

RoHS Compliant Product

A suffix of "-C" specifies halogen & lead-free

## FEATURES

Power dissipation

$P_{CM} : 0.2 \text{ W}$

Collector Current

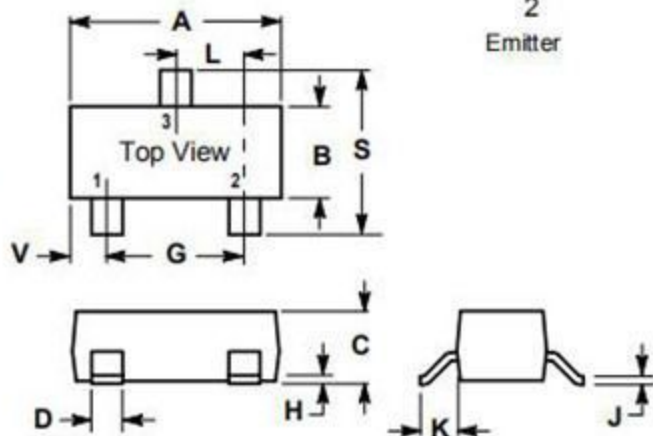
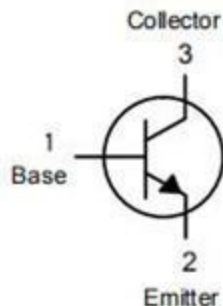
$I_{CM} : 0.1 \text{ A}$

Collector-base voltage

$V_{(BR)CBO} : 50 \text{ V}$

Operating & storage junction temperature

$T_j, T_{stg} : -55^{\circ}\text{C} \sim +150^{\circ}\text{C}$



| SOT-23              |       |       |
|---------------------|-------|-------|
| Dim                 | Min   | Max   |
| A                   | 2.800 | 3.040 |
| B                   | 1.200 | 1.400 |
| C                   | 0.890 | 1.110 |
| D                   | 0.370 | 0.500 |
| G                   | 1.780 | 2.040 |
| H                   | 0.013 | 0.100 |
| J                   | 0.085 | 0.177 |
| K                   | 0.450 | 0.600 |
| L                   | 0.890 | 1.020 |
| S                   | 2.100 | 2.500 |
| V                   | 0.450 | 0.600 |
| All Dimension in mm |       |       |

**MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)**

| Symbol    | Parameter                     | Value   | Units              |
|-----------|-------------------------------|---------|--------------------|
| $V_{CB0}$ | Collector-Base Voltage        | 50      | V                  |
| $V_{CE0}$ | Collector-Emitter Voltage     | 45      | V                  |
| $V_{EB0}$ | Emitter-Base Voltage          | 5       | V                  |
| $I_C$     | Collector Current -Continuous | 0.1     | A                  |
| $P_C$     | Collector Power Dissipation   | 0.2     | W                  |
| $T_J$     | Junction Temperature          | 150     | $^{\circ}\text{C}$ |
| $T_{stg}$ | Storage Temperature           | -55-150 | $^{\circ}\text{C}$ |

**ELECTRICAL CHARACTERISTICS (Temp.= $25^{\circ}\text{C}$  unless otherwise specified)**

| Parameter                            | Symbol        | Test conditions  | MIN | TYP | MAX  | UNIT          |
|--------------------------------------|---------------|--|-----|-----|------|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CE0}$ | $I_C = 100 \mu\text{A}$ , $I_E = 0$                              | 50  |     |      | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C = 0.1\text{mA}$ , $I_B = 0$                                 | 45  |     |      | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E = 100 \mu\text{A}$ , $I_C = 0$                              | 5   |     |      | V             |
| Collector cut-off current            | $I_{CB0}$     | $V_{CB} = 50\text{V}$ , $I_E = 0$                                |     |     | 0.1  | $\mu\text{A}$ |
| Collector cut-off current            | $I_{CE0}$     | $V_{CE} = 35\text{V}$ , $I_B = 0$                                |     |     | 0.1  | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EB0}$     | $V_{EB} = 3\text{V}$ , $I_C = 0$                                 |     |     | 0.1  | $\mu\text{A}$ |
| DC current gain                      | $h_{FE}$      | $V_{CE} = 5\text{V}$ , $I_C = 1\text{mA}$                        | 200 |     | 1000 |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 100\text{mA}$ , $I_B = 5\text{mA}$                        |     |     | 0.3  | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = 100\text{mA}$ , $I_B = 5\text{mA}$                        |     |     | 1    | V             |
| Transition frequency                 | $f_T$         | $V_{CE} = 5\text{V}$ , $I_C = 10\text{mA}$<br>$f = 30\text{MHz}$ | 150 |     |      | MHz           |

**CLASSIFICATION OF  $h_{FE(1)}$** 

| Rank  | L       | H        |
|-------|---------|----------|
| Range | 200-450 | 450-1000 |

DEVICE MARKING: S9014 =J6