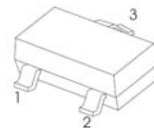


FEATURES

NPN General Purpose

SOT-23



- 1.BASE
- 2.EMITTER
- 3.COLLECTOR

MMBTA05 Marking: 1H
MMBTA06 Marking: 1GM

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings 最大额定值

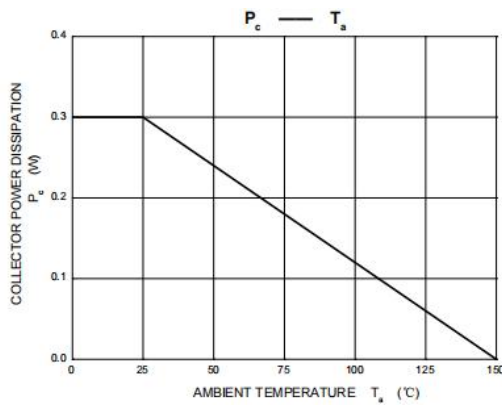
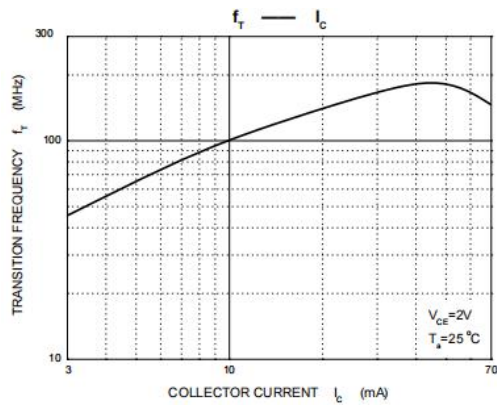
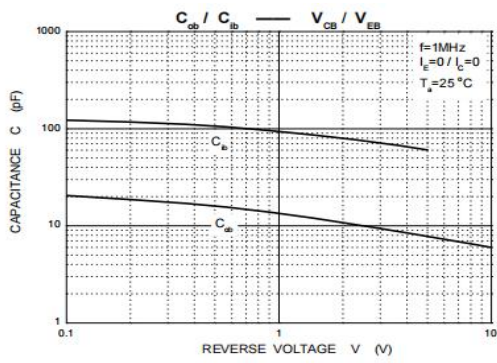
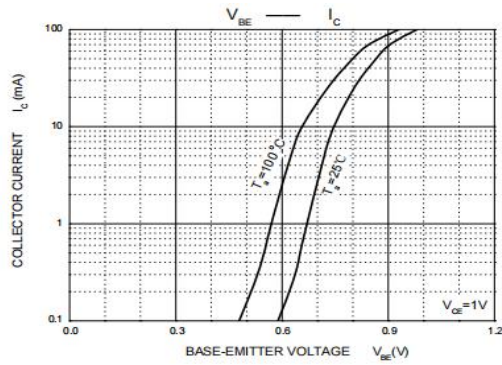
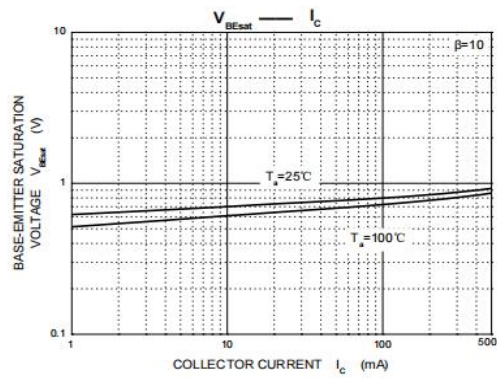
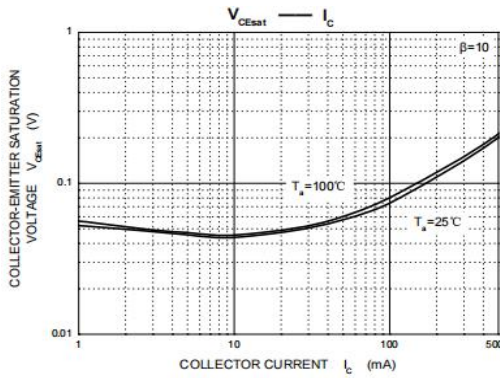
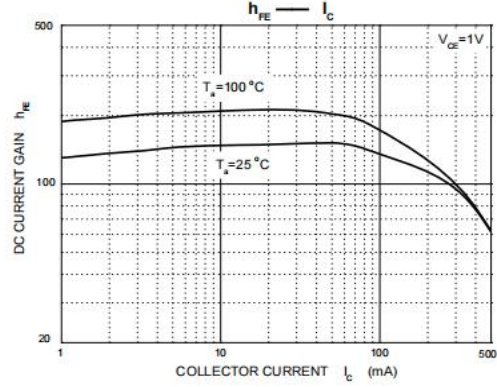
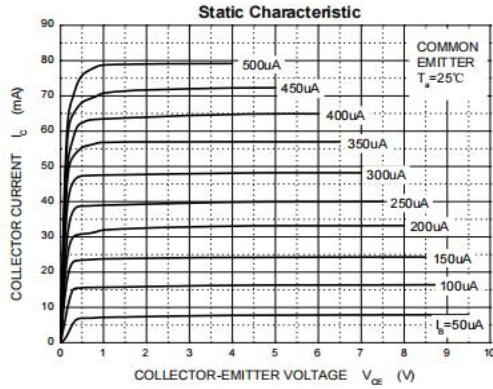
| Characteristic 特性参数 | Symbol 符号 | Rat 额定值 | | Unit 单位 |
|---|------------------------|-----------------------|---------|---------------|
| | | MMBTA05 | MMBTA06 | |
| Collector-Base Voltage 集电极基极电压 | V_{CB0} | 60 | 80 | V |
| Collector-Emitter Voltage 集电极发射极电压 | V_{CE0} | 60 | 80 | V |
| Emitter-Base Voltage 发射极基极电压 | V_{EBO} | 4 | | V |
| Collector Current 集电极电流 | I_C | 500 | | mA |
| Power dissipation 耗散功率 | $P_C(T_a=25^{\circ}C)$ | 300 | | mW |
| Thermal Resistance Junction-Ambient 热阻 | $R_{\theta JA}$ | 417 | | $^{\circ}C/W$ |
| Junction and Storage Temperature 结温和储藏温度 | T_J, T_{stg} | -55to+150 $^{\circ}C$ | | |

Electrical Characteristics 电特性

($T_A=25^{\circ}\text{C}$ unless otherwise noted 如无特殊说明, 温度为 25°C)

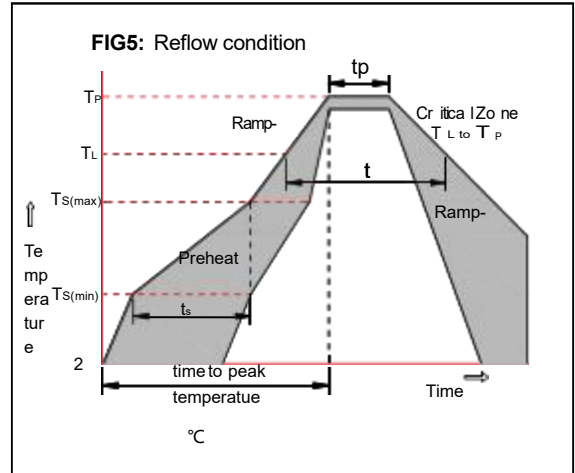
| Characteristic 特性参数 | | Symbol 符号 | Min 最小值 | Type 典型值 | Max 最大值 | Unit 单位 |
|--|--|---------------|------------|-------------|------------|------------|
| Collector-Base Breakdown Voltage 集电极基极击穿电压 ($I_C=100\mu\text{A}$, $I_E=0$) | MMBTA05 MMBTA06 | BV_{CBO} | 60 80 | — | — | V |
| Collector-Emitter Breakdown Voltage 集电极发射极击穿电压 ($I_C=10\text{mA}$, $I_B=0$) | MMBTA05 MMBTA06 | BV_{CEO} | 60 80 | — | — | V |
| Emitter-Base Breakdown Voltage 发射极基极击穿电压 ($I_E=100\mu\text{A}$, $I_C=0$) | | BV_{EBO} | 4 | — | — | V |
| Collector-Base Leakage Current 集电极基极漏电流 | MMBTA05($V_{CB}=60\text{V}, I_E=0$) MMBTA06($V_{CB}=80\text{V}, I_E=0$) | I_{CBO} | — | — | 100 | nA |
| Collector-Emitter Leakage Current 集电极发射极漏电流 | MMBTA05($V_{CB}=60\text{V}, I_B=0$) MMBTA06($V_{CB}=60\text{V}, I_B=0$) | I_{CEO} | — | — | 100 | nA |
| Emitter-Base Leakage Current 发射极基极漏电流($V_{EB}=4\text{V}$, $I_C=0$) | | I_{EBO} | — | — | 100 | nA |
| DC Current Gain($V_{CE}=1\text{V}, I_C=10\text{mA}$) 直流电流增益($V_{CE}=1\text{V}, I_C=100\text{mA}$) | | H_{FE} | 100 100 | — | 400 | |
| Collector-Emitter Saturation Voltage 集电极发射极饱和压降($I_C=100\text{mA}$, $I_B=10\text{mA}$) | | $V_{CE(sat)}$ | — | — | 0.25 | V |
| Base-Emitter Saturation Voltage 基极发射极饱和压降($I_C=100\text{mA}$, $I_B=10\text{mA}$) | | $V_{BE(sat)}$ | — | — | 1.2 | V |
| Base-Emitter On Voltage 基极发射极导通电压($V_{CE}=1\text{V}$, $I_C=100\text{mA}$) | | $V_{BE(on)}$ | — | — | 1.2 | V |
| Transition Frequency 特征频率($V_{CE}=2\text{V}$, $I_C=10\text{mA}$) | | f_T | 100 | — | — | MHz |
| Output Capacitance 输出电容($V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$) | | C_{ob} | — | 10 | — | pF |

RATING AND CHARACTERISTIC CURVES



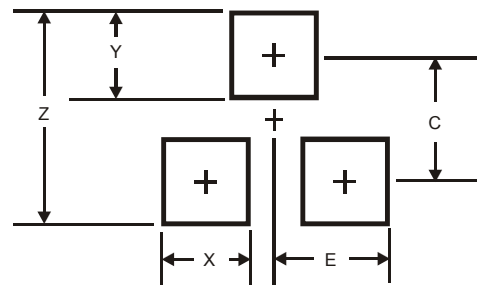
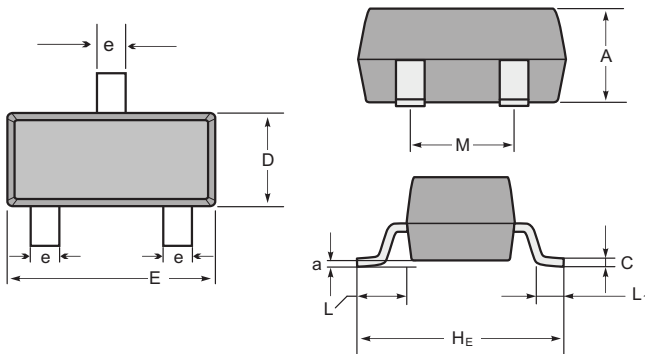
Soldering parameters

| Reflow Condition | | Pb-Free assembly (see as below) |
|---|-----------------------------------|------------------------------------|
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150°C |
| | -Temperature Max($T_{s(max)}$) | +200°C |
| | -Time (Min to Max) (ts) | 60-180 secs. |
| Average ramp up rate (Liquid us Temp (T_L) to peak) | | 3°C/sec. Max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/sec. Max |
| Reflow | -Temperature(T_L)(Liquid us) | +217°C |
| | -Temperature(t_L) | 60-150 secs. |
| Peak Temp (T_P) | | +260(+0/-5)°C |
| Time within 5°C of actual Peak Temp (t_p) | | 30 secs. Max |
| Ramp-down Rate | | 6°C/sec. Max |
| Time 25°C to Peak Temp (T_P) | | 8 min. Max |
| Do not exceed | | +260°C |



Package Dimensions & Suggested Pad Layout

SOT23

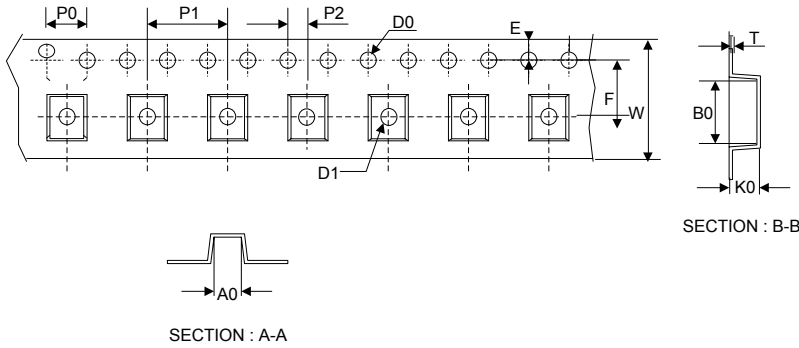
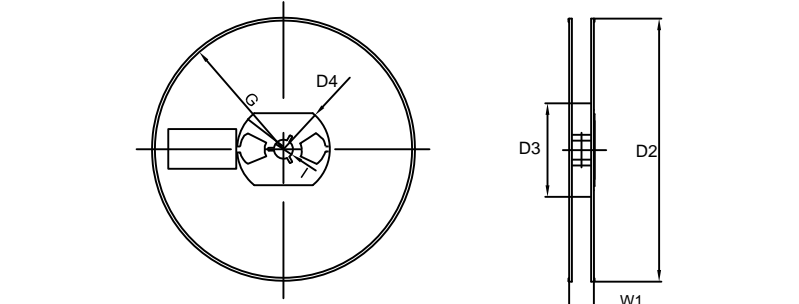


SOT-23 mechanical data

| UNIT | A | C | D | E | H_e | e | M | L | L_1 | a | |
|------|-----|-----|------|-----|-------|-----|-----|------|------------|------------|------|
| mm | max | 1.1 | 0.15 | 1.4 | 3.0 | 2.6 | 0.5 | 1.95 | 0.55 (ref) | 0.36 (ref) | 0.0 |
| | min | 0.9 | 0.08 | 1.2 | 2.8 | 2.2 | 0.3 | 1.7 | | | 0.15 |
| mil | max | 43 | 6 | 55 | 118 | 102 | 20 | 77 | 22 (ref) | 14 (ref) | 0.0 |
| | min | 35 | 3 | 47 | 110 | 87 | 12 | 67 | | | 6 |

| Dimensions | SOT23 |
|------------|-------|
| Z | 2.9 |
| X | 0.8 |
| Y | 0.9 |
| C | 2.0 |
| E | 1.35 |

Tape & reel specification

| Tape | Symbol | Dimension (mm) | |
|---|--|----------------|-----------|
|  | P0 | 4.00±0.10 | |
| | P1 | 4.00±0.10 | |
| | P2 | 2.00±0.10 | |
| | D0 | 1.55±0.10 | |
| | D1 | 1.05±0.10 | |
| | E | 1.55±0.10 | |
| | F | 3.60±0.10 | |
| | W | 8.00±0.10 | |
| | A0 | 3.80±0.20 | |
| | B0 | 3.25±0.20 | |
| | K0 | 1.45±0.10 | |
| | T | 0.25±0.05 | |
| | <p>7" Reel</p>  | D2 | 178.0±3.0 |
| | | D3 | 55Min. |
| D4 | | R24.0±3.0 | |
| G | | R82.0±3.0 | |
| I | | 13.0±2.0 | |
| W1 | | 11.0±3.0 | |
| Quantity: 3000PCS | | | |