



## **TO-251-3L Plastic-Encapsulate Transistors**

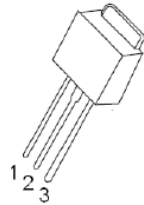
### **2SB1261-Z** TRANSISTOR (PNP)

#### **FEATURES**

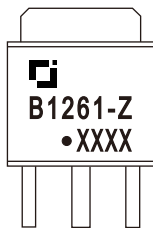
- High  $h_{FE}$
- Low  $V_{CE(sat)}$

#### **TO-251-3L**

1. BASE
2. COLLECTOR
3. EMITTER

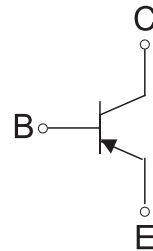


#### **MARKING**



B1261-Z=Device code  
Solid dot=Green moldinn compound device,  
if none,the normal device  
XXXX=Code

#### **Equivalent Circuit**



#### **MAXIMUM RATINGS ( $T_a=25\text{ }^{\circ}\text{C}$ unless otherwise noted)**

| Symbol         | Parameter                                        | Value   | Unit               |
|----------------|--------------------------------------------------|---------|--------------------|
| $V_{CBO}$      | Collector-Base Voltage                           | -60     | V                  |
| $V_{CEO}$      | Collector-Emitter Voltage                        | -60     | V                  |
| $V_{EBO}$      | Emitter-Base Voltage                             | -7      | V                  |
| $I_C$          | Collector Current -Continuous                    | -3      | A                  |
| $P_D$          | Collector Power Dissipation                      | 1       | W                  |
| $T_J, T_{stg}$ | Operation Junction and Storage Temperature Range | -55-150 | $^{\circ}\text{C}$ |

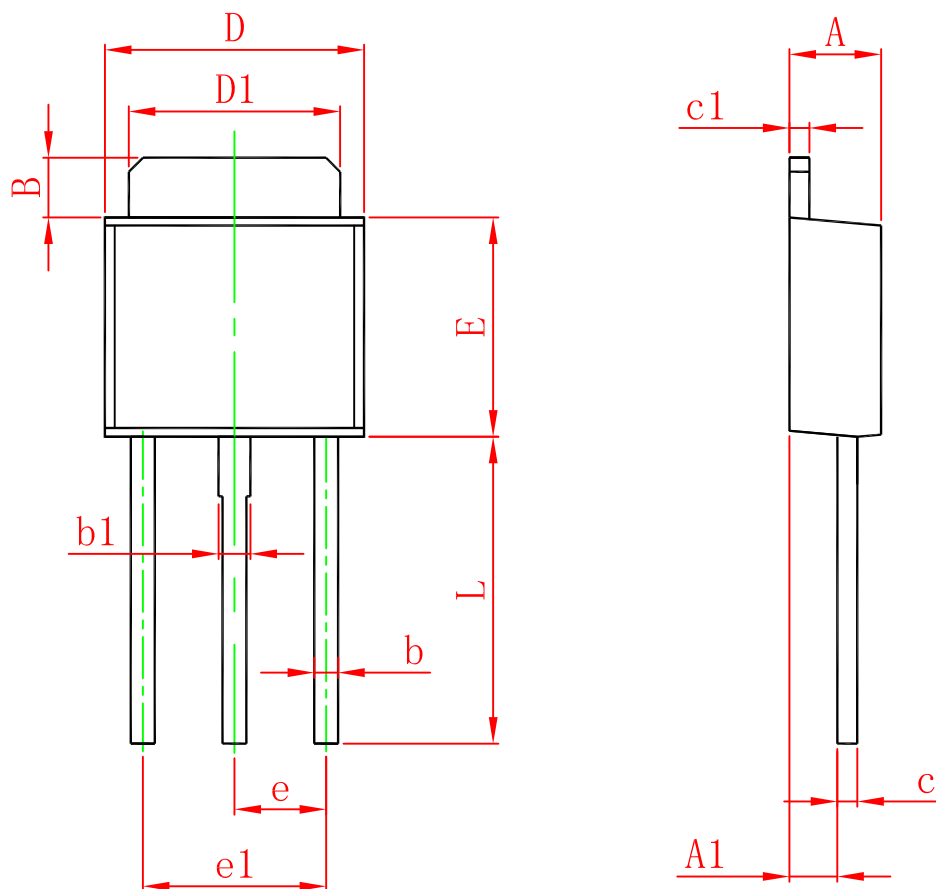
ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless other wise specified)

| Parameter                            |              | Symbol        | Test conditions                                                 | Min | Typ | Max  | Unit    |
|--------------------------------------|--------------|---------------|-----------------------------------------------------------------|-----|-----|------|---------|
| Collector-base breakdown voltage     |              | $V_{(BR)CBO}$ | $I_C=-100\mu A, I_E=0$                                          | -60 |     |      | V       |
| Collector-emitter breakdown voltage  |              | $V_{(BR)CEO}$ | $I_C=-1mA, I_B=0$                                               | -60 |     |      | V       |
| Emitter-base breakdown voltage       |              | $V_{(BR)EBO}$ | $I_E=-100\mu A, I_C=0$                                          | -7  |     |      | V       |
| Collector cut-off current            |              | $I_{CBO}$     | $V_{CB}=-60V, I_E=0$                                            |     |     | -10  | $\mu A$ |
| Emitter cut-off current              |              | $I_{EBO}$     | $V_{EB}=-7V, I_C=0$                                             |     |     | -10  | $\mu A$ |
| DC current gain                      |              | $h_{FE(1)}$   | $V_{CE}=-2V, I_C=-200mA$                                        | 60  |     |      |         |
|                                      |              | $h_{FE(2)}$   | $V_{CE}=-2V, I_C=-600mA$                                        | 100 |     | 400  |         |
|                                      |              | $h_{FE(3)}$   | $V_{CE}=-2V, I_C=-2A$                                           | 50  |     |      |         |
| Collector-emitter saturation voltage |              | $V_{CE(sat)}$ | $I_C=-1.5A, I_B=-150mA$                                         |     |     | -0.3 | V       |
| Base-emitter saturation voltage      |              | $V_{BE(sat)}$ | $I_C=-1.5A, I_B=-150mA$                                         |     |     | -1.2 | V       |
| Transition frequency                 |              | $f_T$         | $V_{CE}=-5V, I_C=-1.5A$                                         |     | 50  |      | MHz     |
| Collector output capacitance         |              | $C_{ob}$      | $V_{CB}=-10V, I_E=0, f=1MHz$                                    |     | 40  |      | pF      |
| Switching Time                       | Turn on Time | $t_{on}$      | $V_{CC}=-10V, I_C=-1A, I_{B1}=-I_{B2}=-0.1A,$<br>$R_L=10\Omega$ |     | 0.5 |      | $\mu s$ |
|                                      | Storage Time | $t_{stg}$     |                                                                 |     | 2.0 |      |         |
|                                      | Fall Time    | $t_f$         |                                                                 |     | 0.5 |      |         |

CLASSIFICATION OF  $h_{FE(2)}$

| Rank  | M       | L       | K       |
|-------|---------|---------|---------|
| Range | 100-200 | 160-320 | 200-400 |

## TO-251-3L Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 2.200                     | 2.400 | 0.087                | 0.094 |
| A1     | 1.050                     | 1.350 | 0.042                | 0.054 |
| B      | 1.350                     | 1.650 | 0.053                | 0.065 |
| b      | 0.500                     | 0.700 | 0.020                | 0.028 |
| b1     | 0.700                     | 0.900 | 0.028                | 0.035 |
| c      | 0.430                     | 0.580 | 0.017                | 0.023 |
| c1     | 0.430                     | 0.580 | 0.017                | 0.023 |
| D      | 6.350                     | 6.650 | 0.250                | 0.262 |
| D1     | 5.200                     | 5.400 | 0.205                | 0.213 |
| E      | 5.400                     | 5.700 | 0.213                | 0.224 |
| e      | 2.300 TYP.                |       | 0.091 TYP.           |       |
| e1     | 4.500                     | 4.700 | 0.177                | 0.185 |
| L      | 7.500                     | 7.900 | 0.295                | 0.311 |