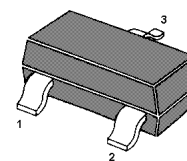
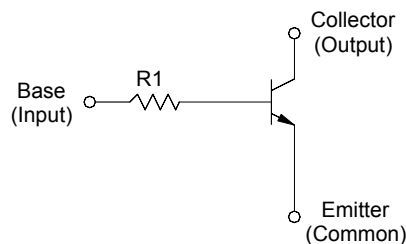


## MMBTRC110SS...MMBTRC114SS NPN Silicon Epitaxial Planar Transistor

for switching and interface circuit  
and drive circuit applications

### Features

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process



1.Base 2.Emitter 3.Collector  
SOT-23 Plastic Package

### Resistor Values

| Type        | R1 (KΩ) |      |      | Marking Code |
|-------------|---------|------|------|--------------|
|             | Min.    | Typ. | Max. |              |
| MMBTRC110SS | 3.29    | 4.7  | 10   | XD           |
| MMBTRC111SS | 7       | 10   | 13   | XE           |
| MMBTRC112SS | 92      | 100  | 150  | XF           |
| MMBTRC113SS | 370     | 22   | 30   | XH           |
| MMBTRC114SS | 540     | 47   | 100  | XJ           |

### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

| Parameter                 | Symbol    | Value         | Unit             |
|---------------------------|-----------|---------------|------------------|
| Collector Base Voltage    | $V_{CBO}$ | 50            | V                |
| Collector Emitter Voltage | $V_{CEO}$ | 50            | V                |
| Emitter Base Voltage      | $V_{EBO}$ | 5             | V                |
| Collector Current         | $I_C$     | 100           | mA               |
| Power Dissipation         | $P_{tot}$ | 200           | mW               |
| Junction Temperature      | $T_j$     | 150           | $^\circ\text{C}$ |
| Storage Temperature Range | $T_s$     | - 55 to + 150 | $^\circ\text{C}$ |

### Characteristics at $T_a = 25\text{ }^\circ\text{C}$

| Parameter   | Symbol        | Min. | Typ. | Max. | Unit |
|---|---------------|------|------|------|------|
| DC Current Gain<br>at $V_{CE} = 5\text{ V}$ , $I_C = 1\text{ mA}$                       | $h_{FE}$      | 120  | -    | -    | -    |
| Collector Cutoff Current<br>at $V_{CB} = 50\text{ V}$                                   | $I_{CBO}$     | -    | -    | 100  | nA   |
| Emitter Cutoff Current<br>at $V_{EB} = 5\text{ V}$                                      | $I_{EBO}$     | -    | -    | 100  | nA   |
| Collector Emitter Saturation Voltage<br>at $I_C = 10\text{ mA}$ , $I_B = 0.5\text{ mA}$ | $V_{CE(sat)}$ | -    | -    | 0.3  | V    |
| Transition Frequency<br>at $V_{CE} = 10\text{ V}$ , $I_C = 5\text{ mA}$                 | $f_T$         | -    | 250  | -    | MHz  |

## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23

