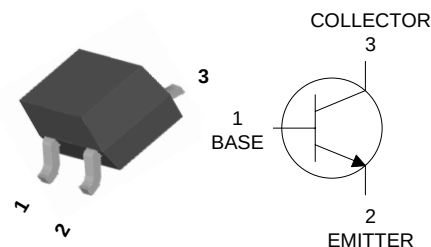


## Descriptions

- General purpose application
- Switching application

## Features

- Low Leakage current
- Low collector saturation voltage enabling low voltage operation
- Complementary pair with SBT2907A



SOT-23

## Ordering Information

| Part Number | Marking *       | Package |
|-------------|-----------------|---------|
| SBT2222A    | 1P □ ◎<br>① ② ③ | SOT-23  |

\* ① Device Code ② Year & Week Code ③ Factory Management Code

## Absolute maximum ratings (Ta=25°C)

| Characteristic                       | Symbol     | Ratings | Unit     |
|--------------------------------------|------------|---------|----------|
| Collector-Base voltage               | $V_{CBO}$  | 75      | V        |
| Collector-Emitter voltage            | $V_{CEO}$  | 40      | V        |
| Emitter-Base voltage                 | $V_{EBO}$  | 5       | V        |
| Collector current                    | $I_C$      | 0.6     | A(DC)    |
|                                      | $I_{CP}^*$ | 1.2     | A(Pulse) |
| Collector dissipation                | $P_C^{**}$ | 350     | mW       |
| Operating Junction temperature range | $T_J$      | -55~150 | °C       |
| Storage temperature range            | $T_{stg}$  | -55~150 | °C       |

\* : Single pulse,  $t_p = 300 \mu s$

\*\* : Package mounted on 99.5% alumina 10×8×0.6mm

## Thermal Characteristics

| Characteristic                      | Symbol             | Ratings | Unit |
|-------------------------------------|--------------------|---------|------|
| Thermal resistance Junction-Ambient | $R_{th(J-A)}^{**}$ | 357     | °C/W |
| Thermal resistance Junction-Case    | $R_{th(J-C)}^{**}$ | 200     | °C/W |

\*\* : Package mounted on 99.5% alumina 10×8×0.6mm

## Electrical Characteristics (Ta=25°C)

| Characteristic                       | Symbol        | Test Condition                                                             | Min. | Typ. | Max. | Unit |
|--------------------------------------|---------------|----------------------------------------------------------------------------|------|------|------|------|
| Collector-Base breakdown voltage     | $BV_{CBO}$    | $I_C=10\mu A, I_E=0$                                                       | 75   | -    | -    | V    |
| Collector-Emitter breakdown voltage  | $BV_{CEO}$    | $I_C=1mA, I_B=0$                                                           | 40   | -    | -    | V    |
| Emitter-Base breakdown voltage       | $BV_{EBO}$    | $I_E=10\mu A, I_C=0$                                                       | 5    | -    | -    | V    |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=75V, I_E=0$                                                        | -    | -    | 20   | nA   |
| Collector cut-off current            | $I_{CEX}$     | $V_{CE}=30V, V_{EB}=0.5V$                                                  | -    | -    | 50   | nA   |
| DC current gain                      | $h_{FE}$      | $V_{CE}=10V, I_C=10mA$                                                     | 100  | -    | -    | -    |
| Collector-Emitter saturation voltage | $V_{CE(sat)}$ | $I_C=150mA, I_B=15mA$                                                      | -    | -    | 0.4  | V    |
| Transition frequency                 | $f_T$         | $V_{CE}=20V, I_C=20mA, f=100MHz$                                           | 250  | -    | -    | MHz  |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=10V, I_E=0, f=1MHz$                                                | -    | -    | 8    | pF   |
| Delay time                           | $t_d$         | $V_{CC}=30V_{dc}, V_{BE(off)}=0.5V_{dc}, I_C=150mA_{dc}, I_{B1}=15mA_{dc}$ | -    | -    | 10   | ns   |
| Rise time                            | $t_r$         |                                                                            | -    | -    | 25   | ns   |
| Storage time                         | $t_s$         | $V_{CC}=30V_{dc}, I_C=150mA_{dc}, I_{B1}=I_{B2}=15mA_{dc}$                 | -    | -    | 225  | ns   |
| Fall Time                            | $t_f$         |                                                                            | -    | -    | 60   | ns   |

# Electrical Characteristic Curves

Fig. 1  $P_C - T_a$

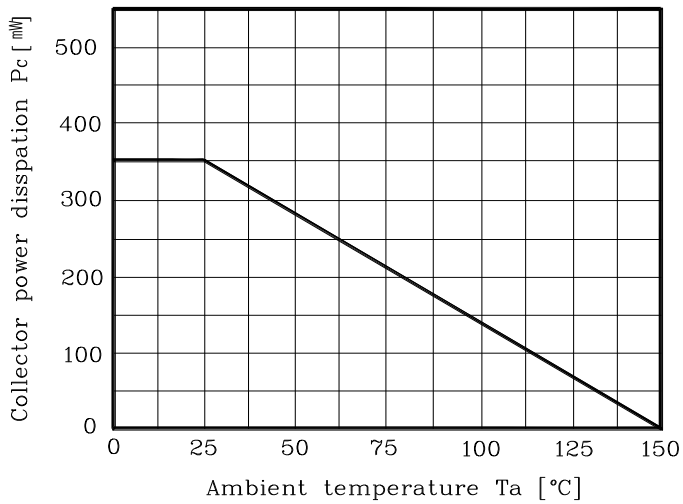


Fig. 2  $h_{FE} - I_C$

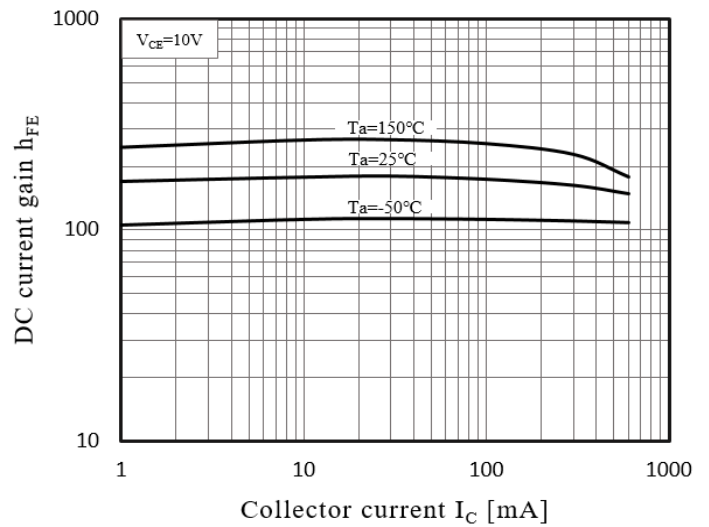


Fig. 3  $I_C - V_{CE(SAT)}$

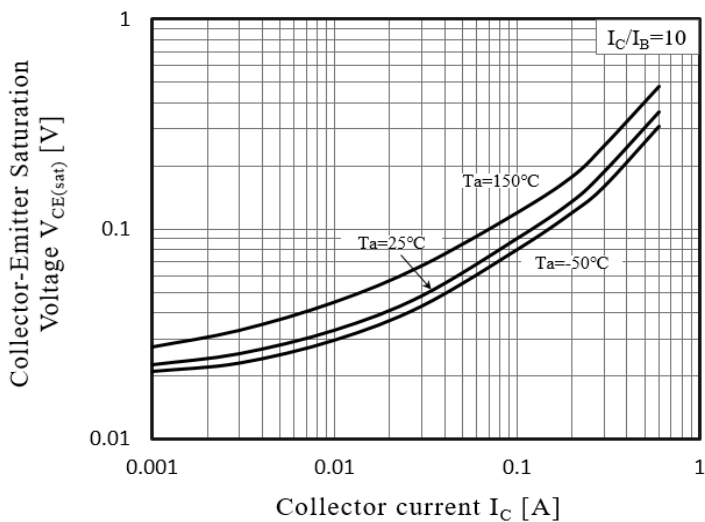


Fig. 4  $I_C - V_{BE(SAT)}$

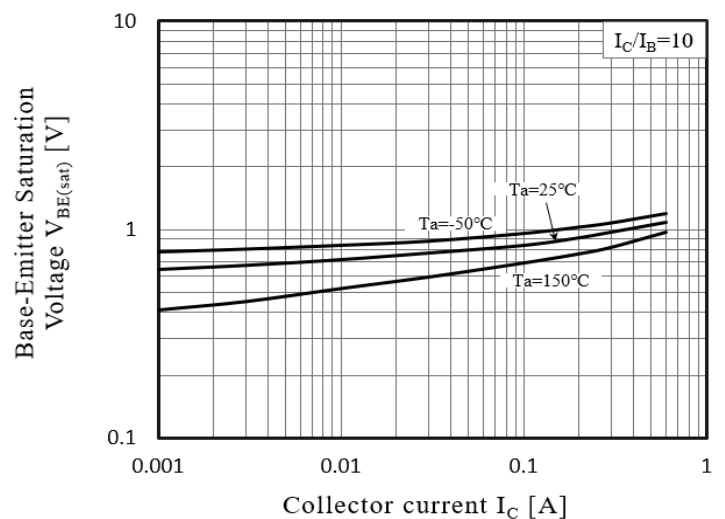
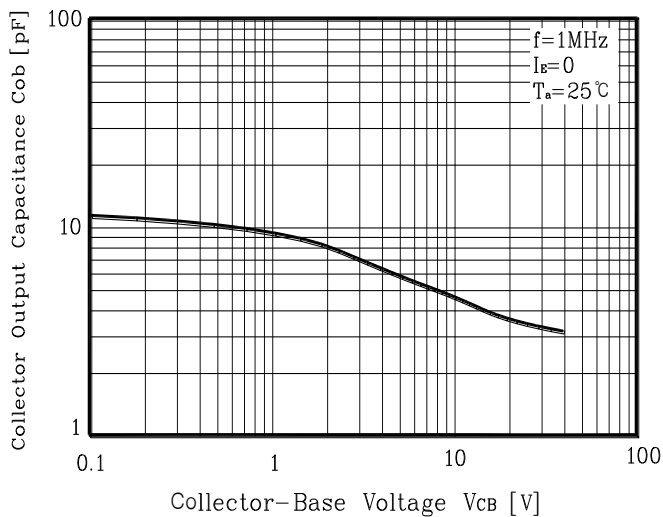
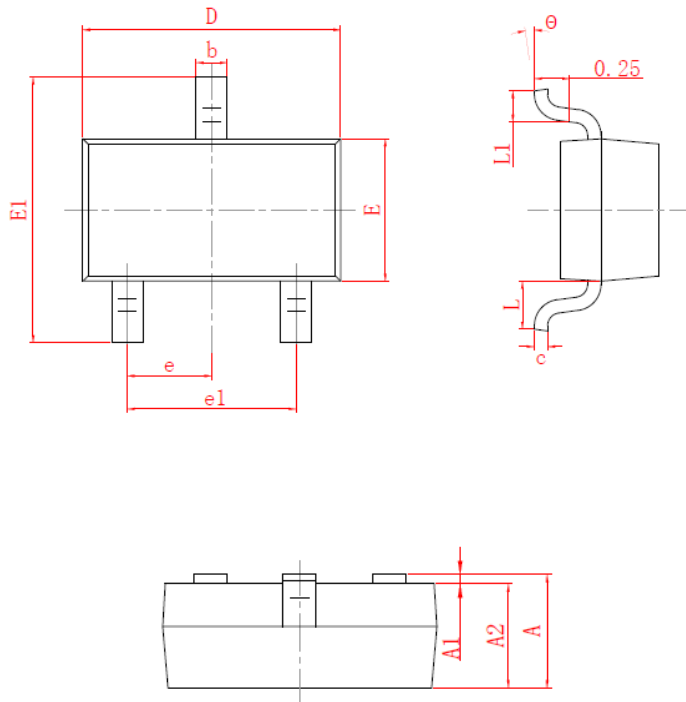


Fig. 5  $C_{ob} - V_{CB}$

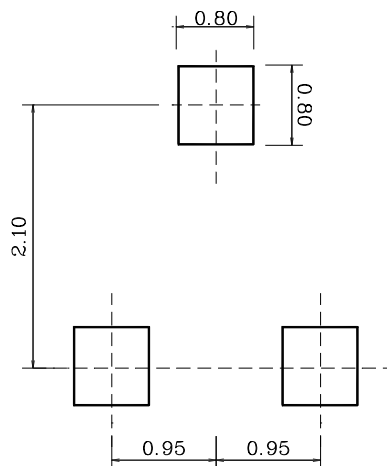


Outline Dimension (Unit: mm)



| SYMBOL | MILLIMETER |       |
|--------|------------|-------|
|        | MIN        | MAX   |
| A      | 0.900      | 1.150 |
| A1     | 0.000      | 0.100 |
| A2     | 0.900      | 1.050 |
| b      | 0.300      | 0.500 |
| c      | 0.080      | 0.150 |
| D      | 2.800      | 3.000 |
| E      | 1.200      | 1.400 |
| E1     | 2.250      | 2.550 |
| e      | 0.950 TYP  |       |
| e1     | 1.800      | 2.000 |
| L      | 0.550 REF  |       |
| L1     | 0.300      | 0.500 |
| θ      | 0°         | 8°    |

※Recommend PCB solder land (Unit: mm)



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