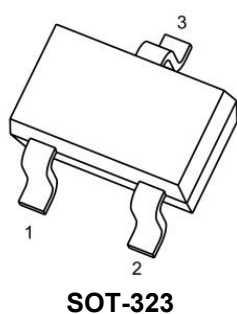


## MMBT3906T3

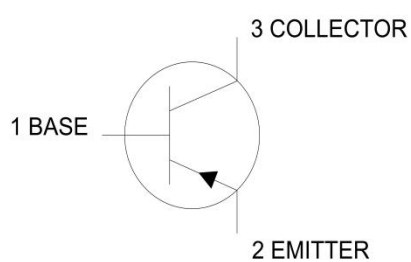
### Feature

- Switching Transistor
- Collector-emitter voltage  $V_{CE} = -40V$
- Collector current  $I_C = -0.2A$

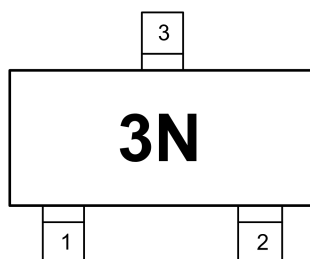
### Package



### Circuit diagram



### Marking



**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

| 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         | $I_C$     | -200          | mA   |
| Power Dissipation         | $P_{tot}$ | 150           | mW   |
| Junction Temperature      | $T_j$     | 150           | °C   |
| Storage Temperature Range | $T_{stg}$ | - 55 to + 150 | °C   |

**Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)**

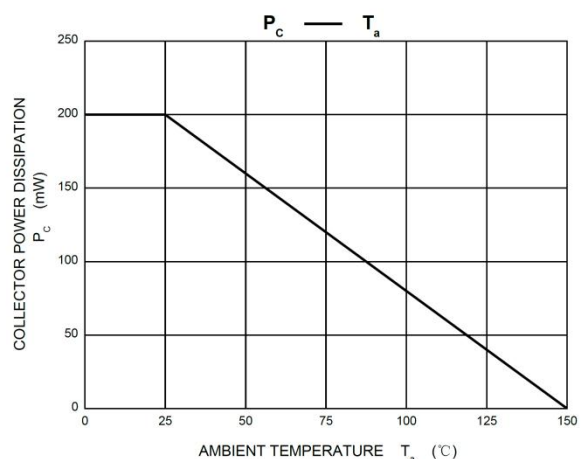
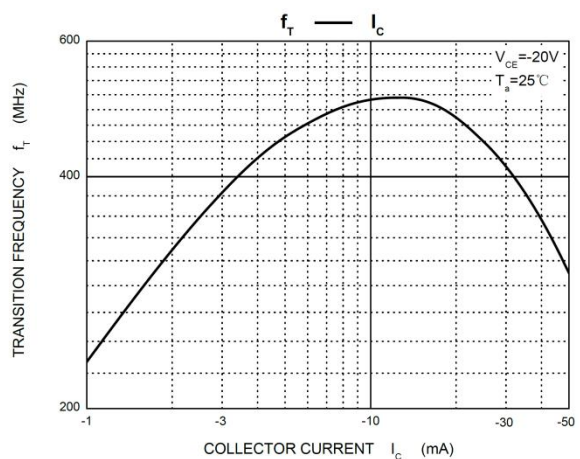
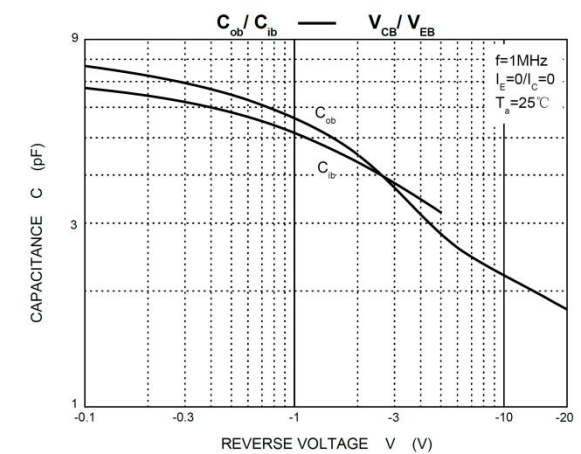
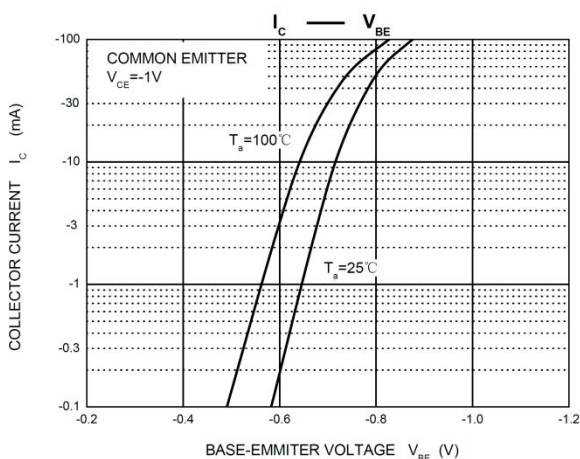
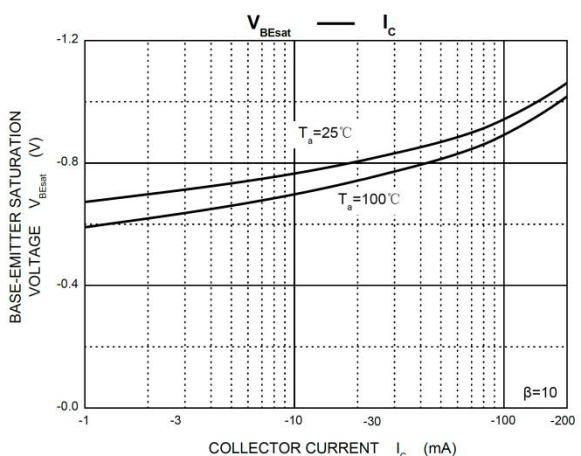
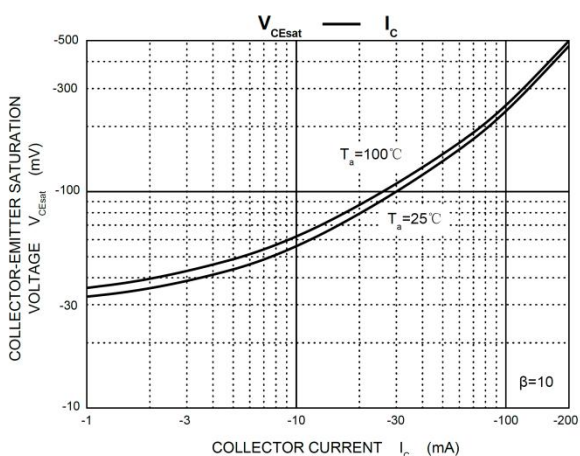
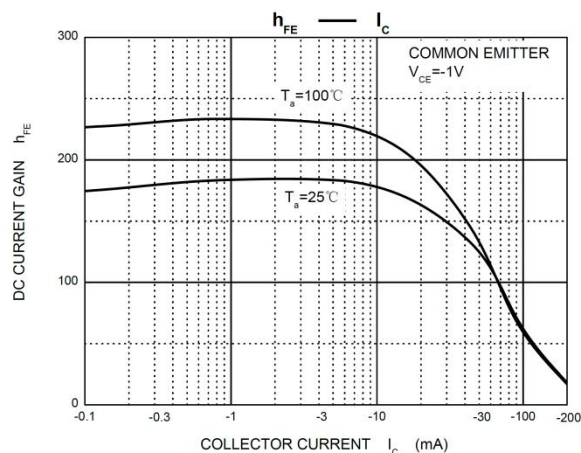
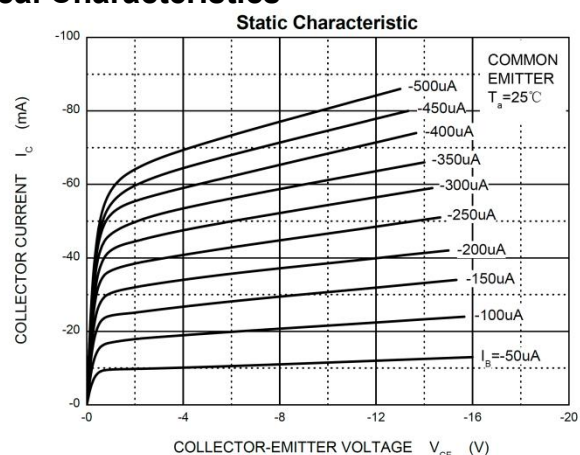
| Parameter                            | Symbol        | Test Condition                          | Min | Max   | Unit |
|--------------------------------------|---------------|-----------------------------------------|-----|-------|------|
| Collector-base breakdown voltage     | $BV_{CBO}$    | $I_C = -1mA, I_E = 0$                   | -40 |       | V    |
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | $I_C = -100\mu A, I_B = 0$              | -40 |       | V    |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | $I_E = -100\mu A, I_C = 0$              | -5  |       | V    |
| Base cut-off current                 | $I_{BL}$      | $V_{CB} = -30V, V_{EB(Off)} = -3V$      |     | -50   | nA   |
| Collector cut-off current            | $I_{CEX}$     | $V_{CB} = -30V, V_{EB(Off)} = -3V$      |     | -50   | nA   |
| DC current gain                      | $h_{FE1}$     | $V_{CE} = -1V, I_C = -0.1mA$            | 60  |       |      |
|                                      | $h_{FE2}$     | $V_{CE} = -1V, I_C = -1mA$              | 80  |       |      |
|                                      | $h_{FE3}$     | $V_{CE} = -1V, I_C = -10mA$             | 100 | 300   |      |
|                                      | $h_{FE4}$     | $V_{CE} = -1V, I_C = -100mA$            | 30  |       |      |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -10mA, I_B = -1mA$               |     | -0.25 | V    |
|                                      | $V_{CE(sat)}$ | $I_C = -50mA, I_B = -5mA$               |     | -0.4  | V    |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = -10mA, I_B = -1mA$               |     | -0.85 | V    |
|                                      | $V_{BE(sat)}$ | $I_C = -50mA, I_B = -5mA$               |     | -0.95 | V    |
| Transition frequency                 | $f_T$         | $V_{CE} = -20V, I_C = -10mA, f = 30MHz$ | 250 |       | MHZ  |

NOTE:

Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2.0\%$ .

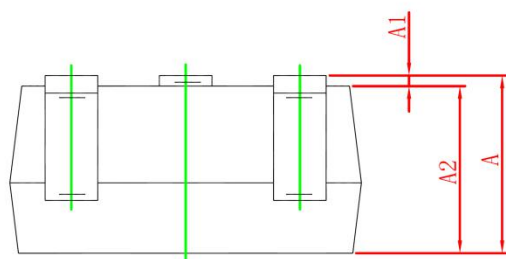
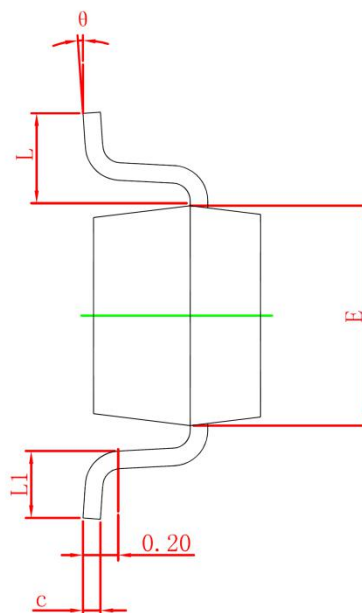
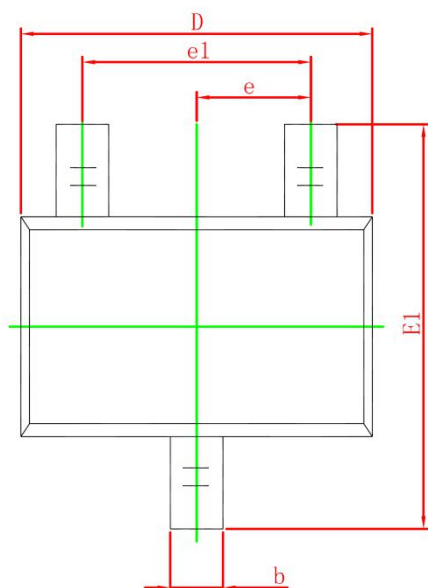


## Typical Characteristics





SOT-323 Package Information



| Symbol   | Dimensions In Millimeters |       | Dimensions In Inches |       |
|----------|---------------------------|-------|----------------------|-------|
|          | Min.                      | Max.  | Min.                 | Max.  |
| A        | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1       | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2       | 0.900                     | 1.000 | 0.035                | 0.039 |
| b        | 0.200                     | 0.400 | 0.008                | 0.016 |
| c        | 0.080                     | 0.150 | 0.003                | 0.006 |
| D        | 2.000                     | 2.200 | 0.079                | 0.087 |
| E        | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1       | 2.150                     | 2.450 | 0.085                | 0.096 |
| e        | 0.650 TYP.                |       | 0.026 TYP.           |       |
| e1       | 1.200                     | 1.400 | 0.047                | 0.055 |
| L        | 0.525 REF.                |       | 0.021 REF.           |       |
| L1       | 0.260                     | 0.460 | 0.010                | 0.018 |
| $\theta$ | 0°                        | 8°    | 0°                   | 8°    |