

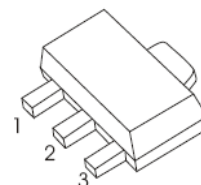
## SOT-89-3L Plastic-Encapsulate Transistors (PNP)

### Feature

- Complementary to 2SC2873
- Small Flat Package
- Power Amplifier and Switching Applications
- Low Saturation Voltage
- High Speed Switching Time

### SOT-89-3L

1. BASE  
2. COLLECTOR  
3. EMITTER



### Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted )

| Symbol          | Parameter                                        | Value    | Unit               |
|-----------------|--------------------------------------------------|----------|--------------------|
| $V_{CBO}$       | Collector-Base Voltage                           | -50      | V                  |
| $V_{CEO}$       | Collector-Emitter Voltage                        | -50      | V                  |
| $V_{EBO}$       | Emitter-Base Voltage                             | -5       | V                  |
| $I_C$           | Collector Current                                | -2       | A                  |
| $P_C$           | Collector Power Dissipation                      | 500      | mW                 |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient      | 250      | $^\circ\text{C/W}$ |
| $T_J, T_{stg}$  | Operation Junction and Storage Temperature Range | -55~+150 | $^\circ\text{C}$   |

### Electrical Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise specified)

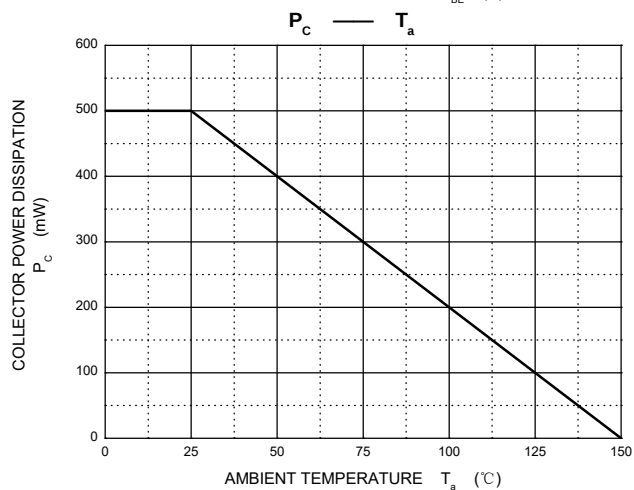
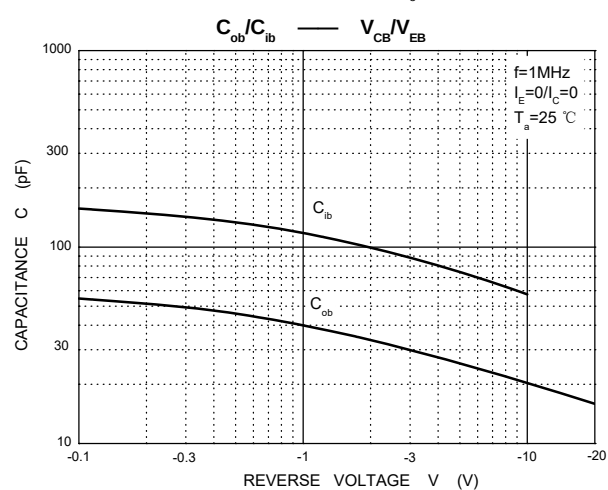
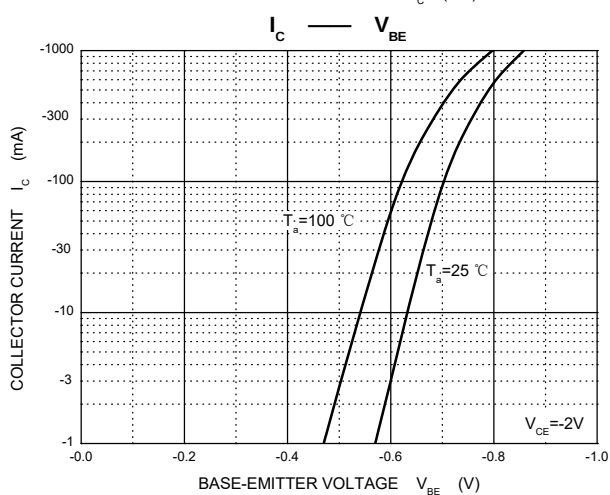
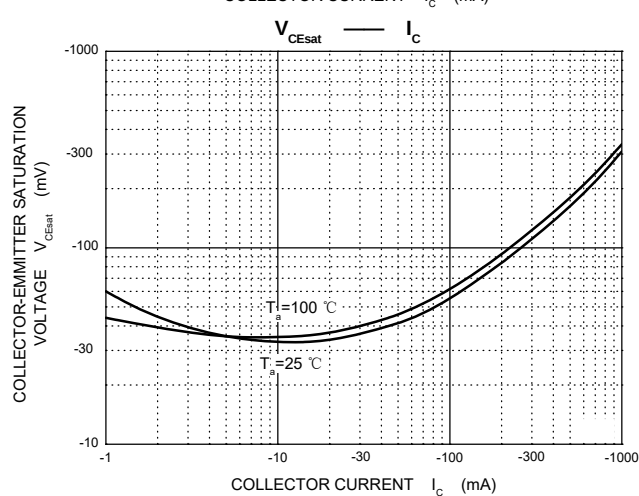
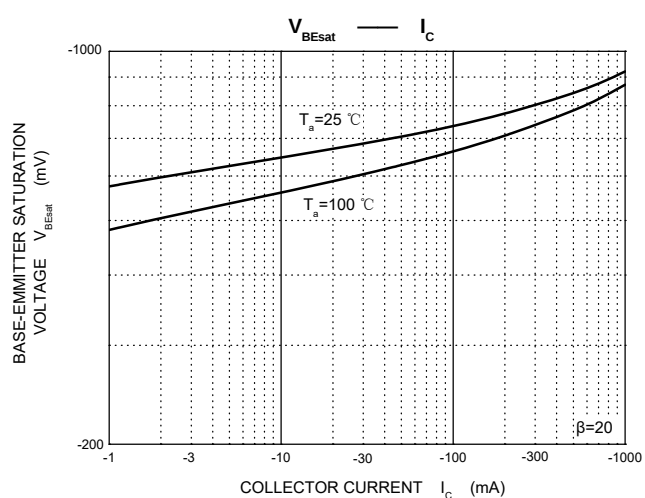
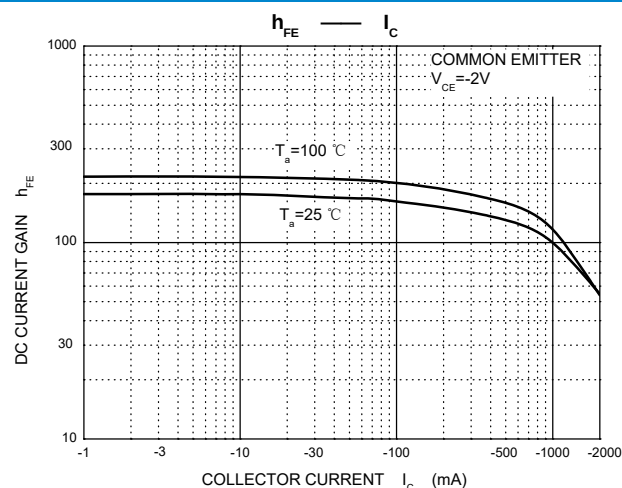
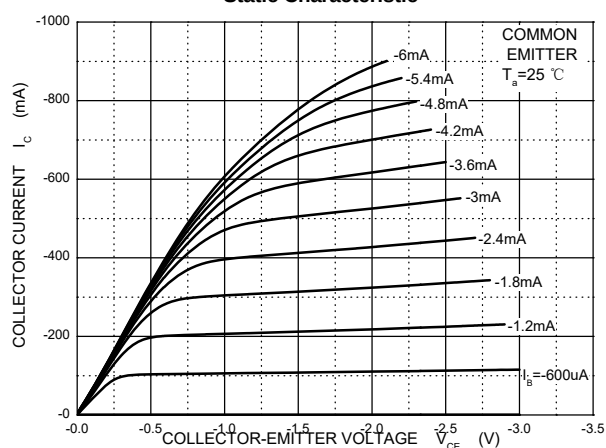
| Parameter                            | Symbol        | Test conditions                                  | Min | Typ | Max  | Unit |
|--------------------------------------|---------------|--------------------------------------------------|-----|-----|------|------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C = -0.1\text{mA}, I_E = 0$                   | -50 |     |      | V    |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C = -10\text{mA}, I_B = 0$                    | -50 |     |      | V    |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E = -0.1\text{mA}, I_C = 0$                   | -5  |     |      | V    |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB} = -50\text{V}, I_E = 0$                  |     |     | -100 | nA   |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = -5\text{V}, I_C = 0$                   |     |     | -100 | nA   |
| DC current gain                      | $h_{FE}$      | $V_{CE} = -2\text{V}, I_C = -500\text{mA}$       | 70  |     | 240  |      |
|                                      |               | $V_{CE} = -2\text{V}, I_C = -2\text{A}$          | 20  |     |      |      |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -1\text{A}, I_B = -50\text{mA}$           |     |     | -0.5 | V    |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = -1\text{A}, I_B = -50\text{mA}$           |     |     | -1.2 | V    |
| Collector output capacitance         | $C_{ob}$      | $V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$ |     | 40  |      | pF   |
| Transition frequency                 | $f_T$         | $V_{CE} = -2\text{V}, I_C = -0.5\text{A}$        | 100 |     |      | MHz  |

### Classification of $h_{FE}$

| RANK    | O      | Y       |
|---------|--------|---------|
| RANGE   | 70-140 | 120-240 |
| MARKING | NO     | NY      |

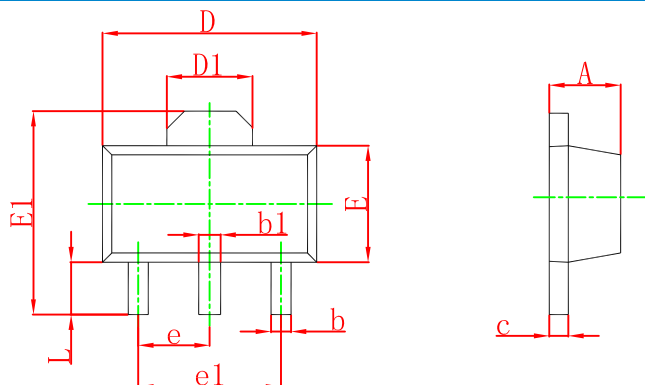
## Typical Characteristics

Static Characteristic



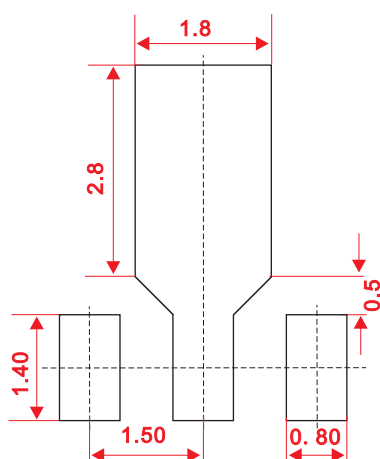


## SOT-89-3L Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.400                     | 1.600 | 0.055                | 0.063 |
| b      | 0.320                     | 0.520 | 0.013                | 0.020 |
| b1     | 0.400                     | 0.580 | 0.016                | 0.023 |
| c      | 0.350                     | 0.440 | 0.014                | 0.017 |
| D      | 4.400                     | 4.600 | 0.173                | 0.181 |
| D1     | 1.550 REF.                |       | 0.061 REF.           |       |
| E      | 2.300                     | 2.600 | 0.091                | 0.102 |
| E1     | 3.940                     | 4.250 | 0.155                | 0.167 |
| e      | 1.500 TYP.                |       | 0.060 TYP.           |       |
| e1     | 3.000 TYP.                |       | 0.118 TYP.           |       |
| L      | 0.900                     | 1.200 | 0.035                | 0.047 |

## SOT-89-3L 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.