |
| | h _{FE(2)} | V _{CE} =-1V, I _c =-50mA | 60 | | | |
| | h _{FE(3)} | V _{CE} =-2V, I _c =-100mA | 30 | | | |
| Collector-emitter saturation voltage | V _{CE(sat)} | I _c =-50mA, I _B =-5mA | | | -0.3 | V |
| Base-emitter saturation voltage | V _{BE(sat)} | I _c =-50mA, I _B =-5mA | | | -0.95 | V |
| Transition frequency | f _T | V _{CE} =-20V, I _c =-10mA, f=100MHz | 300 | | | MHz |
| Delay time | t _d | V _{CC} =-3V, V _{BE(off)} =-0.5V, I _c =-10mA, I _{B1} =I _{B2} =-1mA | | | 35 | ns |
| Rise time | t _r | | | | 35 | ns |
| Storage time | t _s | V _{CC} =-3V, I _c =-10mA, I _{B1} =I _{B2} =-1mA | | | 225 | ns |
| Fall time | t _f | | | | 75 | ns |

Typical Characteristics

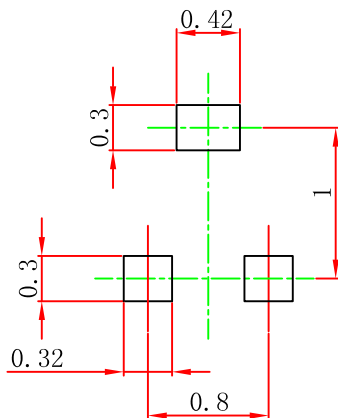


SOT-723 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|----------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.430 | 0.500 | 0.017 | 0.020 |
| A1 | 0.000 | 0.050 | 0.000 | 0.002 |
| b | 0.170 | 0.270 | 0.007 | 0.011 |
| b1 | 0.270 | 0.370 | 0.011 | 0.015 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 1.150 | 1.250 | 0.045 | 0.049 |
| E | 1.150 | 1.250 | 0.045 | 0.049 |
| E1 | 0.750 | 0.850 | 0.030 | 0.033 |
| e | 0.800TYP. | | 0.031TYP. | |
| θ | 7° REF. | | 7° REF. | |

SOT-723 Suggested Pad Layout



Note:

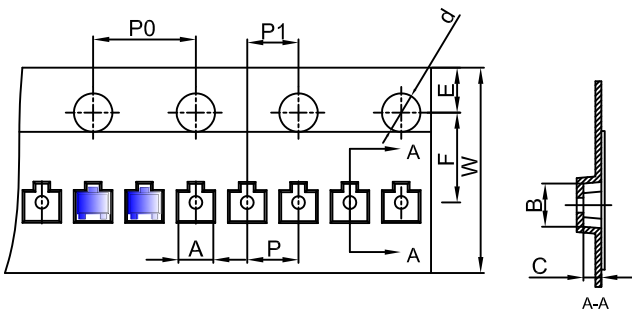
1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

NOTICE

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SOT-723 Tape and Reel

SOT-723 Embossed Carrier Tape

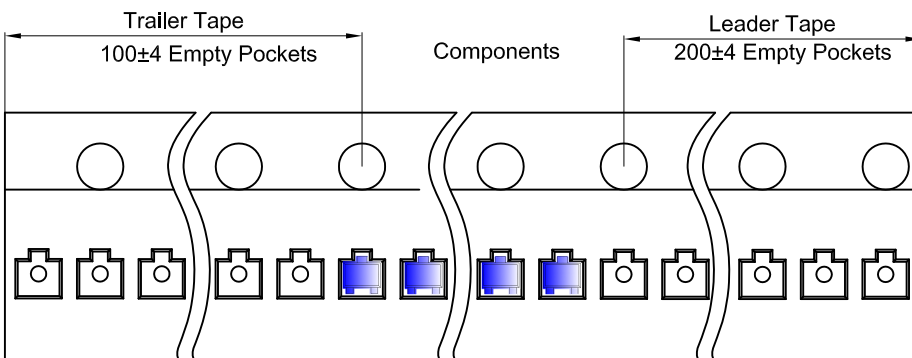


Packaging Description:

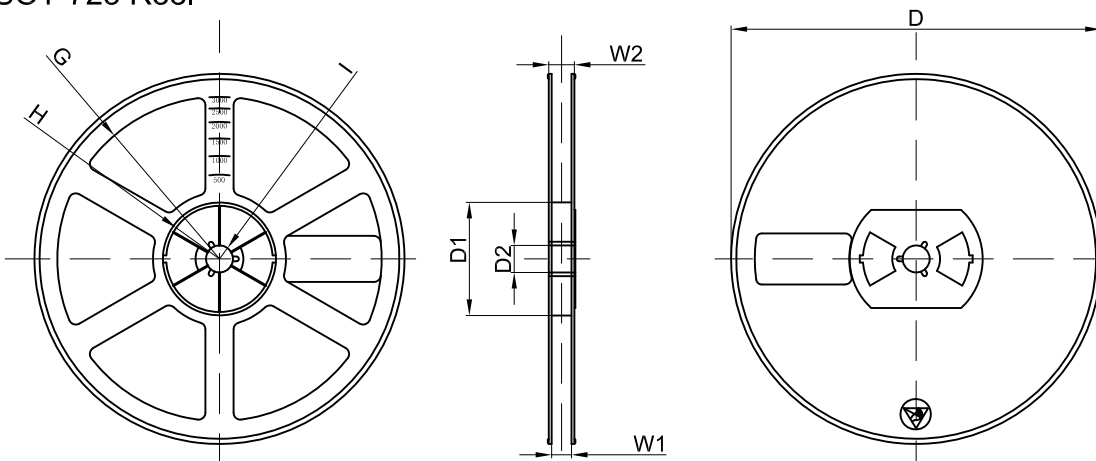
SOT-723 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 8,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| SOT-723 | 1.33 | 1.45 | 0.61 | Ø1.50 | 1.75 | 3.50 | 4.00 | 2.00 | 2.00 | 8.00 |

SOT-723 Tape Leader and Trailer



SOT-723 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) |
|----------|-----------|-------------|--------------|-------------|-----------------|----------|
| 8000 pcs | 7 inch | 120,000 pcs | 203×203×195 | 480,000 pcs | 438×438×220 | |

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