

SOT-723 Plastic-Encapsulate Transistors

MMBT2222AM TRANSISTOR (NPN)

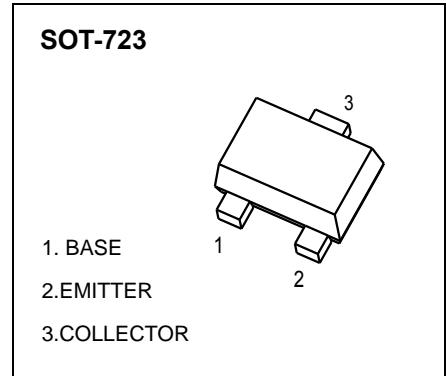
FEATURES

- Epitaxial planar die construction

MARKING: 1P

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

| Symbol | Parameter | Value | Unit |
|-----------------------------------|--|----------|------|
| V _{CB0} | Collector-Base Voltage | 75 | V |
| V _{CE0} | Collector-Emitter Voltage | 40 | V |
| V _{EB0} | Emitter-Base Voltage | 6 | V |
| I _c | Collector Current -Continuous | 0.5 | A |
| P _c | Power Dissipation | 100 | mW |
| R _{QJA} | Thermal Resistance from Junction to Ambient | 1250 | °C/W |
| T _J , T _{stg} | Operation Junction and Storage Temperature Range | -55~+150 | °C |

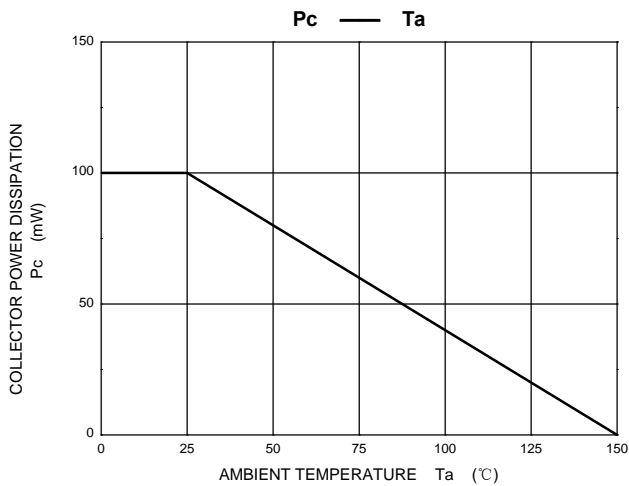
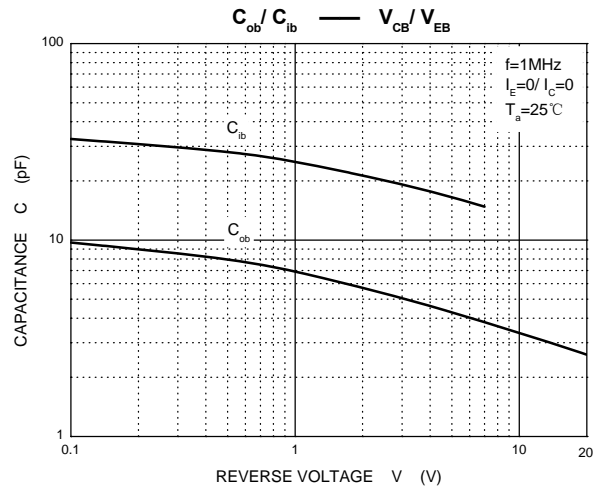
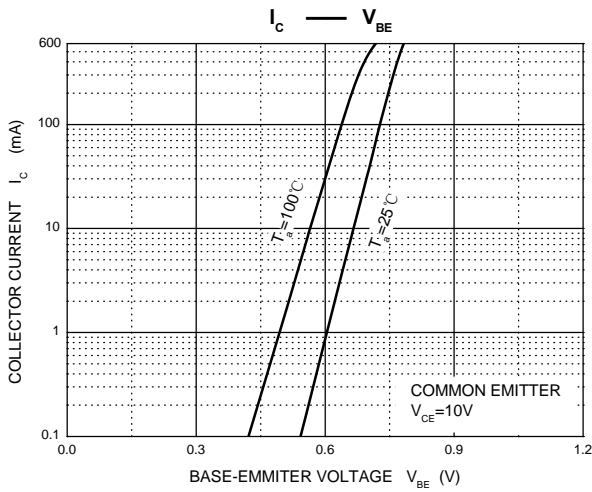
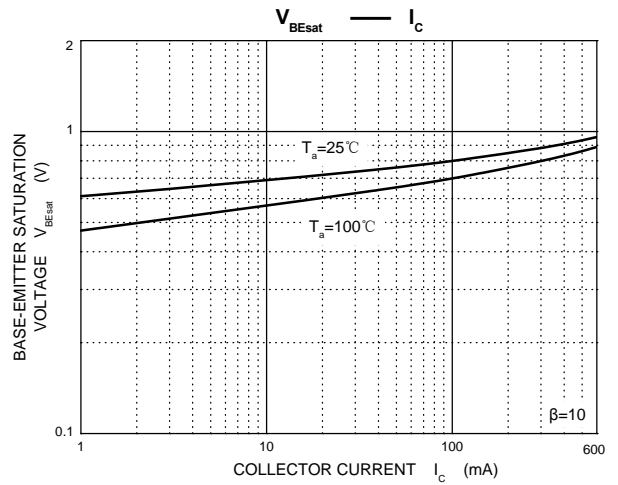
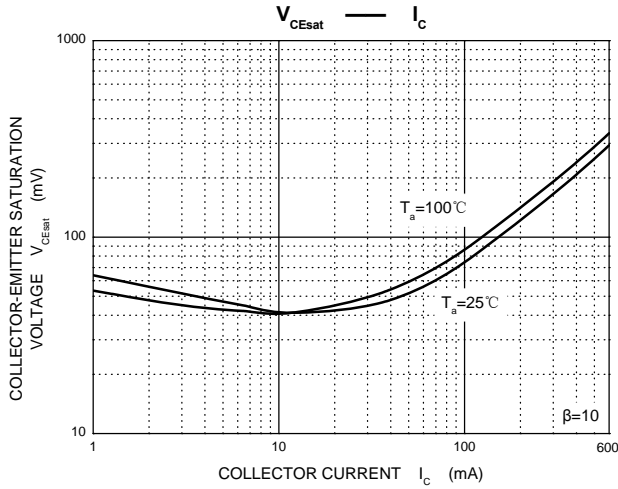
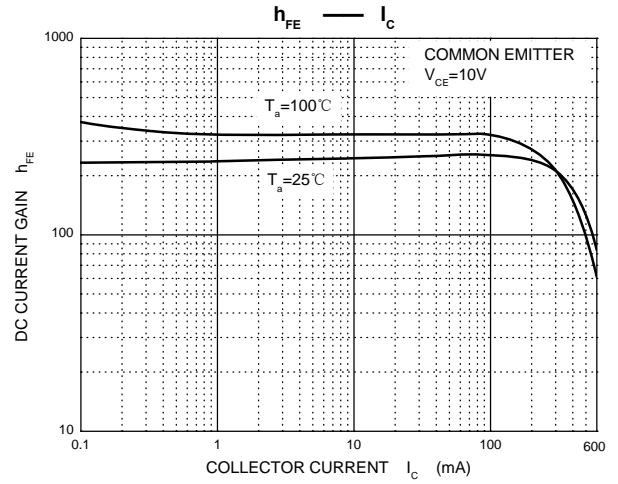
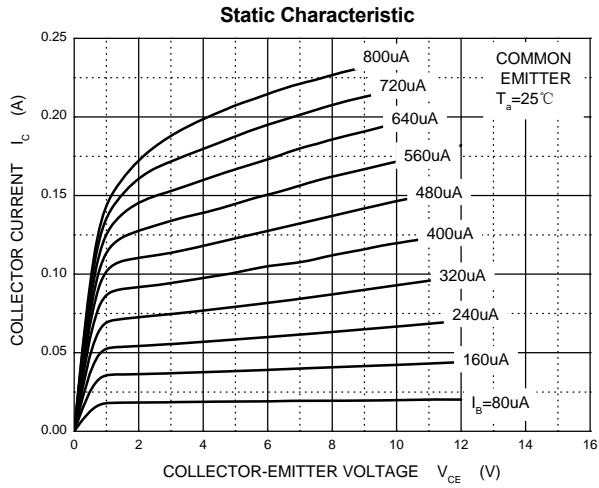


ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

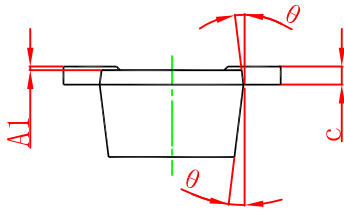
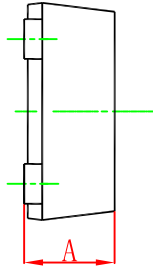
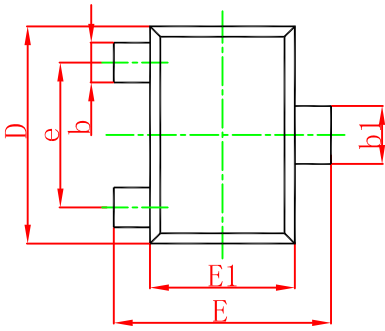
| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|------------------------|--|-----|-----|------|------|
| Collector-base breakdown voltage | V _{(BR)CBO} | I _C =10μA, I _E =0 | 75 | | | V |
| Collector-emitter breakdown voltage | V _{(BR)CEO} * | I _C =10mA, I _B =0 | 40 | | | V |
| Emitter-base breakdown voltage | V _{(BR)EBO} | I _E =10μA, I _C =0 | 6 | | | V |
| Collector cut-off current | I _{CBO} | V _{CB} =60V, I _E =0 | | | 0.01 | μA |
| Collector cut-off current | I _{CEX} | V _{CE} =30V, V _{BE(off)} =3V | | | 0.01 | μA |
| Emitter cut-off current | I _{EBO} | V _{EB} =3V, I _C =0 | | | 0.€1 | μA |
| DC current gain | h _{FE} * | V _{CE} =10V, I _C = 150mA | 100 | | 300 | |
| | | V _{CE} =10V, I _C = 0.1mA | 40 | | | |
| | | V _{CE} =10V, I _C = 500mA | 42 | | | |
| Collector-emitter saturation voltage | V _{CE(sat)} * | I _C =500 mA, I _B = 50mA | | | 1 | V |
| | | I _C =150 mA, I _B =15mA | | | 0.3 | V |
| Base-emitter saturation voltage | V _{BE(sat)} * | I _C =500 mA, I _B = 50mA | | | 2.0 | V |
| | | I _C =150 mA, I _B =15mA | | | 1.2 | V |
| Transition frequency | f _T | V _{CE} =20V, I _C = 20mA, f=100MHz | 300 | | | MHz |
| Delay time | t _d | V _{CC} =30V, V _{BE(off)} =-0.5V I _C =150mA, I _{B1} = 15mA | | | 10 | ns |
| Rise time | t _r | | | | 25 | ns |
| Storage time | t _s | V _{CC} =30V, I _C =150mA | | | 225 | ns |
| Fall time | t _f | I _{B1} =-I _{B2} =15mA | | | 60 | ns |

*pulse test: Pulse Width ≤300μs, Duty Cycles ≤ 2.0%.

Typical Characteristics

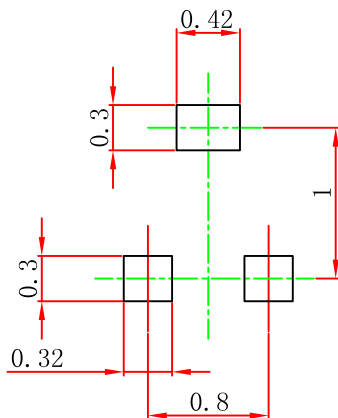


SOT-723 Package Outline Dimensions



| 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:

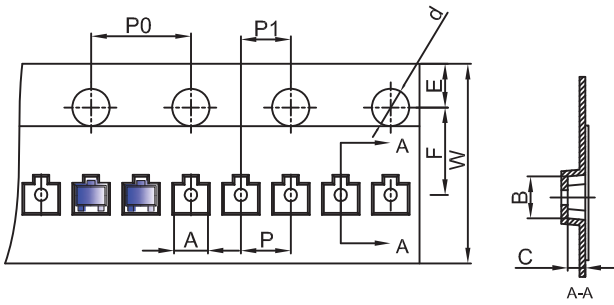
1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

SOT-723 Tape and Reel

SOT-723 Embossed Carrier Tape

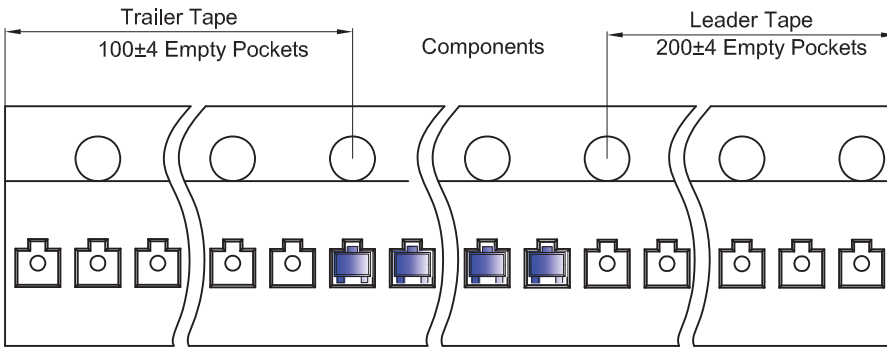


Packaging Description:

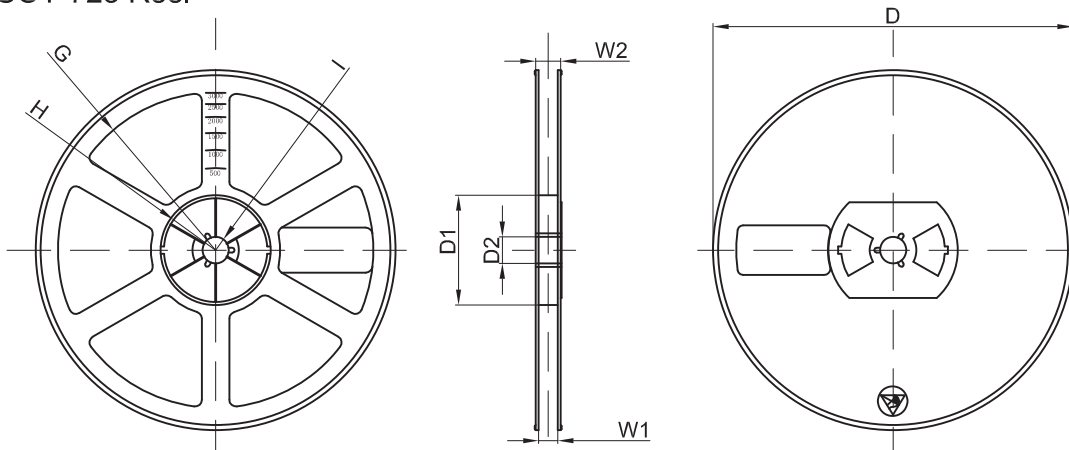
SOT-723 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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 |
| (Tolerance) | +/-0.05 | +/-0.05 | +/-0.05 | +/-0.1 | +/-0.1 | +/-0.1 | +/-0.1 | +/-0.1 | +/-0.1 | +0.3/-0.1 |

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 |
| Tolerance | +/-2 | +/-1 | +/-1 | +/-1 | +/-1 | +/-1 | +/-1 | +/-1 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) | G.W.(kg) |
|-----------|-----------|-------------|--------------|-------------|-----------------|----------|
| 8,000 pcs | 7 inch | 120,000 pcs | 210×208×205 | 480,000 pcs | 440×440×230 | |