

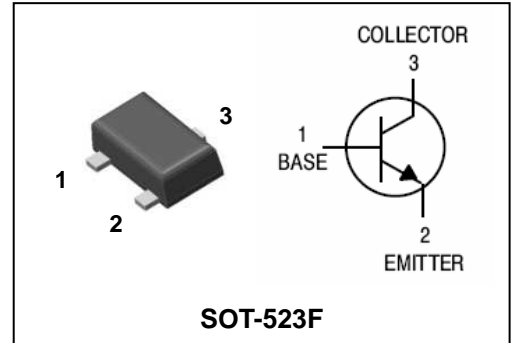
Descriptions

- Small signal application
- Switching application

Features

- Low collector saturation voltage
- Low collector output capacitance
- Complementary pair with MMBT3906EF

PIN Connection



Ordering Information

| Type NO. | Marking | Package Code |
|--|--|--------------|
| MMBT3904EF | $\begin{array}{c} \square \\ \text{Z} \\ \text{①} \text{ ②} \end{array}$ | SOT-523F |
| <small>① Device Code ② Year&Week Code</small> | | |

Absolute maximum ratings

T_a=25°C

| Characteristic | Symbol | Rating | Unit |
|-----------------------------|------------------|---------|------|
| Collector-Base voltage | V _{CBO} | 60 | V |
| Collector-Emitter voltage | V _{CEO} | 40 | V |
| Emitter-base voltage | V _{EBO} | 6 | V |
| Collector current | I _C | 200 | mA |
| Collector Power dissipation | P _C | 150 | mW |
| Junction temperature | T _J | 150 | °C |
| Storage temperature range | T _{stg} | -55~150 | °C |

Electrical Characteristics

T_a=25°C

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|----------------------|---|------|------|------|------|
| Collector-Base breakdown voltage | BV _{CBO} | I _C = 10μA, I _E = 0 | 60 | - | - | V |
| Collector-Emitter breakdown voltage | BV _{CEO} | I _C = 1mA, I _B = 0 | 40 | - | - | V |
| Emitter-Base breakdown voltage | BV _{EBO} | I _E = 10μA, I _C = 0 | 6 | - | - | V |
| Collector cut-off current | I _{CEX} | V _{CE} = 30V, V _{BE} = -3V | - | - | 50 | nA |
| DC current gain | h _{FE} | V _{CE} = 1V, I _C = 10mA | 100 | - | 300 | - |
| Collector-Emitter saturation voltage | V _{CE(sat)} | I _C = 50mA, I _B = 5mA | - | - | 0.3 | V |
| Transition frequency | f _T | V _{CE} = 20V, I _C = 10mA, f= 100MHz | 300 | - | - | MHz |
| Collector output capacitance | C _{ob} | V _{CB} = 5V, I _E = 0, f= 1MHz | - | - | 4 | pF |
| Turn on delay time | t _d | V _{CC} = 3V, V _{BE(off)} = 0.5V | - | - | 35 | ns |
| Rise time | t _r | I _C = 10mA, I _{B1} = 1mA | - | - | 35 | ns |
| Storage time | t _s | V _{CC} = 3V, I _C = 10mA, | - | - | 200 | ns |
| Fall Time | t _f | I _{B1} = -I _{B2} = 1mA | - | - | 50 | ns |

Electrical Characteristic Curves

Fig. 1 P_C - T_a

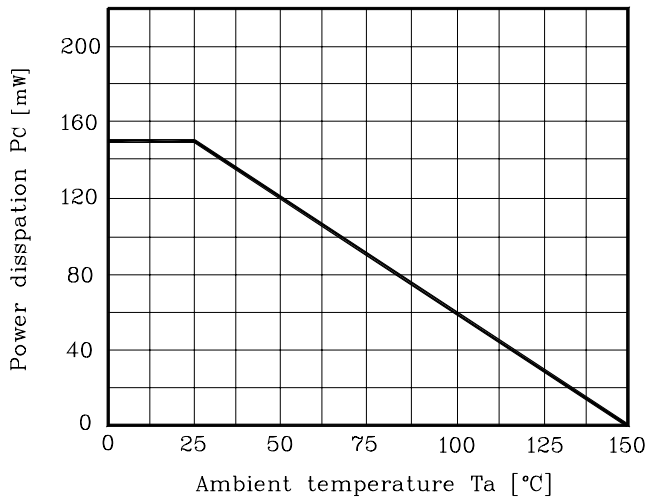


Fig. 2 h_{FE} - I_C

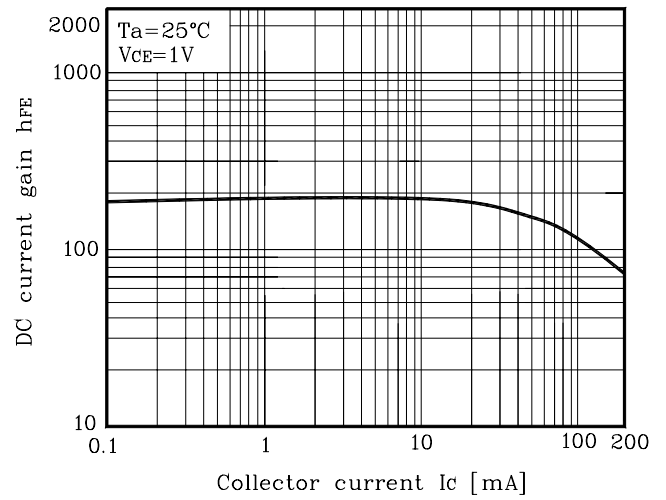
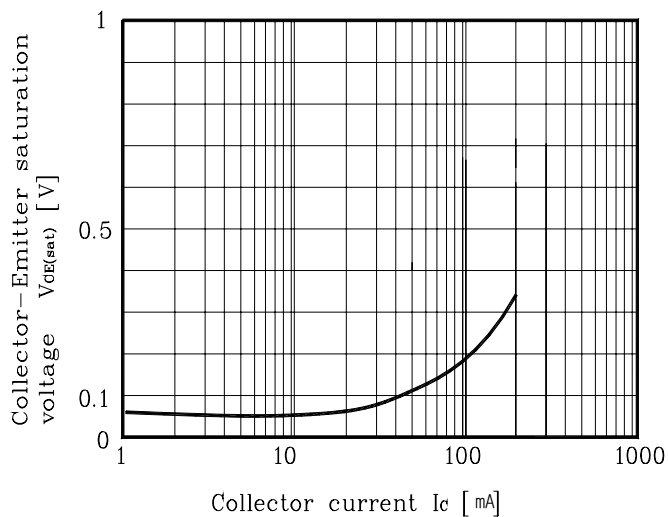
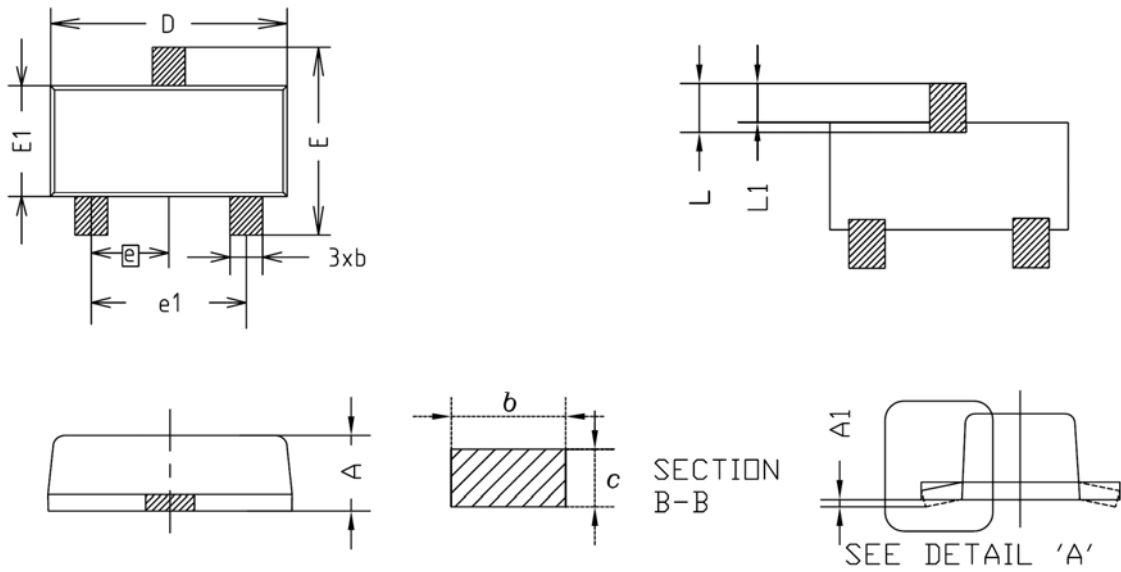


Fig. 3 $V_{CE(sat)}$ - I_C

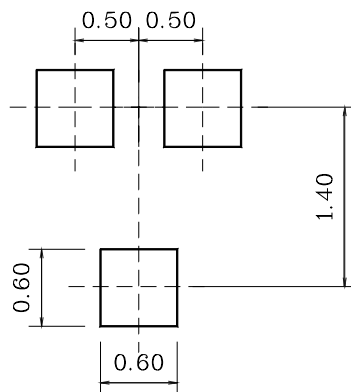


Outline Dimension



| SYMBOL | MILLIMETERS | | | NOTE |
|--------|-------------|---------|---------|------|
| | MINIMUM | NOMINAL | MAXIMUM | |
| A | 0.63 | 0.68 | 0.73 | |
| A1 | 0.00 | - | 0.10 | |
| A2 | - | - | - | |
| b | 0.25 | 0.30 | 0.35 | |
| c | 0.04 | 0.11 | 0.20 | |
| D | 1.50 | 1.60 | 1.70 | |
| E | 1.50 | 1.60 | 1.70 | |
| E1 | 0.78 | 0.88 | 0.98 | |
| e | 0.50BSC | | | |
| e1 | 0.90 | - | 1.10 | |
| L | 0.34 | 0.44 | 0.54 | |
| L1 | 0.28 | 0.34 | 0.43 | |

※Recommend PCB solder land [Unit: mm]



The AUK Corp. products are intended for the use as components in general electronic equipment (Office and communication equipment, measuring equipment, home appliance, etc.).

Please make sure that you consult with us before you use these AUK Corp. products in equipments which require high quality and / or reliability, and in equipments which could have major impact to the welfare of human life(atomic energy control, airplane, spaceship, transportation, combustion control, all types of safety device, etc.). AUK Corp. cannot accept liability to any damage which may occur in case these AUK Corp. products were used in the mentioned equipments without prior consultation with AUK Corp..

Specifications mentioned in this publication are subject to change without notice.