



Shantou Huashan Electronic Devices Co.,Ltd.

NPN SILICON TRANSISTOR

HS13002

## HIGH VOLTAGE SWITCH MODE APPLICATIONS

High Speed Switching

Suitable for Switching Regulator and Montor Control

## ABSOLUTE MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ )

$T_{\text{stg}}$ —Storage Temperature.....  $-55\sim 150^{\circ}\text{C}$

$T_j$ —Junction Temperature.....  $150^{\circ}\text{C}$

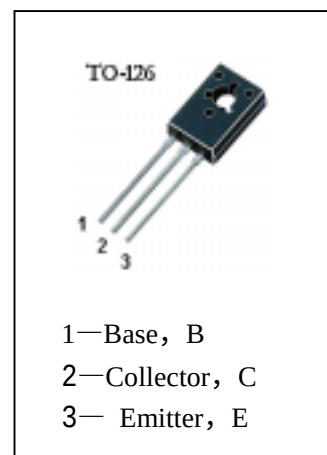
$P_C$ —Collector Dissipation.....  $10\text{W}$

$V_{\text{CBO}}$ —Collector-Base Voltage.....  $600\text{V}$

$V_{\text{CEO}}$ —Collector-Emitter Voltage.....  $400\text{V}$

$V_{\text{EBO}}$ —Emitter-Base Voltage.....  $9\text{V}$

$I_C$ —Collector Current.....  $0.25\text{A}$



## ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ )

| Symbol               | Characteristics                       | Min | Typ | Max | Unit          | Test Conditions                                |
|----------------------|---------------------------------------|-----|-----|-----|---------------|------------------------------------------------|
| $BV_{\text{CBO}}$    | Collector-Base Breakdown Voltage      | 600 |     |     | V             | $I_C=1\text{mA}$ , $I_E=0$                     |
| $BV_{\text{CEO}}$    | Collector-Emitter Breakdown Voltage   | 400 |     |     | V             | $I_C=10\text{mA}$ , $I_B=0$                    |
| $BV_{\text{EBO}}$    | Emitter-Base Breakdown Voltage        | 9   |     |     | V             | $I_E=1\text{mA}$ , $I_C=0$                     |
| $I_{\text{CBO}}$     | Collector Cut-off Current             |     |     | 100 | $\mu\text{A}$ | $V_{\text{CB}}=500\text{V}$ , $I_E=0$          |
| $I_{\text{EBO}}$     | Emitter-Base Cut-off Current          |     |     | 100 | $\mu\text{A}$ | $V_{\text{EB}}=9\text{V}$ , $I_C=0$            |
| $h_{\text{FE}}$      | DC Current Gain                       | 10  |     | 40  |               | $V_{\text{CE}}=10\text{V}$ , $I_C=20\text{mA}$ |
| $V_{\text{CE(sat)}}$ | Collector- Emitter Saturation Voltage |     |     | 0.6 | V             | $I_C=100\text{mA}$ , $I_B=20\text{mA}$         |
| $V_{\text{BE(sat)}}$ | Base-Emitter Saturation Voltage       |     |     | 1.2 | V             | $I_C=100\text{mA}$ , $I_B=20\text{mA}$         |
| $f_T$                | Current Gain-Bandwidth Product        | 8   |     |     | MHz           | $V_{\text{CE}}=10\text{V}$ , $I_C=20\text{mA}$ |

## $h_{\text{FE}}$ Classification

| H1    | H2    | H3    | H4    | H5    |
|-------|-------|-------|-------|-------|
| 10-16 | 14-21 | 19-26 | 24-31 | 29-40 |