

RoHS Compliant Product

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

**FEATURES**

Power dissipation

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

Collector Current

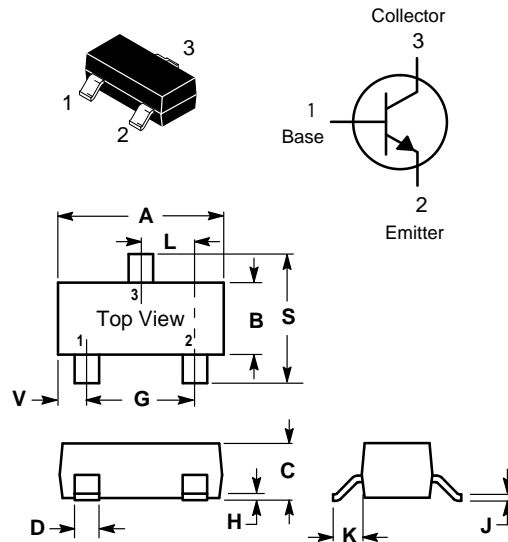
$$I_{CM} : 0.1 \text{ A}$$

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 |       |       |

**ELECTRICAL CHARACTERISTICS (Tamp.=25°C unless otherwise specified)**

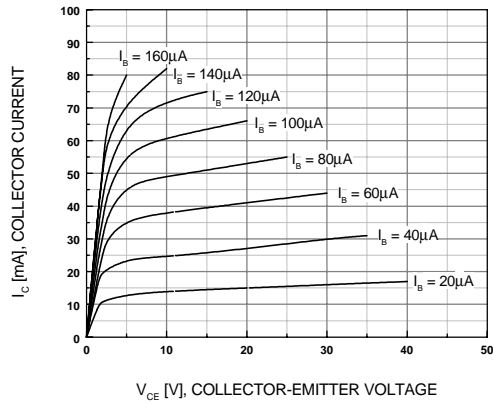
| Parameter                            | Symbol        | Test conditions   | MIN | TYP | MAX  | UNIT          |
|--------------------------------------|---------------|---|-----|-----|------|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C = 100 \mu\text{A}, I_E = 0$                                    | 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            | $I_{CBO}$     | $V_{CB} = 50 \text{ V}, I_E = 0$                                    |     |     | 0.1  | $\mu\text{A}$ |
| Collector cut-off current            | $I_{CEO}$     | $V_{CE} = 35 \text{ V}, I_B = 0$                                    |     |     | 0.1  | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = 3 \text{ V}, I_C = 0$                                     |     |     | 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  $h_{FE(1)}$**

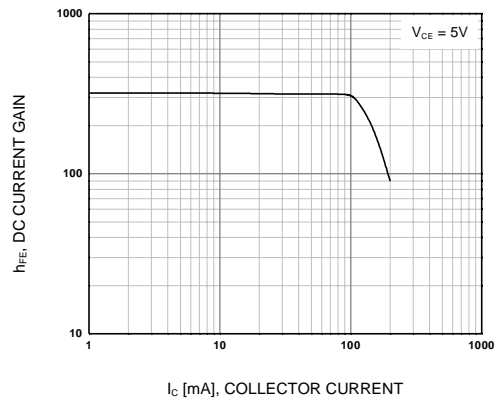
| Rank  | L       | H        |
|-------|---------|----------|
| Range | 200-450 | 450-1000 |

**DEVICE MARKING: S9014 =J6**

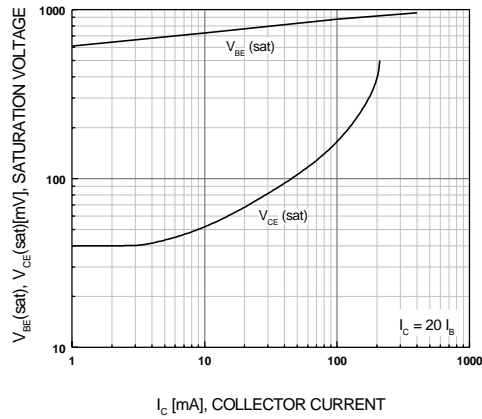
**Typical Characteristics**



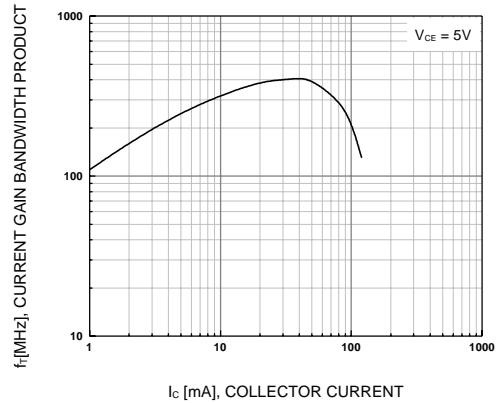
**Figure 1. Static Characteristic**



**Figure 2. DC current Gain**



**Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage**



**Figure 4. Current Gain Bandwidth Product**