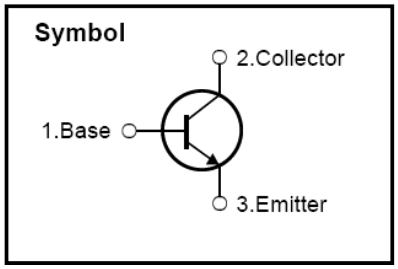
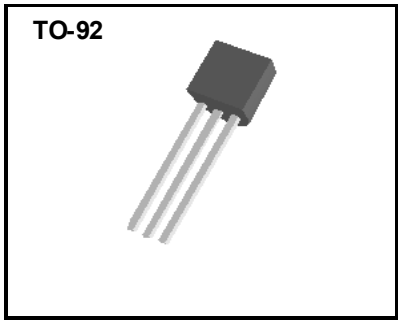
# *High Voltage Fast-Switching NPN Power Transistor*

## Features

- High Voltage
- High Speed switching




## General Description

This device is designed high voltage and high speed switching characteristic required to lighting system, switching Regulator and inverter motor controls.

Absolute Maximum Ratings ($T_J$ = 25℃ **unless otherwise specified)**

| Symbol | Parameter | Ratings | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage($V_{BE}$ =0 ) | 700 | V |
| $V_{CEO}$ | Collector-Emitter Voltage($I_B$ =0 ) | 450 | V |
| $V_{EBO}$ | Emitter-Base Voltage($I_C$ =0 ) | 9 | V |
| $I_C$ | Collector Current | 0.2 | A |
| $P_C$ | Total Dissipation at $T_C$ = 25℃ | 0.6 | W |
| $T_J$ | Operation Junction Temperature | - 40 ~ 150 | ℃ |
| $T_{STG}$ | Storage Temperature | - 40 ~ 150 | ℃ |



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# SBN13002

Electrical Characteristics ( TC = 25℃ Unless otherwise noted)

| Symbol | Items | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min | Typ. | Max | |
| $BV_{CEO}$ | Collector-Emitter Voltage | Ic=5mA, Ib=0 | 450 | | | V |
| $BV_{CBO}$ | Collector-Base Voltage | Ic=500uA, Ie=0 | 700 | | | V |
| $V_{CE(sat)}$ | Collect-Emitter Saturation Voltage | Ic=0.05A, Ib=0.01A<br>Ic=0.1A, Ib=0.02A | | | 0.45<br>1.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | Ic=0.05A, Ib=0.01A<br>Ic=0.1A, Ib=0.01A | | | 0.9<br>1.0 | V |
| $h_{FE}$ | DC Current Gane | Vce = 10V, Ic = 100mA<br>Vce = 10V, Ic = 280mA | 13<br>5 | | 26 | |
| $t_{STG}$ | Storage Time | $V_{CC}$= 5V, $I_C$ = 0.5 | 1 | | 3 | μs |
| tf | Fall Time | $V_{CC}$= 5V, $I_C$ = 0.5 | | | 0.8 | μs |

※ Hfe Sorting condition : Vce = 10V, Ic = 100mA

| Grade | SBN13002-1 | SBN13002-2 |
|---|---|---|
| Hfe | 13 ~ 20 | 18 ~ 26 |

Electrical Characteristics Curve

Fig. 1 DC current Gain

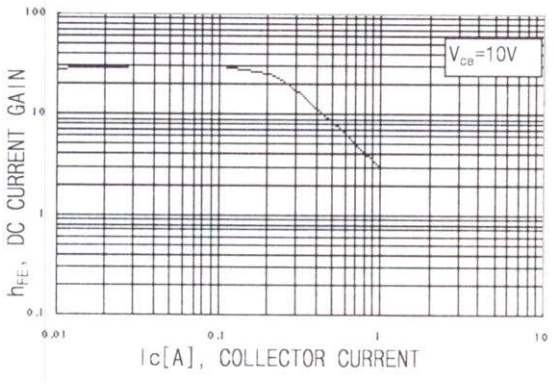
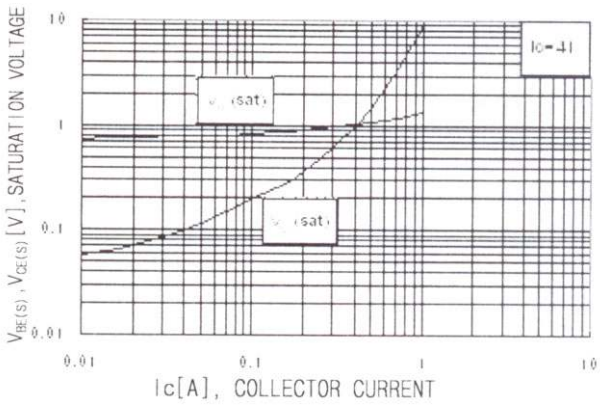



Fig. 2 Saturation Voltage



TO-92 Package Dimension

| Dim. | mm | | | Inch | | |
|---|---|---|---|---|---|---|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | | 4.2 | | | 0.165 | |
| B | | | 3.7 | | | 0.146 |
| C | 4.43 | | 4.83 | 0.174 | | 0.190 |
| D | 14.07 | | 14.87 | 0.554 | | 0.585 |
| E | | | 0.4 | | | 0.016 |
| F | 4.43 | | 4.83 | 0.174 | | 0.19 |
| G | | | 0.45 | | | 0.017 |
| H | | 2.54 | | | 0.100 | |
| I | | 2.54 | | | 0.100 | |
| J | 0.33 | | 0.48 | 0.013 | | 0.019 |

