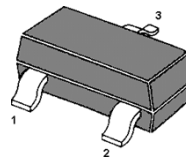


## SOT-23 Plastic-Encapsulate Transistors

### MMBTSC2411 TRANSISTOR(NPN)

#### FEATURES

- High  $I_{CMax}$ .  $I_{CMax} = 0.5mA$
- Low  $V_{CE(sat)}$ . Optimal for low voltage operation.
- Complements the 2SA1036



1. Base 2. Emitter 3. Collector  
SOT-23 Plastic Package

#### MAXIMUM RATINGS ( $T_a=25^{\circ}C$ unless otherwise noted)

| Symbol    | Parameter                   | Value   | Unit        |
|-----------|-----------------------------|---------|-------------|
| $V_{CB0}$ | Collector-Base Voltage      | 40      | V           |
| $V_{CE0}$ | Collector-Emitter Voltage   | 32      | V           |
| $V_{EB0}$ | Emitter-Base Voltage        | 5       | V           |
| $I_c$     | Collector Current           | 500     | mA          |
| $P_c$     | Collector Power Dissipation | 200     | mW          |
| $T_J$     | Junction Temperature        | 150     | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature         | -55-150 | $^{\circ}C$ |

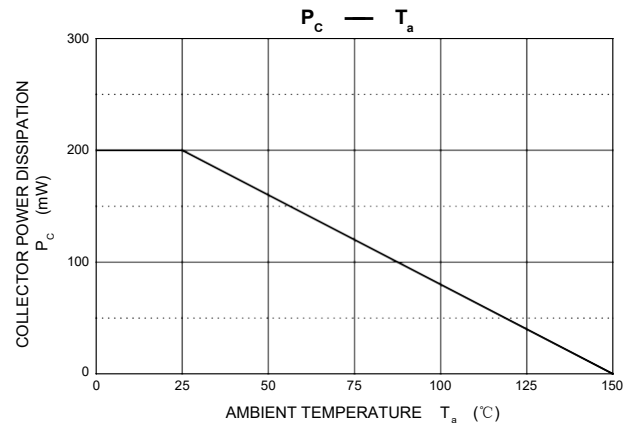
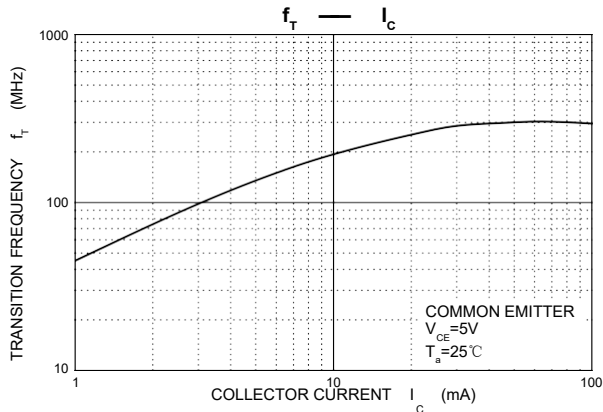
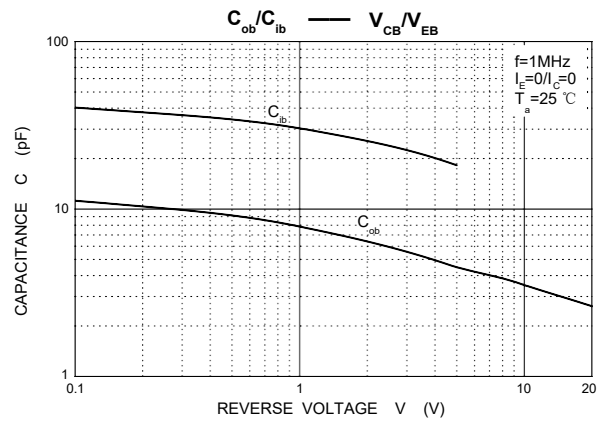
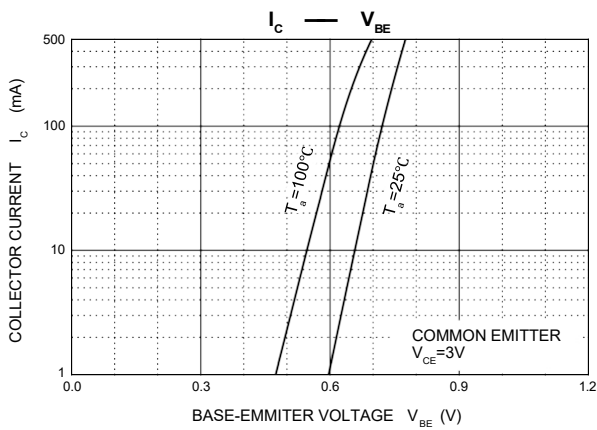
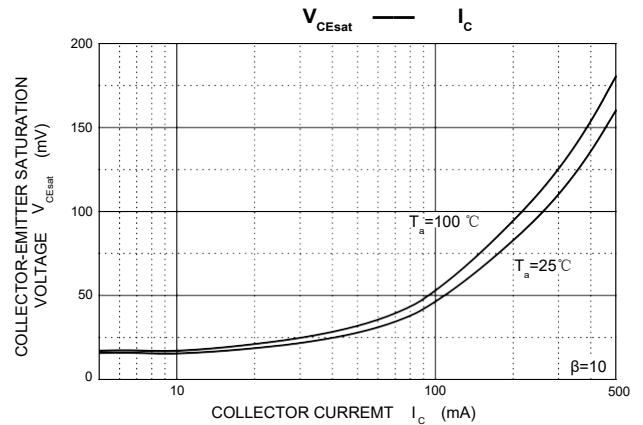
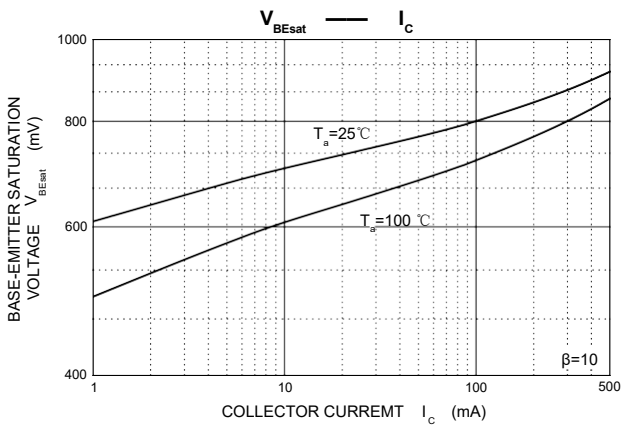
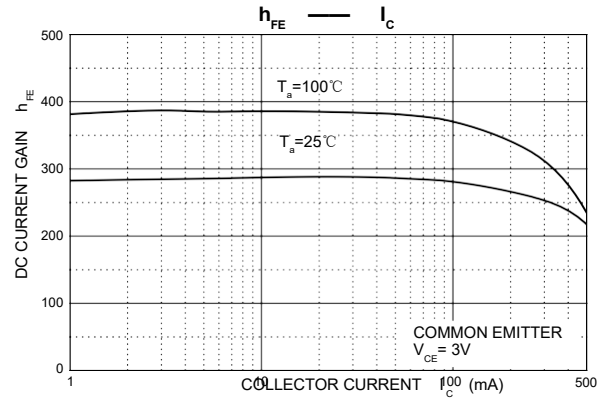
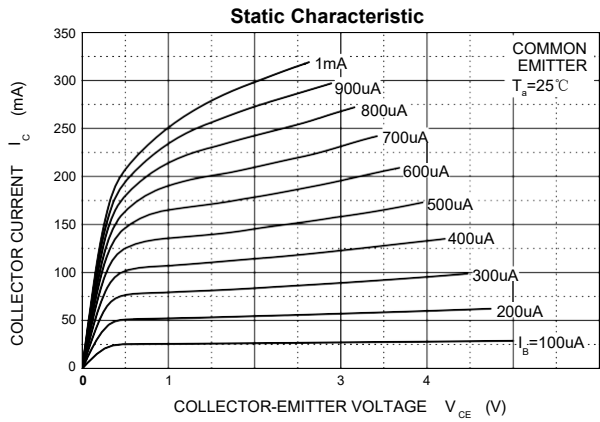
#### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}C$ unless otherwise specified)

| Parameter                            | Symbol        | Test conditions                 | Min | Typ | Max | Unit    |
|--------------------------------------|---------------|---------------------------------|-----|-----|-----|---------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_c=100\mu A, I_E=0$           | 40  |     |     | V       |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_c=1mA, I_B=0$                | 32  |     |     | V       |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=100\mu A, I_c=0$           | 5   |     |     | V       |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=20V, I_E=0$             |     |     | 1   | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=4V, I_c=0$              |     |     | 1   | $\mu A$ |
| DC current gain                      | $h_{FE}$      | $V_{CE}=3V, I_c=100mA$          | 82  |     | 390 |         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_c=500mA, I_B=50mA$           |     |     | 0.4 | V       |
| Transition frequency                 | $f_T$         | $V_{CE}=5V, I_c=20mA, f=100MHz$ |     | 250 |     | MHz     |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=10V, I_E=0, f=1MHz$     |     | 6.0 |     | pF      |

#### CLASSIFICATION OF $h_{FE}$

| Rank    | P      | Q       | R       |
|---------|--------|---------|---------|
| Range   | 82-180 | 120-270 | 180-390 |
| Marking | CP     | CQ      | CR      |

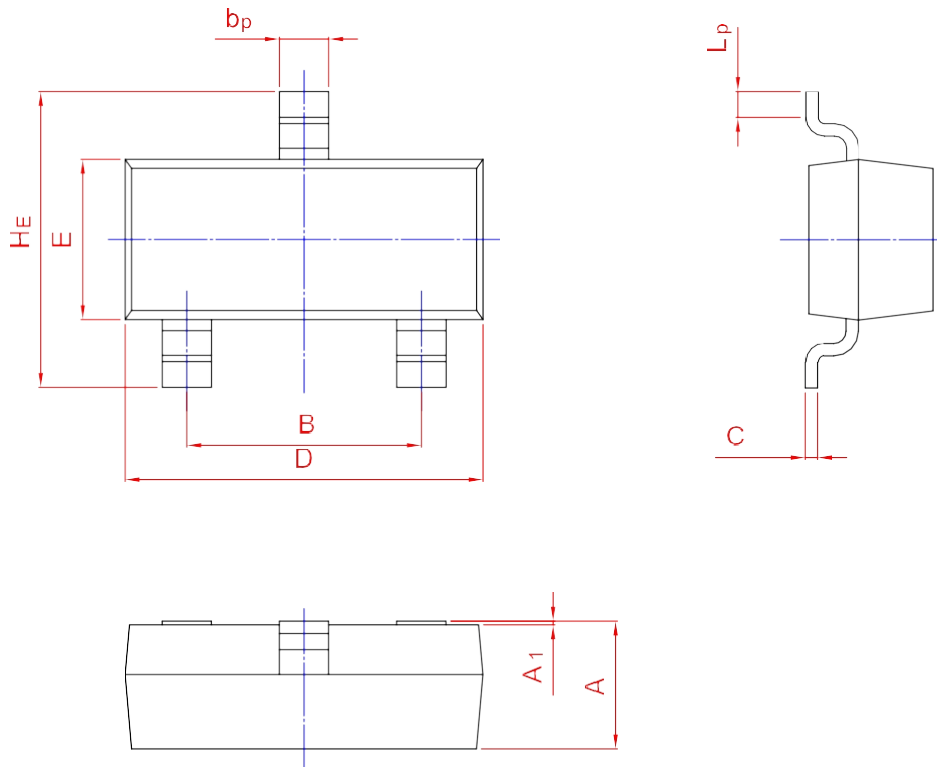
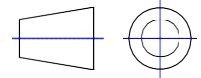
Typical Characteristics



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



| UNIT | A    | B    | bp   | C    | D    | E    | HE   | A1    | Lp   |
|------|------|------|------|------|------|------|------|-------|------|
| mm   | 1.40 | 2.04 | 0.50 | 0.19 | 3.10 | 1.65 | 3.00 | 0.100 | 0.50 |
|      | 0.95 | 1.78 | 0.35 | 0.08 | 2.70 | 1.20 | 2.20 | 0.013 | 0.20 |