

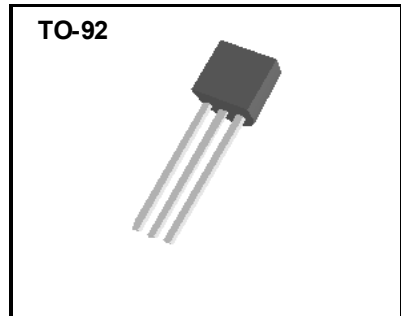
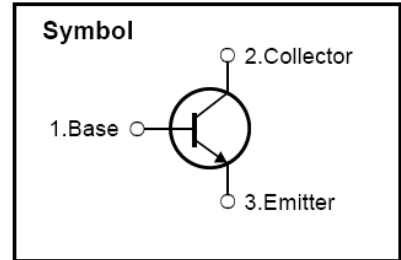
**High Voltage Fast-Switching
NPN Power Transistor**

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 ($T_J = 25^\circ\text{C}$ 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 $T_C = 25^\circ\text{C}$ | 0.6 | W |
| T_J | Operation Junction Temperature | - 40 ~ 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | - 40 ~ 150 | $^\circ\text{C}$ |

SBN13002

Electrical Characteristics (TC = 25°C Unless otherwise noted)

| Symbol | Items | Conditions | Ratings | | | Unit |
|---------------|------------------------------------|-----------------------------|---------|------|------|---------|
| | | | Min | Typ. | Max | |
| BV_{CEO} | Collector-Emitter Voltage | $I_c=5mA, I_b=0$ | 450 | | | V |
| BV_{CBO} | Collector-Base Voltage | $I_c=500\mu A, I_e=0$ | 700 | | | V |
| $V_{CE(sat)}$ | Collect-Emitter Saturation Voltage | $I_c=0.05A, I_b=0.01A$ | | | 0.45 | V |
| | | $I_c=0.1A, I_b=0.02A$ | | | 1.0 | |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_c=0.05A, I_b=0.01A$ | | | 0.9 | V |
| | | $I_c=0.1A, I_b=0.01A$ | | | 1.0 | |
| h_{FE} | DC Current Gane | $V_{ce} = 10V, I_c = 100mA$ | 13 | | 26 | |
| | | $V_{ce} = 10V, I_c = 280mA$ | 5 | | | |
| t_{STG} | Storage Time | $V_{CC}= 5V, I_c = 0.5$ | 1 | | 3 | μs |
| t_f | Fall Time | $V_{CC}= 5V, I_c = 0.5$ | | | 0.8 | μs |

※ Hfe Sorting condition : $V_{ce} = 10V, I_c = 100mA$

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

Electrical Characteristics Curve

Fig. 1 DC current Gain

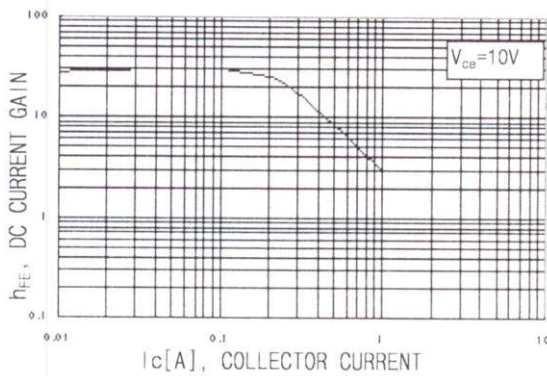
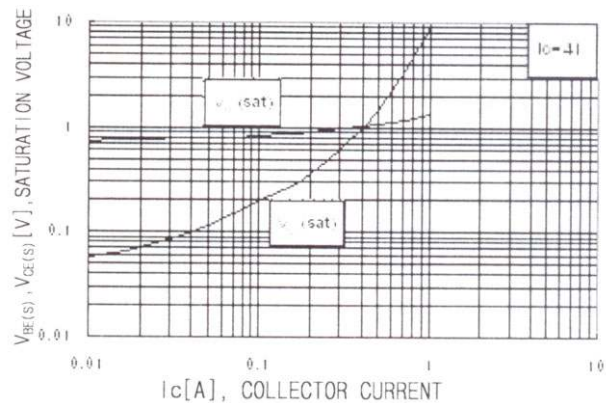


Fig. 2 Saturation Voltage



SBN13002

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 |

