

## S9014

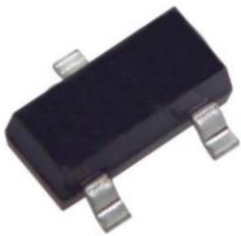
NPN Plastic-Encapsulate Transistors

### Mechanical Data

- Case: SOT-23 Molded plastic
- Epoxy: UL94V-O rate flame retardant
- RoHS compliant package

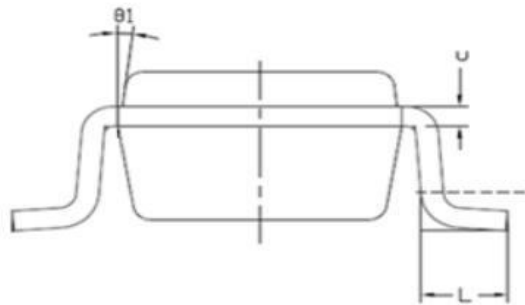
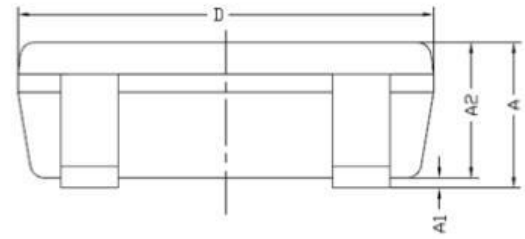
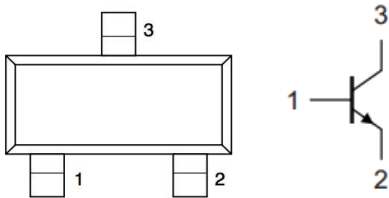
### Packing & Order Information

3,000/Reel

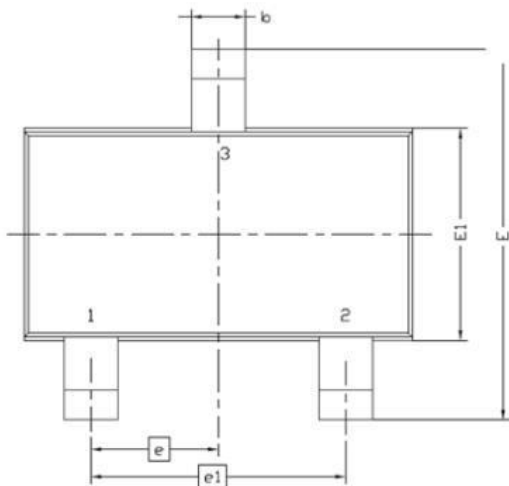


**RoHS  
COMPLIANT**

Graphic symbol



| Symbol | MILLIMETERS |     |
|--------|-------------|-----|
|        | MIN         | MAX |
| A      | 0.8         | 1.2 |
| A1     | 0           | 0.1 |
| A2     | 0.7         | 1.1 |
| b      | 0.3         | 0.5 |
| c      | 0.1         | 0.2 |
| D      | 2.7         | 3.1 |
| E      | 2.6         | 3   |
| E1     | 1.4         | 1.8 |
| e      | 0.95 BSC    |     |
| e1     | 1.9 BSC     |     |
| L      | 0.3         | 0.6 |
| theta1 | 7° NOM      |     |



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### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

#### MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

| Symbol           | Parameter                   | Value       | Unit |
|------------------|-----------------------------|-------------|------|
| V <sub>CB0</sub> | Collector-Base Voltage      | 50          | V    |
| V <sub>CEO</sub> | Collector-Emitter Voltage   | 45          | V    |
| V <sub>EBO</sub> | Emitter-Base Voltage        | 5           | V    |
| I <sub>C</sub>   | Collector Current           | 0.1         | A    |
| P <sub>C</sub>   | Collector Power Dissipation | 0.2         | W    |
| T <sub>j</sub>   | Junction Temperature        | 150         | °C   |
| T <sub>stg</sub> | Storage Temperature         | -55 to +150 | °C   |

#### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Symbol               | Parameter                            | Test Conditions  | MIN | TYP | MAX  | UNIT |
|----------------------|--------------------------------------|--|-----|-----|------|------|
| V <sub>(BR)CBO</sub> | Collector-base breakdown voltage     | I <sub>C</sub> = 100μA , I <sub>E</sub> = 0                  | 50  |     |      | V    |
| V <sub>(BR)CEO</sub> | Collector-emitter breakdown voltage  | I <sub>C</sub> = 0.1 mA , I <sub>B</sub> = 0                 | 45  |     |      | V    |
| V <sub>(BR)EBO</sub> | Emitter-base breakdown voltage       | I <sub>E</sub> = 100μA , I <sub>C</sub> = 0                  | 5   |     |      | V    |
| I <sub>CB0</sub>     | Collector cut-off current            | V <sub>CB</sub> = 50 V , I <sub>E</sub> = 0                  |     |     | 0.1  | μA   |
| I <sub>CEO</sub>     | Collector cut-off current            | V <sub>CB</sub> = 35 V , I <sub>E</sub> = 0                  |     |     | 0.1  | μA   |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> = 3 V , I <sub>C</sub> = 0                   |     |     | 0.1  | μA   |
| h <sub>FE</sub>      | DC current gain                      | V <sub>CE</sub> = 5 V , I <sub>C</sub> = 1 mA                | 200 |     | 1000 |      |
| V <sub>CE(sat)</sub> | Collector-emitter saturation voltage | I <sub>C</sub> = 100 mA , I <sub>B</sub> = 5 mA              |     |     | 0.3  | V    |
| V <sub>BE(sat)</sub> | Base-Emitter Saturation Voltage      | I <sub>C</sub> = 100 mA , I <sub>B</sub> = 5 mA              |     |     | 1.0  | V    |
| f <sub>T</sub>       | Transition frequency                 | V <sub>CE</sub> = 5 V , I <sub>C</sub> = 10 mA<br>f = 30 MHz | 150 |     |      | MHz  |

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### ■ RATINGS AND CHARACTERISTIC CURVES

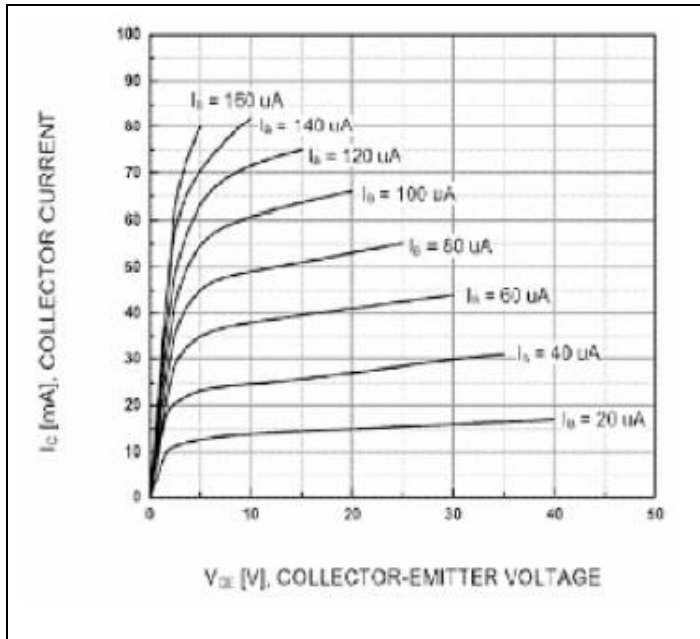


FIG.1- STATIC CHARACTERISTICS

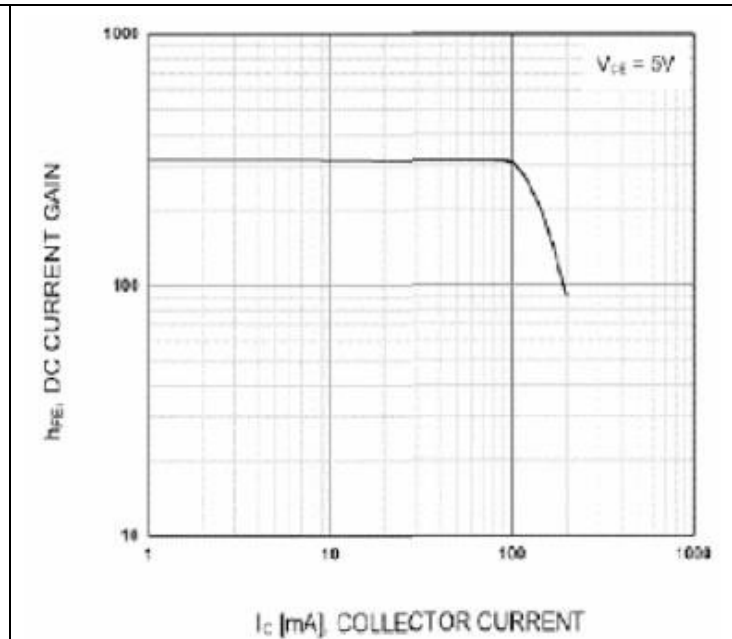


FIG.2- DC CURRENT GAIN

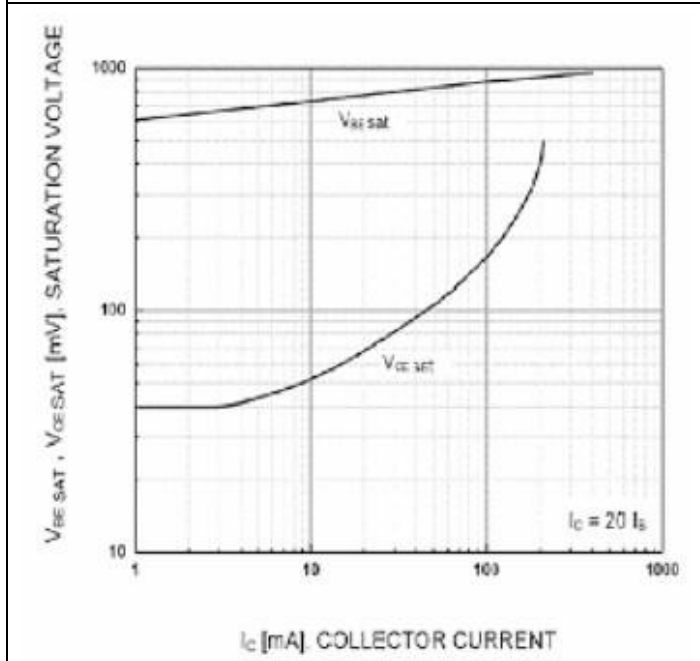


FIG.3- BASE-EMITTER SATURATION  
VOLTAGE COLLECTOR-EMITTER  
SATURATION VOLTAGE

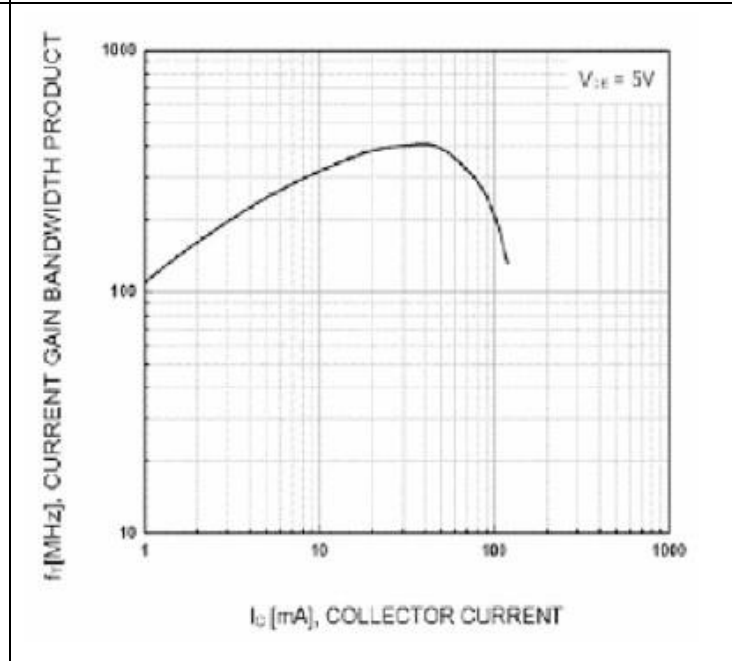


FIG.4- CURRENT GAIN BANDWIDTH  
PRODUCT

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