

## SOT-23 Plastic-Encapsulate Transistors

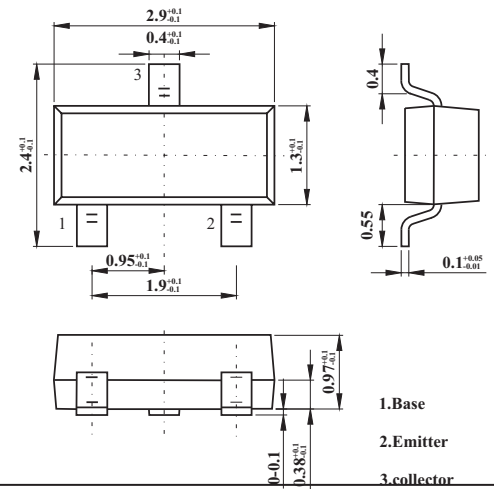
### Features

- High Voltage Transistors
- NPN Silicon

### MECHANICAL DATA

- Case style:SOT-23molded plastic
- Mounting position:any

SOT-23



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

| Parameter                                     | Symbol          | Rating      | Unit  |
|-----------------------------------------------|-----------------|-------------|-------|
| Collector-emitter voltage                     | $V_{CE0}$       | 200         | V     |
| Collector-base voltage                        | $V_{CBO}$       | 200         | V     |
| Emitter-base voltage                          | $V_{EBO}$       | 6           | V     |
| Collector current-continuous                  | $I_C$           | 500         | mA    |
| Total device dissipation FR-5 board *1        |                 |             |       |
| @TA = 25°C                                    | $P_D$           | 225         | mW    |
| Derate above 25°C                             |                 | 1.8         | mW/°C |
| Thermal resistance, junction-to-ambient       | $R_{\theta JA}$ | 556         | °C/W  |
| Total device dissipation alumina substrate *2 |                 |             |       |
| @TA = 25°C                                    | $P_D$           | 300         | mW    |
| derate above 25°C                             |                 | 2.4         | mW/°C |
| Thermal resistance, junction-to-ambient       | $R_{\theta JA}$ | 417         | °C/W  |
| Junction and storage temperature              | $T_J, T_{stg}$  | -55 to +150 | °C    |

\* 1. FR-5 = 1.0 X 0.75 X 0.062 in.

\* 2. Alumina = 0.4 X 0.3 X 0.024 in. 99.5% alumina.

| Parameter                              | Symbol        | Testconditions                                                    | Min | Typ | Max | Unit    |
|----------------------------------------|---------------|-------------------------------------------------------------------|-----|-----|-----|---------|
| Collector-emitter breakdown voltage *  | $V_{(BR)CEO}$ | $I_C = 1.0 \text{ mA}, I_E = 0$                                   | 200 |     |     | V       |
| Collector-base breakdown voltage       | $V_{(BR)CBO}$ | $I_C = 100 \mu A, I_E = 0$                                        | 200 |     |     | V       |
| Emitter-base breakdown voltage         | $V_{(BR)EBO}$ | $I_E = 100 \mu A, I_C = 0$                                        | 6   |     |     | V       |
| Collector cutoff current               | $I_{CBO}$     | $V_{CB} = 160 \text{ V}, I_E = 0$                                 |     |     | 0.1 | $\mu A$ |
| Emitter cutoff current                 | $I_{EBO}$     | $V_{EB} = 4.0 \text{ V}, I_C = 0$                                 |     |     | 0.1 | $\mu A$ |
| DC current gain *                      | $h_{FE}$      | $I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V}$                     | 25  |     |     |         |
|                                        |               | $I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V}$                      | 40  |     |     |         |
|                                        |               | $I_C = 30 \text{ mA}, V_{CE} = 10 \text{ V}$                      | 40  |     |     |         |
| Collector-emitter saturation voltage * | $V_{CE(sat)}$ | $I_C = 20 \text{ mA}, I_B = 2.0 \text{ mA}$                       |     |     | 0.5 | V       |
| Base-emitter saturation voltage *      | $V_{BE(sat)}$ | $I_C = 20 \text{ mA}, I_B = 2.0 \text{ mA}$                       |     |     | 0.9 | V       |
| Current-gain - bandwidth product       | $f_T$         | $I_C = 10 \text{ mA}, V_{CE} = 20 \text{ V}, f = 100 \text{ MHz}$ | 50  |     |     | MHz     |
| Collector-base capacitance             | $C_{cb}$      | $V_{CB} = 20 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$             |     |     | 4   | pF      |

\* Pulse Test: Pulse Width  $\leq 300 \mu s$ , Duty Cycle  $\leq 2.0\%$ .

### Marking

|         |     |
|---------|-----|
| Marking | M1E |
|---------|-----|