



## TO-252-2L Plastic-Encapsulate Transistors

### 2SA1225 TRANSISTOR (PNP)

#### FEATURES

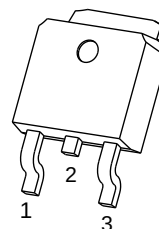
- High Transition Frequency
- Complementary to 2SC2983

#### APPLICATIONS

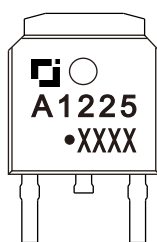
- Power Amplifier Applications
- Driver Stage Amplifier Applications

TO-252-2L

1. BASE  
2. COLLECTOR  
3. EMITTER

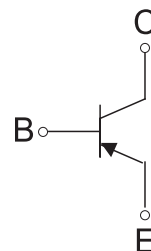


#### MARKING



A1225=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      | -160    | V    |
| $V_{CEO}$ | Collector-Emitter Voltage   | -160    | V    |
| $V_{EBO}$ | Emitter-Base Voltage        | -5      | V    |
| $I_C$     | Collector Current           | -1.5    | 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     | $V_{(BR)CBO}$   | $I_C=-1\text{mA}, I_E=0$                   | -160 |     |      | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}^*$ | $I_C=-10\text{mA}, I_B=0$                  | -160 |     |      | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$   | $I_E=-1\text{mA}, I_C=0$                   | -5   |     |      | V             |
| Collector cut-off current            | $I_{CBO}$       | $V_{CB}=160\text{V}, I_E=0$                |      |     | -0.1 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$       | $V_{EB}=-5\text{V}, I_C=0$                 |      |     | -0.1 | $\mu\text{A}$ |
| DC current gain                      | $h_{FE}$        | $V_{CE}=-5\text{V}, I_C=-0.1\text{A}$      | 70   |     | 240  |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$   | $I_C=-0.5\text{A}, I_B=-50\text{mA}$       |      |     | -1.5 | V             |
| Base-emitter voltage                 | $V_{BE}$        | $V_{CE}=-5\text{V}, I_C=-0.5\text{A}$      |      |     | -1   | V             |
| Transition frequency                 | $f_T$           | $V_{CE}=-10\text{V}, I_C=-100\text{mA}$    |      | 100 |      | MHz           |
| Collector output capacitance         | $C_{ob}$        | $V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$ |      | 30  |      | pF            |

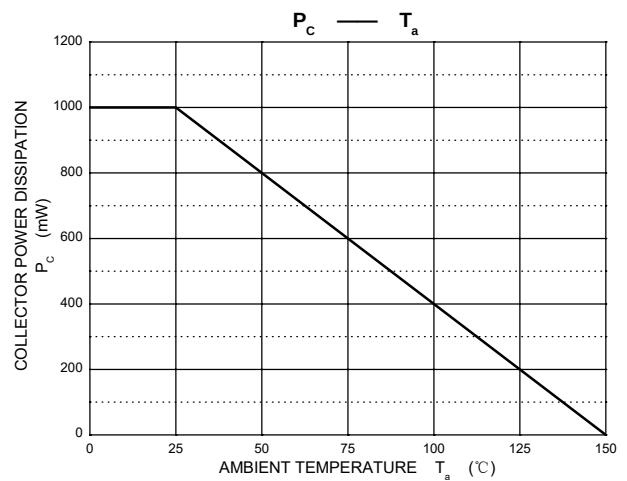
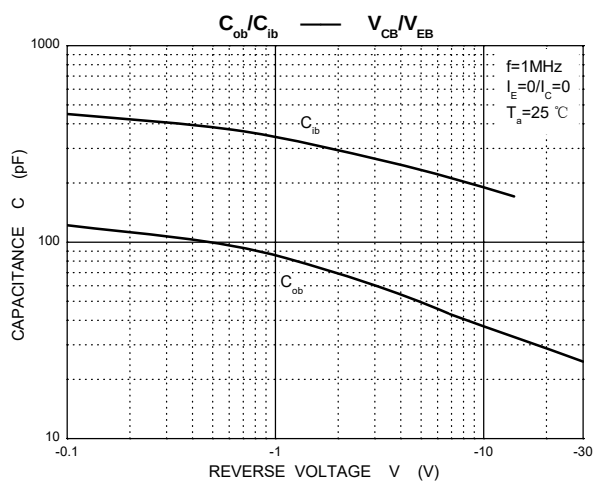
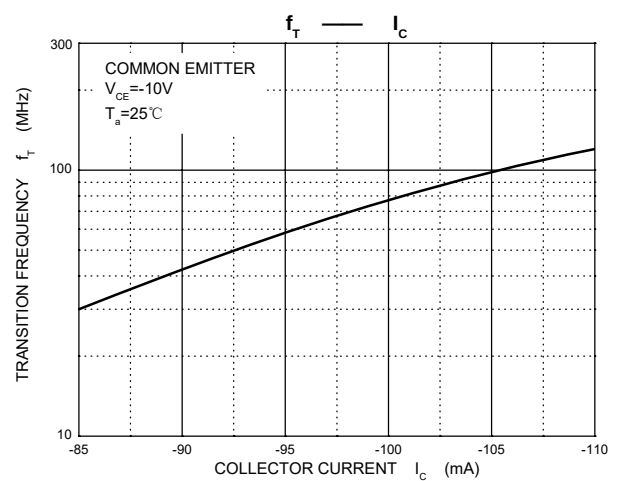
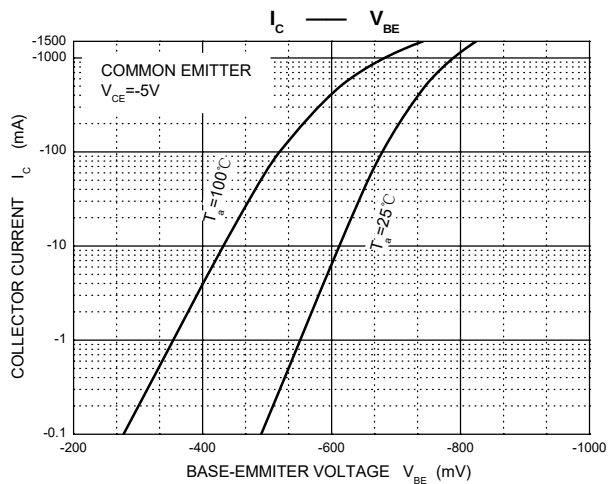
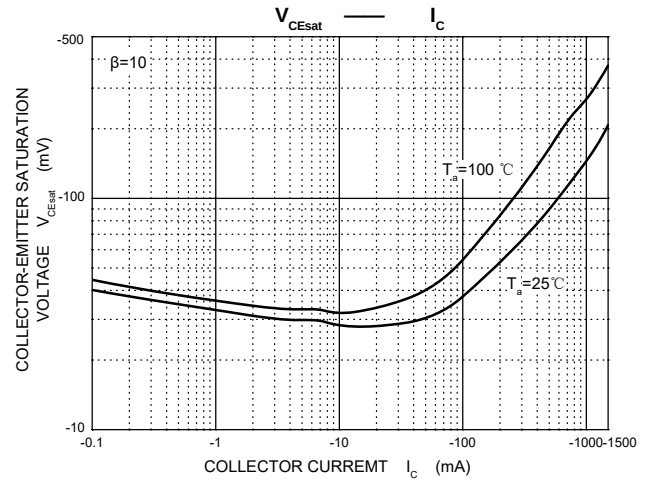
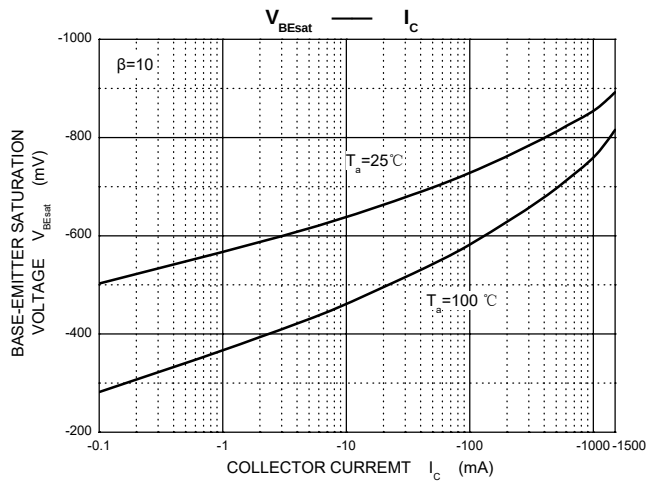
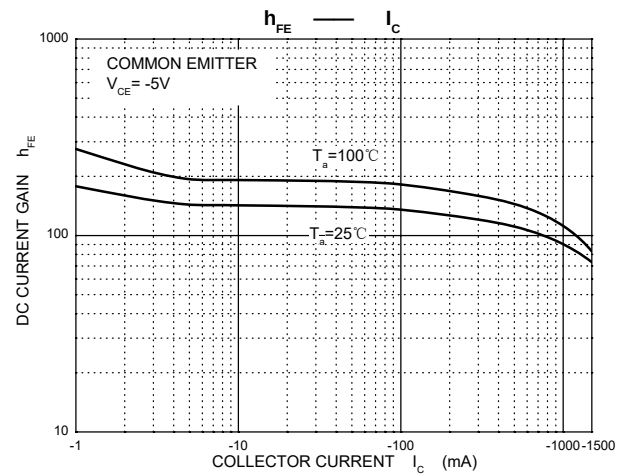
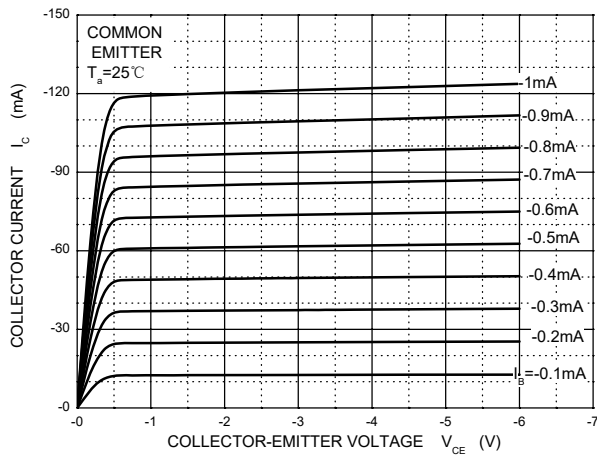
\* Pulse test

## **CLASSIFICATION OF $h_{FE}$**

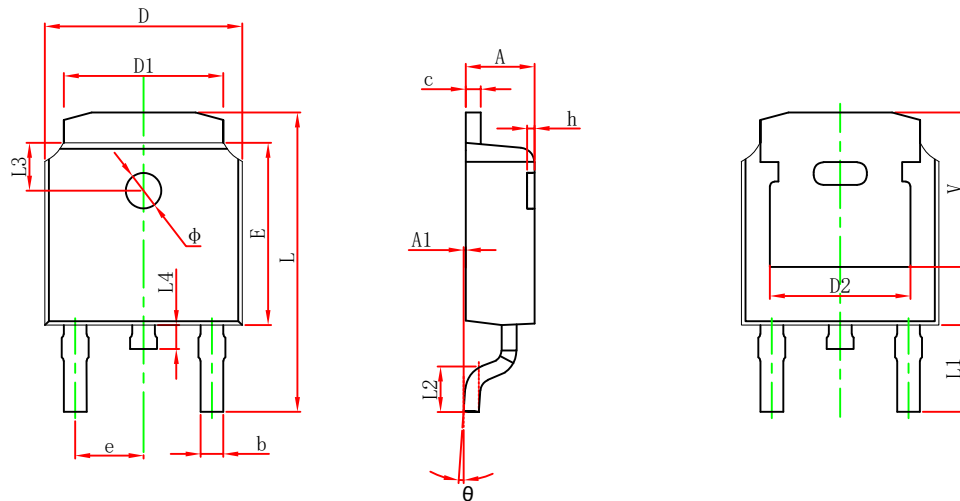
|       |        |         |
|-------|--------|---------|
| Rank  | O      | Y       |
| Range | 70-140 | 120-240 |

# Typical Characteristics

Static Characteristic

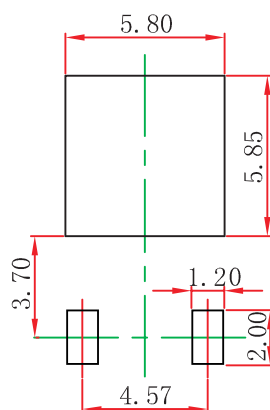


## TO-252-2L Package Outline Dimensions



| 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:

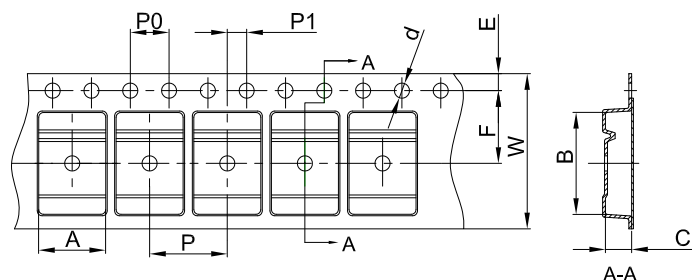
1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

### 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 Embossed Carrier Tape

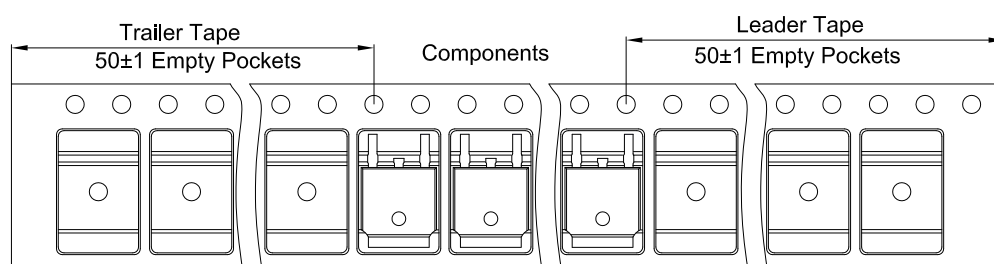


#### Packaging Description:

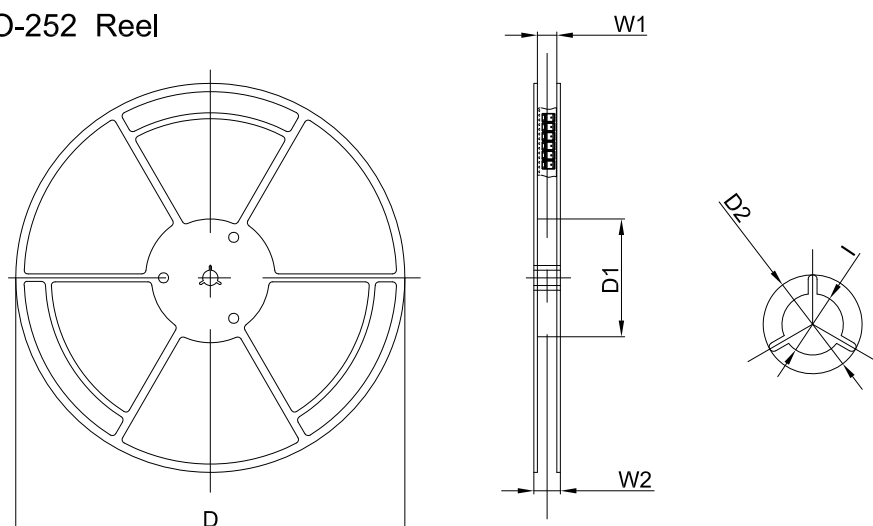
TO-252 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 25,00 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 | Ø1.55 | 1.75 | 7.50 | 4.00 | 8.00 | 2.00 | 16.00 |

### TO-252 Tape Leader and Trailer



### TO-252 Reel



| Dimensions are in millimeter |        |        |        |       |       |        |
|------------------------------|--------|--------|--------|-------|-------|--------|
| Reel Option                  | D      | D1     | D2     | W1    | W2    | I      |
| 13"Dia                       | 330.00 | 100.00 | Ø21.00 | 16.40 | 21.00 | Ø13.00 |

| REEL      | Reel Size | Box       | Box Size(mm) | Carton     | Carton Size(mm) | G.W.(kg) |
|-----------|-----------|-----------|--------------|------------|-----------------|----------|
| 2,500 pcs | 13inch    | 2,500 pcs | 340×336×29   | 25,000 pcs | 353×346×365     |          |