

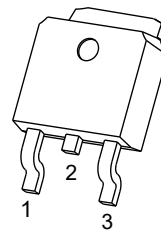
## 2SB1202 TRANSISTOR (PNP)

### FEATURES

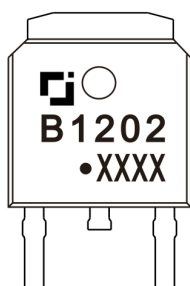
- Adoption of FBET,MBIT Processes
- Large Current Capacity and Wide ASO
- Low Collector-to-Emitter Saturation Voltage
- Fast Switching Speed

### TO-252-2L

1. BASE
2. COLLECTOR
3. EMITTER

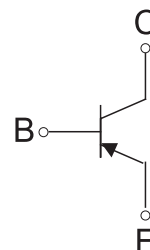


### MARKING



B1202=Device code  
Solid dot=Green moldinn compound device,  
if none,the normal device  
XXXX=Code

### Equivalent Circuit



### MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

| Symbol    | Parameter                     | Value   | Unit |
|-----------|-------------------------------|---------|------|
| $V_{CBO}$ | Collector Base Voltage        | -60     | V    |
| $V_{CEO}$ | Collector-Emitter Voltage     | -50     | V    |
| $V_{EBO}$ | Emitter-Base Voltage          | -6      | V    |
| $I_C$     | Collector Current –Continuous | -3      | A    |
| $P_C$     | Collector Power Dissipation   | 1       | W    |
| $T_J$     | Junction Temperature          | 150     | °C   |
| $T_{stg}$ | Storage Temperature           | -55-150 | °C   |

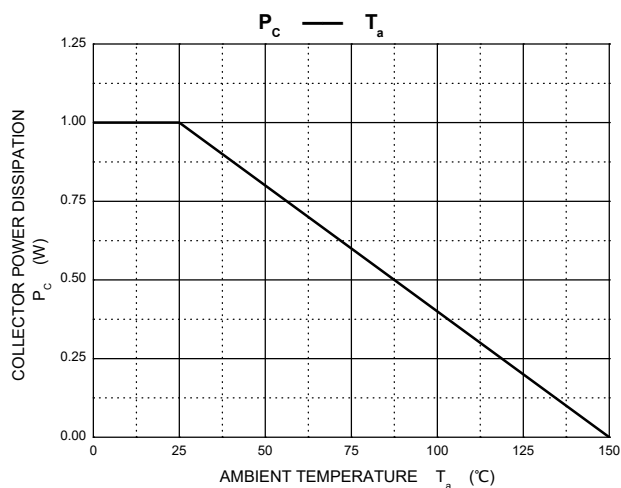
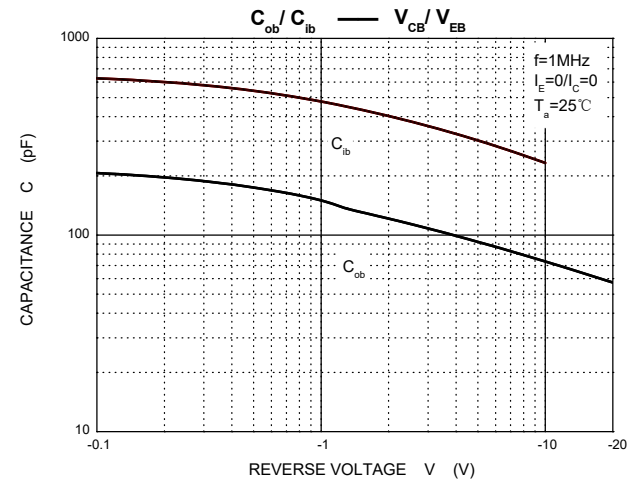
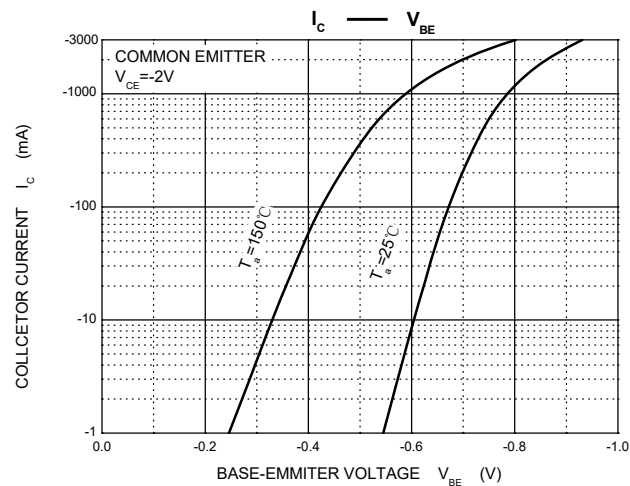
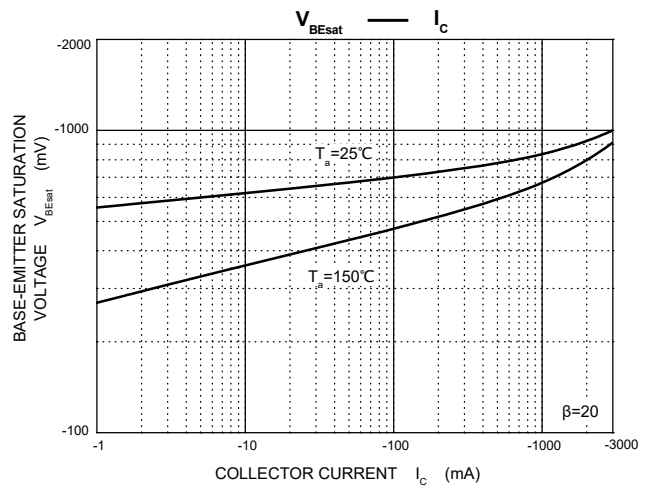
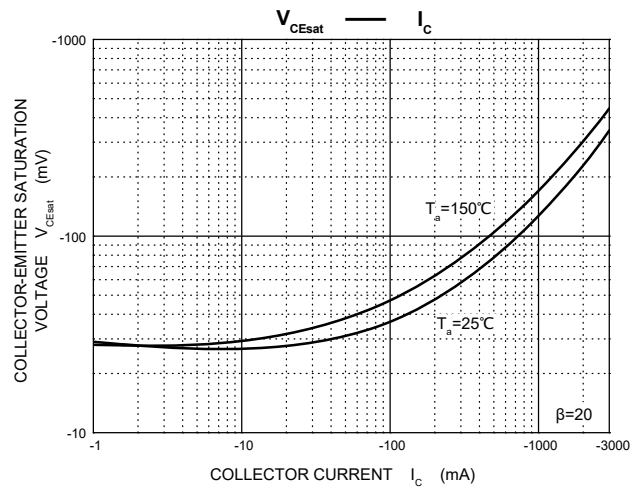
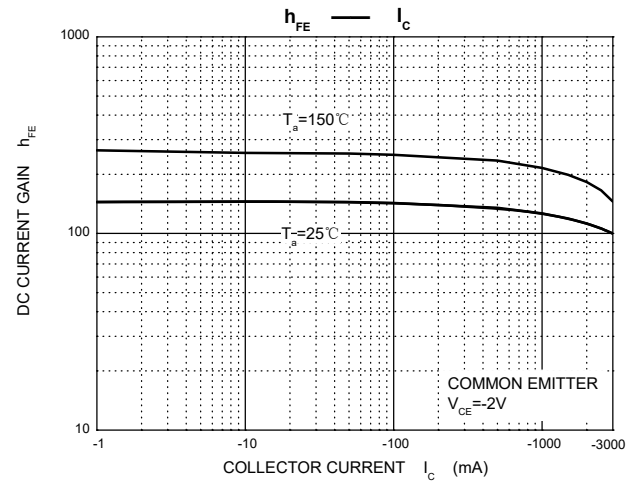
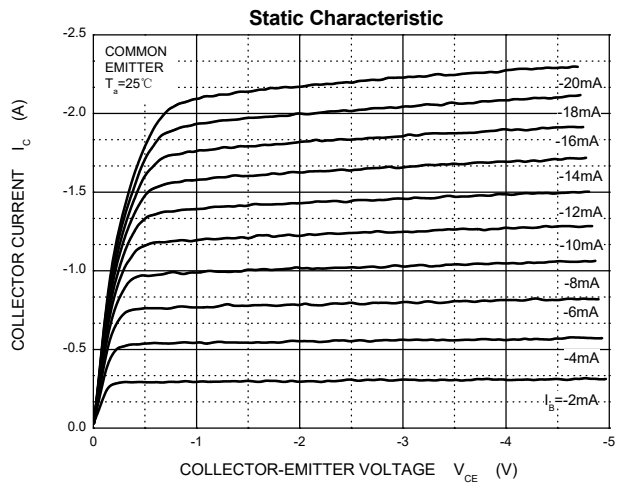
**ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$  unless otherwise specified)**

| Parameter                            | Symbol        | Test conditions                                  | Min | Typ | Max  | Unit          |
|--------------------------------------|---------------|--------------------------------------------------|-----|-----|------|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C=-100\mu\text{A}$ , $I_E=0$                  | -60 |     |      | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=-1\text{mA}$ , $I_B=0$                      | -50 |     |      | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=-100\mu\text{A}$ , $I_C=0$                  | -6  |     |      | V             |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=-40\text{V}$ , $I_E=0$                   |     |     | -1   | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=-4\text{V}$ , $I_C=0$                    |     |     | -1   | $\mu\text{A}$ |
| DC current gain                      | $h_{FE(1)}$   | $V_{CE}=-2\text{V}$ , $I_C=-100\text{mA}$        | 100 |     | 560  |               |
|                                      | $h_{FE(2)}$   | $V_{CE}=-2\text{V}$ , $I_C=-3\text{A}$           | 35  |     |      |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=-2\text{A}$ , $I_B=-100\text{mA}$           |     |     | -0.7 | V             |
| Transition frequency                 | $f_T$         | $V_{CE}=-10\text{V}$ , $I_C=-50\text{mA}$        |     | 150 |      | MHz           |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=-10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$ |     | 73  |      | pF            |

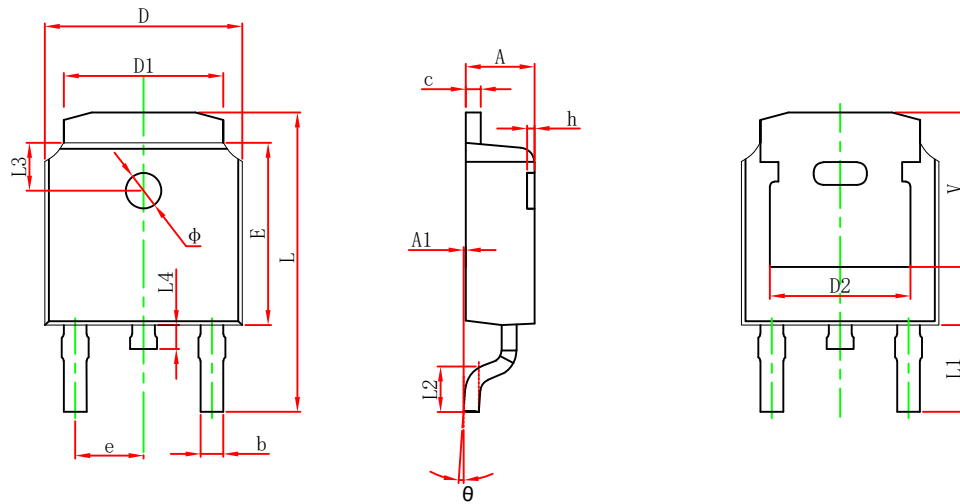
**CLASSIFICATION OF  $h_{FE(1)}$**

| Rank  | R       | S       | T       | U       |
|-------|---------|---------|---------|---------|
| Range | 100-200 | 140-280 | 200-400 | 280-560 |

# Typical Characteristics

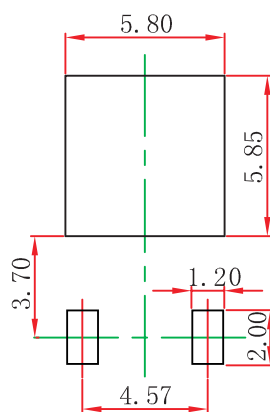


## TO-252-2L Package Outline Dimensions



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min.                      | Max.   | Min.                 | Max.  |
| A      | 2.200                     | 2.400  | 0.087                | 0.094 |
| A1     | 0.000                     | 0.127  | 0.000                | 0.005 |
| b      | 0.635                     | 0.770  | 0.025                | 0.030 |
| c      | 0.460                     | 0.580  | 0.018                | 0.023 |
| D      | 6.500                     | 6.700  | 0.256                | 0.264 |
| D1     | 5.100                     | 5.460  | 0.201                | 0.215 |
| D2     | 4.830 REF.                |        | 0.190 REF.           |       |
| E      | 6.000                     | 6.200  | 0.236                | 0.244 |
| e      | 2.186                     | 2.386  | 0.086                | 0.094 |
| L      | 9.712                     | 10.312 | 0.382                | 0.406 |
| L1     | 2.900 REF.                |        | 0.114 REF.           |       |
| L2     | 1.400                     | 1.700  | 0.055                | 0.067 |
| L3     | 1.600 REF.                |        | 0.063 REF.           |       |
| L4     | 0.600                     | 1.000  | 0.024                | 0.039 |
| Φ      | 1.100                     | 1.300  | 0.043                | 0.051 |
| θ      | 0°                        | 8°     | 0°                   | 8°    |
| h      | 0.000                     | 0.300  | 0.000                | 0.012 |
| V      | 5.250 REF.                |        | 0.207 REF.           |       |

## TO-252-2L Suggested Pad Layout



### Note:

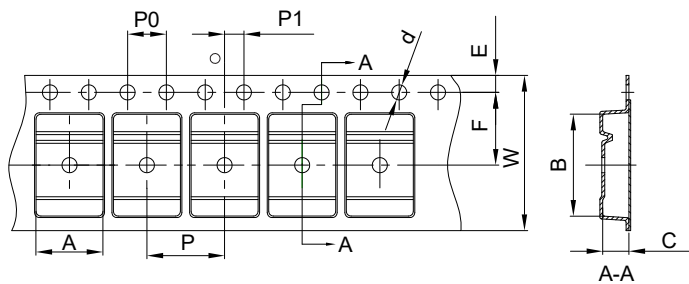
1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

### NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

TO-252-2L Tape and Reel

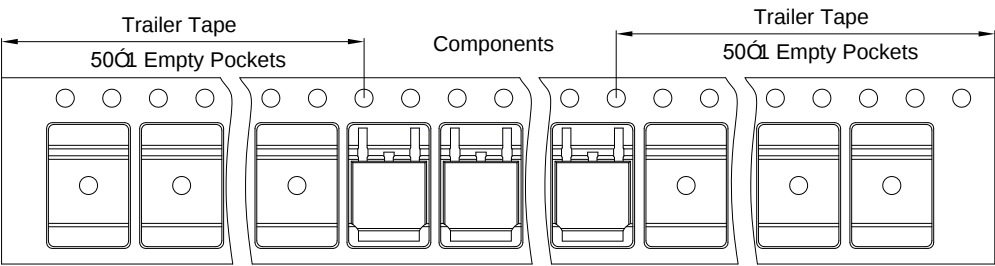
TO-252-2L Embossed Carrier Tape



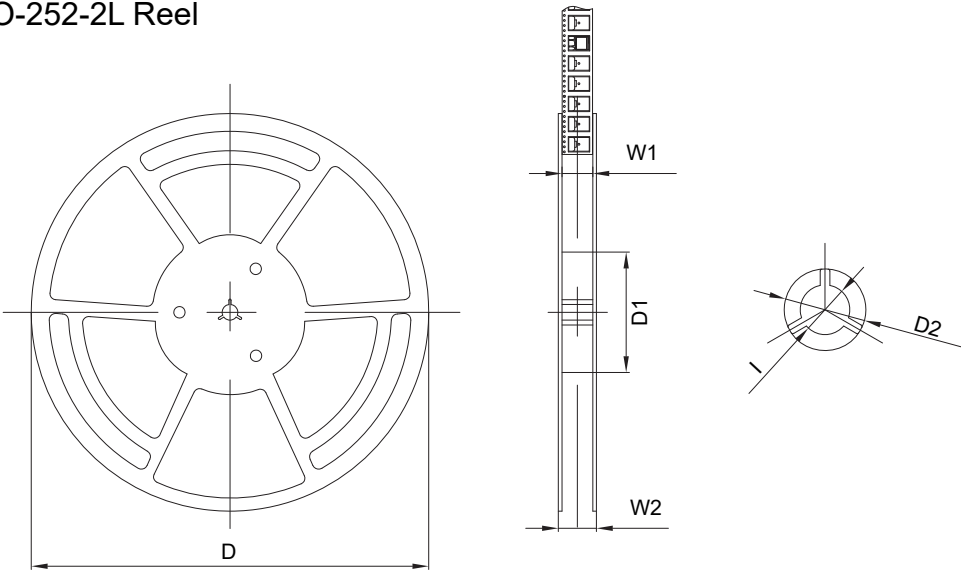
**Packaging Description:**  
TO-252-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Hear Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 2500 units per 13" or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

| Dimensions are in millimeter |      |       |      |       |      |      |      |      |      |       |
|------------------------------|------|-------|------|-------|------|------|------|------|------|-------|
| Pkg type                     | A    | B     | C    | d     | E    | F    | P0   | P    | P1   | W     |
| TO-252                       | 6.90 | 10.50 | 2.70 | Φ1.55 | 1.75 | 7.50 | 4.00 | 8.00 | 2.00 | 16.00 |

TO-252-2L Tape Leader and Trailer



TO-252-2L Reel



| Dimensions are in millimeter |        |        |        |       |       |        |
|------------------------------|--------|--------|--------|-------|-------|--------|
| Reel                         | D      | D1     | D2     | W1    | W2    | I      |
| 13" Dia                      | 330.00 | 100.00 | Φ21.00 | 16.40 | 21.40 | Φ13.00 |

| Reel     | Reel Size | Box      | Box Size(mm) | Carton    | Carton Size(mm) |
|----------|-----------|----------|--------------|-----------|-----------------|
| 2500 pcs | 13 inch   | 5000 pcs | 360×360×65   | 25000 pcs | 378×358×382     |