## Description

Silicon NPN transistor in a SOT-23 Plastic Package

## Applications

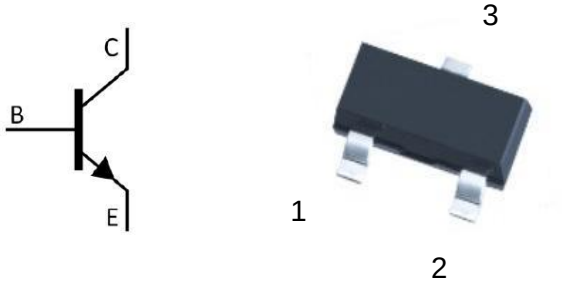
Ideal for medium power amplification and switching

## Features

- Complementary to MMBTA56,
- Halogen-free Product

| Symbol | Parameter | Max | Unit |
|---|---|---|---|
| $V_{CEO}$ | collector-emitter voltage | 80 | V |
| $I_C$ | collector current (DC) | 500 | mA |

## Equivalent Circuit & Pinning







PIN1：Base　　PIN 2： Emitter　　PIN 3：Collector

## hFE Classifications & Marking

| $h_{FE}$ Range | 100～300 |
|---|---|
| Marking | HK1G |

## Absolute Maximum Ratings(Ta=25℃)

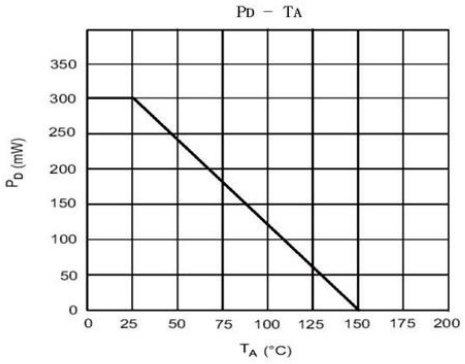
| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector to Base Voltage | $V_{CBO}$ | 80 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | 80 | V |
| Emitter to Base Voltage | $V_{EBO}$ | 4.0 | V |
| Collector Current - Continuous | $I_C$ | 500 | mA |
| Collector Power Dissipation | $P_C$ | 300 | mW |
| Junction Temperature | $T_j$ | 150 | ℃ |
| Storage Temperature Range | $T_{stg}$ | -55～150 | ℃ |

## Electrical Characteristics(Ta=25℃)

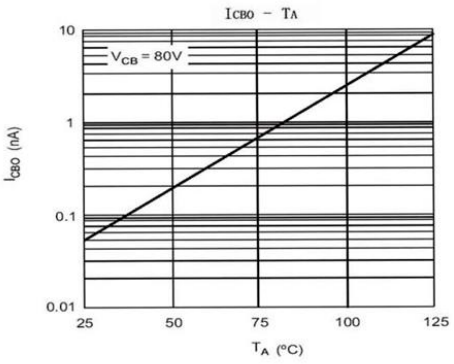
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector to Base Breakdown Voltage | $V_{CBO}$ | $I_C$=100μA $I_E$=0 | 80 | | | V |
| Collector to Emitter Breakdown Voltage | $V_{CEO}$ | $I_C$=1.0mA $I_B$=0 | 80 | | | V |
| Emitter to Base Breakdown Voltage | $V_{EBO}$ | $I_E$=100μA $I_C$=0 | 4.0 | | | V |
| Collector Cut-Off Current | $I_{CBO}$ | $V_{CB}$=80 V $I_E$=0 | | | 0.1 | μA |
| Collector Cut-Off Current | $I_{CES}$ | $V_{CE}$=80V $I_E$=0 | | | 0.1 | μA |
| DC Current Gain | $h_{FE(1)}$ | $V_{CE}$=1.0V $I_C$=100mA | 100 | | 300 | |
| | $h_{FE(2)}$ | $V_{CE}$=1.0V $I_C$=10mA | 100 | | 300 | |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=100mA $I_B$=10mA | | | 0.25 | V |
| Base to Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C$=100mA $I_B$=10mA | | | 1.2 | V |
| Transition Frequency | $f_T$ | $I_C$=10mA $V_{CE}$=2V f=100MHz | 100 | | | MHz |

## Electrical Characteristic Curve

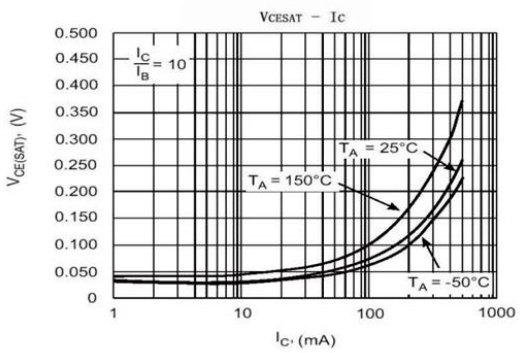
PD – TA



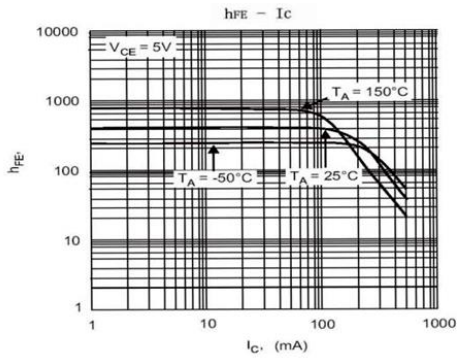

ICBO – TA



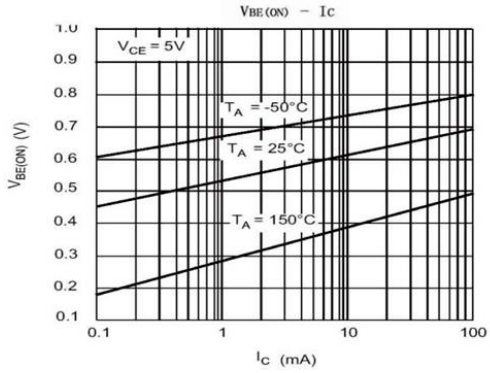

VCESAT – IC



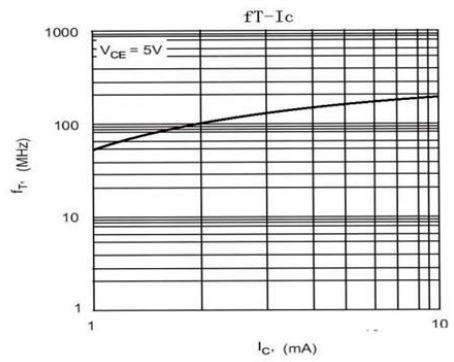

hFE – IC



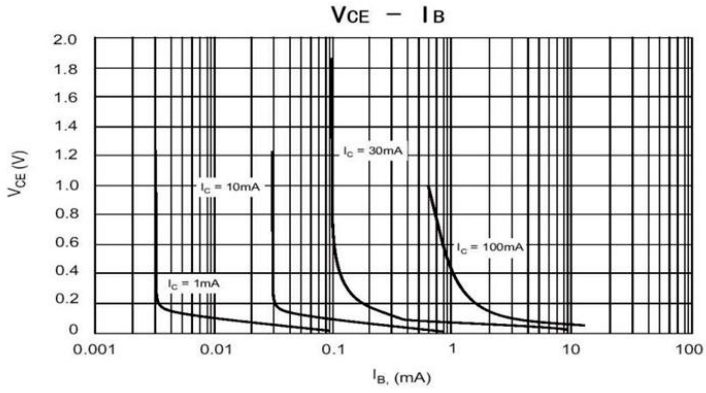

VBE(ON) – IC



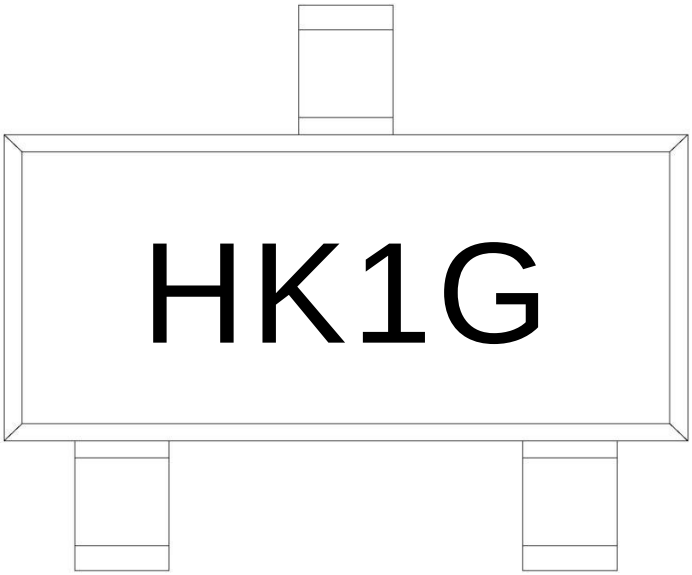

fT–IC




VCE – IB



## Marking Instructions




Note:

H: Company Code.

K1G: Product Type Code.

## Packaging SPEC.

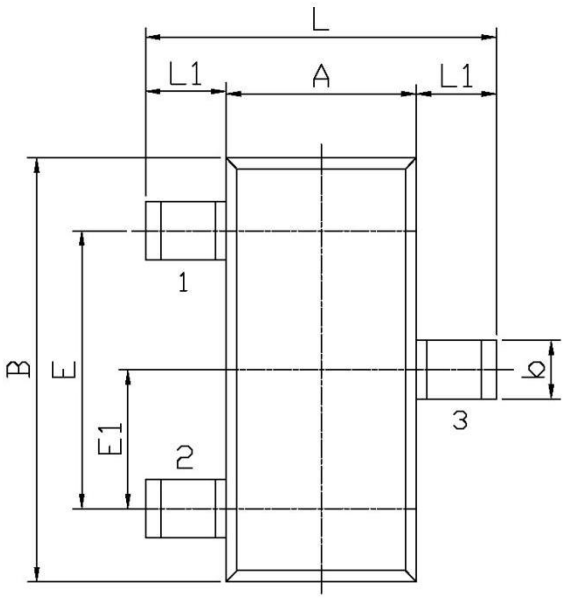
REEL INFORMATION

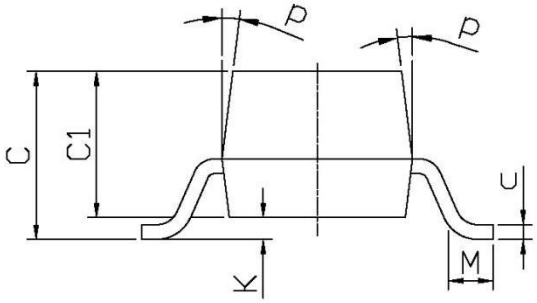
| Package Type | Units | | | | | Dimension (unit: mm³) | | |
|---|---|---|---|---|---|---|---|---|
| | Units/Reel | Reels/Inner Box | Units/Inner Box | Inner Boxes/Outer Box | Units/Outer Box | Reel | Inner Box | Outer Box |
| SOT-23 | 3,000 | 10 | 30,000 | 6 | 180,000 | 7″ ×8 | 180×120×180 | 390×385×205 |

## Package Outline Dimensions

SOT-23

单位：mm




| Symbol | Dimensions In Millmeters | | Symbol | Dimensions In Millmeters | |
|---|---|---|---|---|---|
| | Min | Max | | Min | Max |
| L | 2.2 | 2.7 | C | 1.30Max | |
| L1 | 0.45 | 0.65 | C1 | 0.90 | 1.20 |
| A | 1.15 | 1.50 | c | 0.05 | 0.20 |
| B | 2.70 | 3.10 | K | 0 | 0.10 |
| E | 1.70 | 2.10 | M | 0.20MIN | |
| E1 | 0.85 | 1.05 | P | 7° | |
| b | 0.35 | 0.55 | | | |