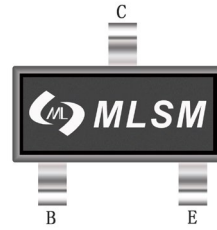
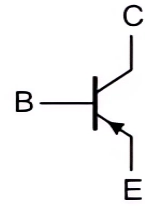


## Features

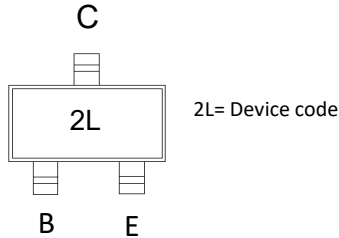
- Complementary to MMBT5551
- Ideal for Medium Power Amplification and Switching



SOT-23 top view



Schematic diagram



Marking and pin assignment



Pb-Free



Halogen-Free

## Maximum Ratings (Ta=25°C unless otherwise noted)

| Symbol          | Parameter                               | Value     | Unit |
|-----------------|-----------------------------------------|-----------|------|
| $V_{CBO}$       | Collector-Base Voltage                  | -160      | V    |
| $V_{CEO}$       | Collector-Emitter Voltage               | -150      | V    |
| $V_{EBO}$       | Emitter-Base Voltage                    | -5        | V    |
| $I_C$           | Collector Current                       | -0.6      | A    |
| $P_C$           | Collector Power Dissipation             | 0.3       | W    |
| $R_{\theta JA}$ | Thermal Resistance Junction to Ambient  | 416       | °C/W |
| $T_J, T_{STG}$  | Operating and Storage Temperature Range | -55~ +150 | °C   |

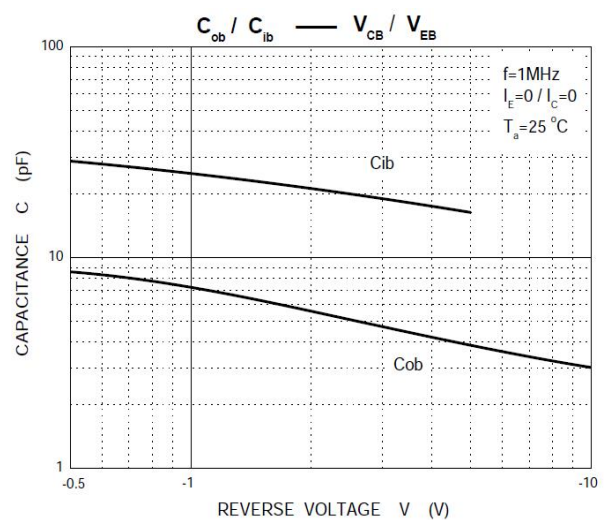
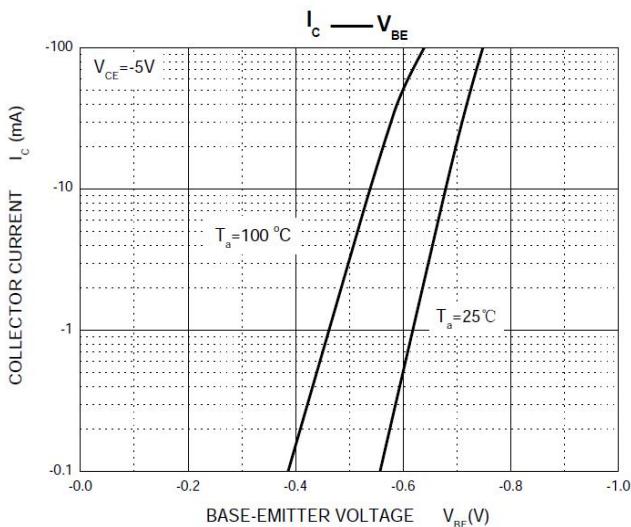
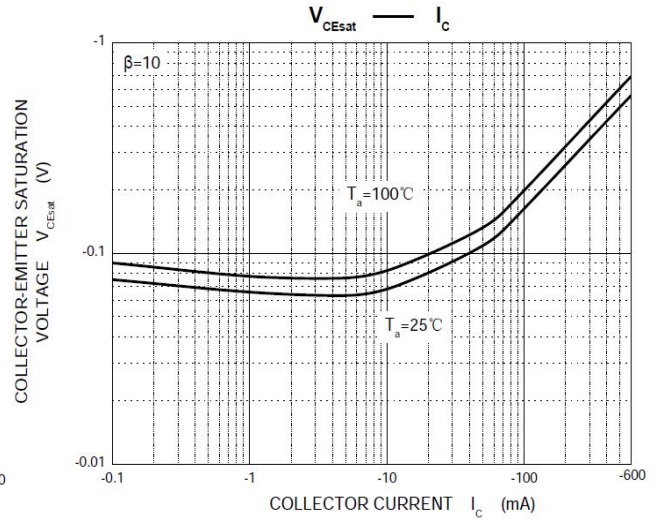
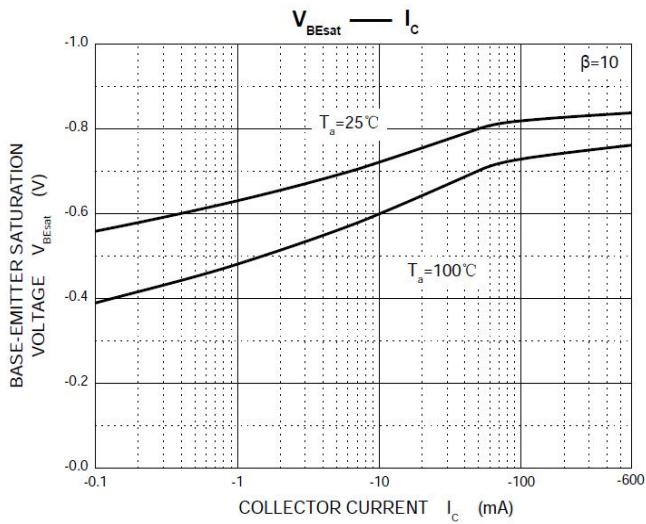
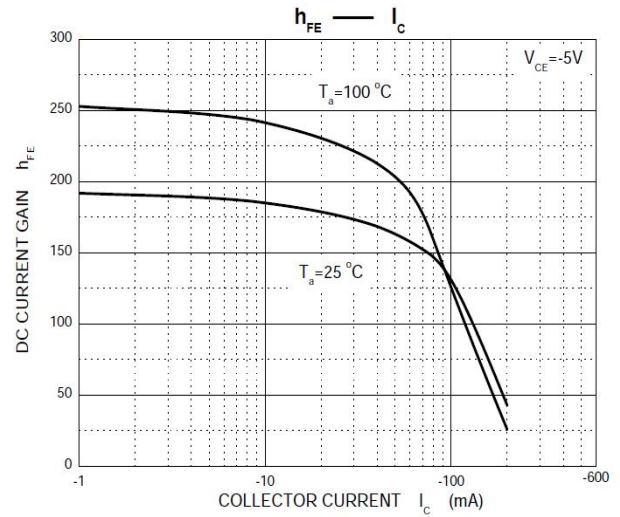
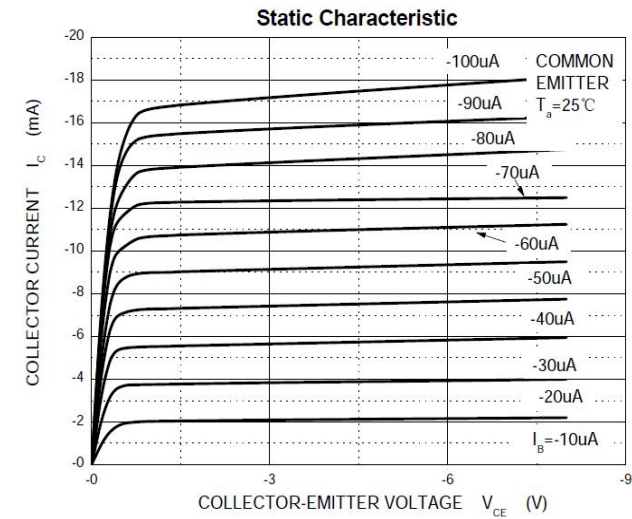
## Electrical Characteristics (Ta=25°C unless otherwise specified)

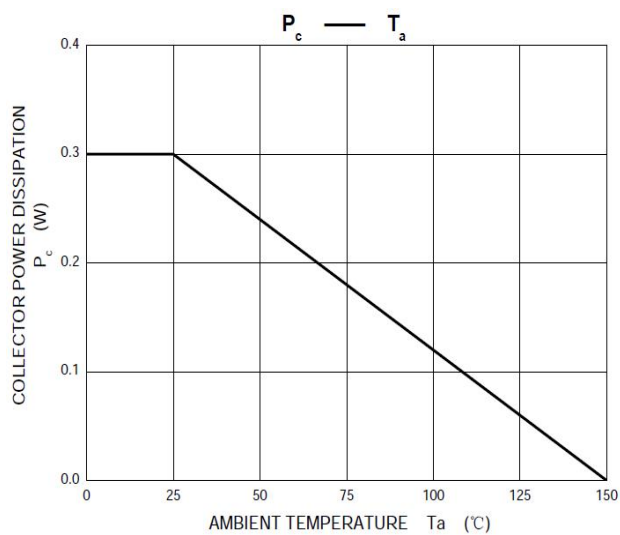
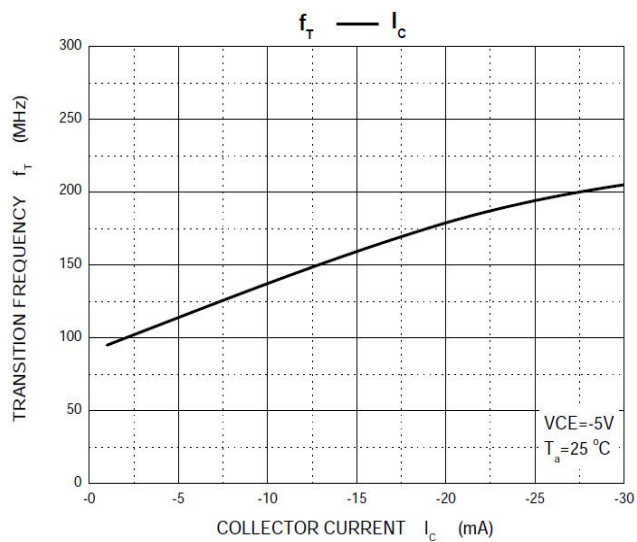
| Symbol           | Parameter                            | Test conditions                        | Min  | Typ | Max  | Unit    |
|------------------|--------------------------------------|----------------------------------------|------|-----|------|---------|
| $V_{(BR)CBO}$    | Collector-base breakdown voltage     | $I_C = -100\mu A, I_E = 0$             | -160 | --  | --   | V       |
| $V_{(BR)CEO}^*$  | Collector-emitter breakdown voltage  | $I_C = -1mA, I_B = 0$                  | -150 | --  | --   | V       |
| $V_{(BR)EBO}$    | Emitter-base breakdown voltage       | $I_E = -10\mu A, I_C = 0$              | -5   | --  | --   | V       |
| $I_{CBO}$        | Collector cut-off current            | $V_{CB} = -120V, I_E = 0$              | --   | --  | -0.1 | $\mu A$ |
| $I_{EBO}$        | Emitter cut-off current              | $V_{EB} = -4V, I_C = 0$                | --   | --  | -0.1 | $\mu A$ |
| $h_{FE1}^*$      | DC current gain                      | $V_{CE} = -5V, I_C = -1mA$             | 80   | --  | --   |         |
| $h_{FE2}^*$      |                                      | $V_{CE} = -5V, I_C = -10mA$            | 100  | --  | 300  |         |
| $h_{FE3}^*$      |                                      | $V_{CE} = -5V, I_C = -50mA$            | 50   | --  | --   |         |
| $V_{CE(sat)1}^*$ | Collector-emitter saturation voltage | $I_C = -10mA, I_B = -1mA$              | --   | --  | -0.2 | V       |
| $V_{CE(sat)2}^*$ |                                      | $I_C = -50mA, I_B = -5mA$              | --   | --  | -0.5 | V       |
| $V_{BE(sat)1}^*$ | Base-emitter saturation voltage      | $I_C = -10mA, I_B = -1mA$              | --   | --  | -1   | V       |
| $V_{BE(sat)2}^*$ |                                      | $I_C = -50mA, I_B = -5mA$              | --   | --  | -1   | V       |
| $f_T$            | Transition frequency                 | $V_{CE} = -5V, I_C = -10mA, f = 30MHz$ | 100  | --  | --   | MHz     |

## Classification Of $h_{FE(2)}$

| Rank    | L       | H       |
|---------|---------|---------|
| Range   | 100-200 | 200-300 |
| Marking | 2Ax     |         |

Typical Operating Characteristics

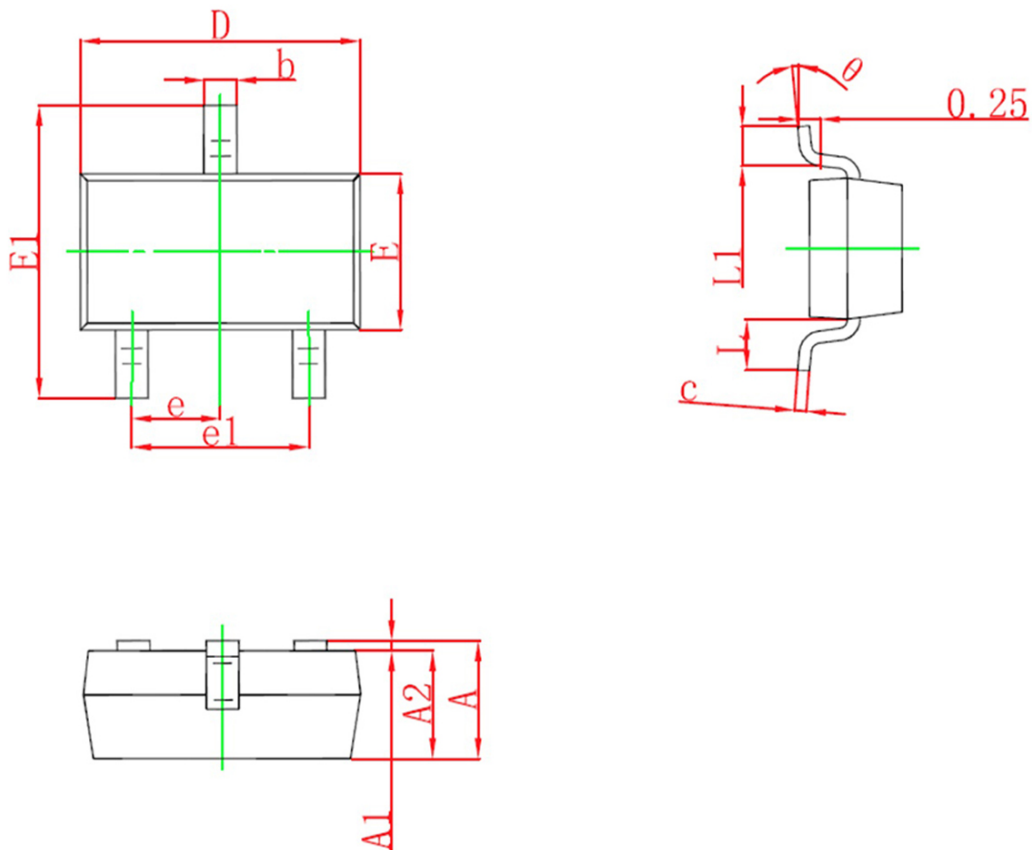




### Ordering Information (Example)

| Type     | Package | Marking | Minimum Package(pcs) | Inner Box Quantity(pcs) | Outer Carton Quantity(pcs) | Delivery Mode |
|----------|---------|---------|----------------------|-------------------------|----------------------------|---------------|
| MMBT5401 | SOT-23  | 2L      | 3,000                | 45,000                  | 180,000                    | 7"reel        |

**SOT-23 Package information**



| Symbol | Dimensions in Millimeters(mm) |       | Dimensions In Inches |       |
|--------|-------------------------------|-------|----------------------|-------|
|        | Min                           | Max   | Min                  | Max   |
| A      | 0.900                         | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                         | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                         | 1.050 | 0.035                | 0.041 |
| b      | 0.300                         | 0.500 | 0.012                | 0.020 |
| c      | 0.080                         | 0.150 | 0.003                | 0.006 |
| D      | 2.800                         | 3.000 | 0.110                | 0.118 |
| E1     | 2.250                         | 2.550 | 0.088                | 0.100 |
| E      | 1.200                         | 1.400 | 0.047                | 0.055 |
| e      | 0.950TYP                      |       | 0.037TYP             |       |
| e1     | 1.800                         | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF                     |       | 0.022 REF            |       |
| L1     | 0.300                         | 0.500 | 0.012                | 0.020 |
| θ      | 0°                            | 8°    | 0°                   | 8°    |