

## Features

- Halogen Free. "Green" Device (Note 1)
- AEC-Q101 Qualified
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

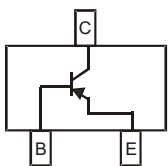
## Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 417°C/W Junction to Ambient

| Parameter                   | Symbol    | Rating | Unit |
|-----------------------------|-----------|--------|------|
| Collector-Base Voltage      | $V_{CBO}$ | -160   | V    |
| Collector-Emitter Voltage   | $V_{CEO}$ | -150   | V    |
| Emitter-Base Voltage        | $V_{EBO}$ | -5     | V    |
| Collector Current           | $I_C$     | -600   | mA   |
| Collector Power Dissipation | $P_C$     | 300    | mW   |

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

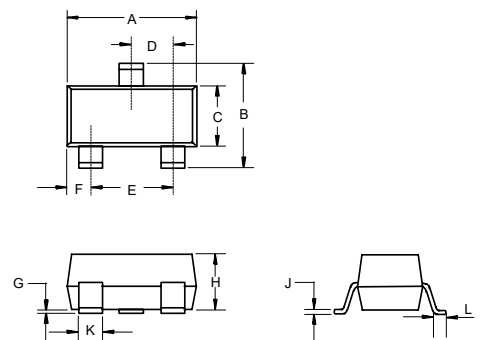
## Internal Structure



Marking: 2L

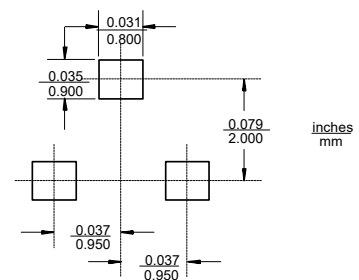
# PNP Plastic Encapsulate Transistor

## SOT-23



| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | 0.110  | 0.120 | 2.80 | 3.04 |      |
| B   | 0.083  | 0.104 | 2.10 | 2.64 |      |
| C   | 0.047  | 0.055 | 1.20 | 1.40 |      |
| D   | 0.034  | 0.041 | 0.85 | 1.05 |      |
| E   | 0.067  | 0.083 | 1.70 | 2.10 |      |
| F   | 0.018  | 0.024 | 0.45 | 0.60 |      |
| G   | 0.0004 | 0.006 | 0.01 | 0.15 |      |
| H   | 0.035  | 0.043 | 0.90 | 1.10 |      |
| J   | 0.003  | 0.007 | 0.08 | 0.18 |      |
| K   | 0.014  | 0.020 | 0.35 | 0.51 |      |
| L   | 0.007  | 0.020 | 0.20 | 0.50 |      |

## Suggested Solder Pad Layout



**Electrical Characteristics @ 25°C Unless Otherwise Specified**

| Parameter                            | Symbol        | Min  | Typ | Max  | Units | Conditions                             |
|--------------------------------------|---------------|------|-----|------|-------|--|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | -160 |     |      | V     | $I_C = -100\mu A, I_E = 0$             |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | -150 |     |      | V     | $I_C = -1mA, I_B = 0$                  |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ | -5   |     |      | V     | $I_E = -10\mu A, I_C = 0$              |
| Collector Cutoff Current             | $I_{CBO}$     |      |     | -100 | nA    | $V_{CB} = -120V, I_E = 0$              |
| Emitter-Base Cutoff Current          | $I_{EBO}$     |      |     | -100 | nA    | $V_{EB} = -4V, I_C = 0$                |
| DC Current Gain                      | $h_{FE1}$     | 80   |     |      |       | $V_{CE} = -5V, I_C = -1.0mA$           |
|                                      | $h_{FE2}$     | 100  |     | 300  |       | $V_{CE} = -5V, I_C = -10mA$            |
|                                      | $h_{FE3}$     | 50   |     |      |       | $V_{CE} = -5V, I_C = -50mA$            |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ |      |     | -0.5 | V     | $I_C = -50mA, I_B = -5mA$              |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ |      |     | -1.0 | V     | $I_C = -50mA, I_B = -5mA$              |
| Transition Frequency                 | $f_T$         | 100  |     |      | MHz   | $V_{CE} = -5V, I_C = -10mA, f = 30MHz$ |

## Curve Characteristics

Fig. 1 - Static Characteristics

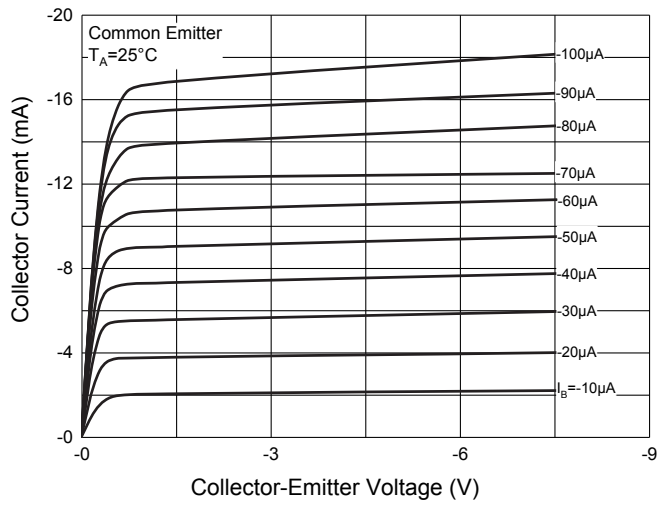


Fig. 2 - DC Current Gain Characteristics

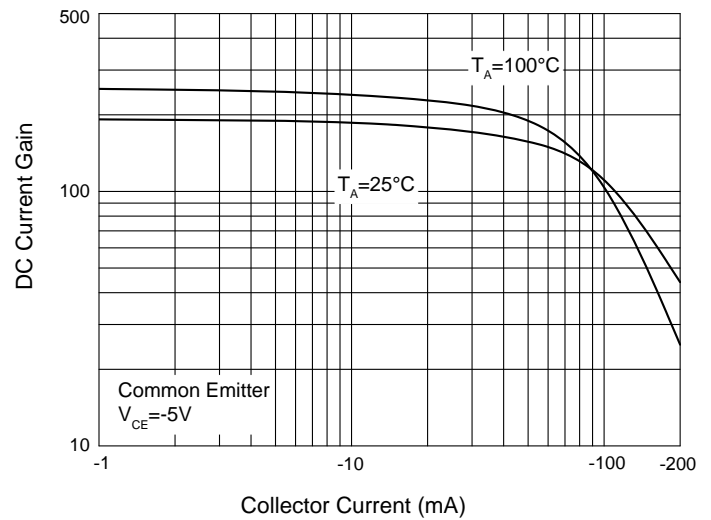


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

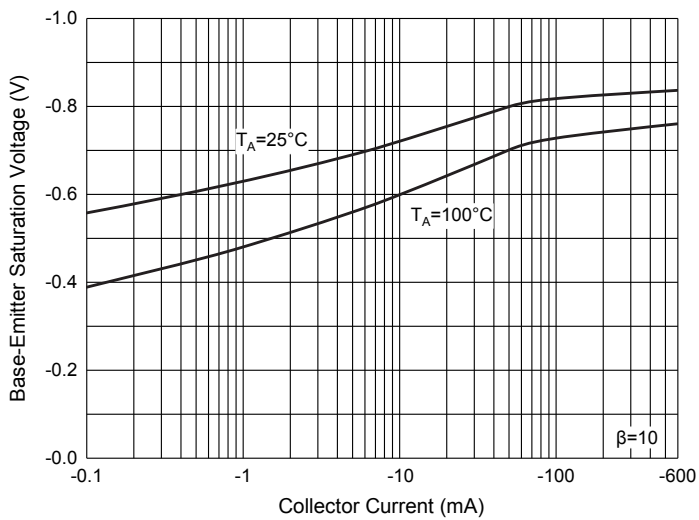


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

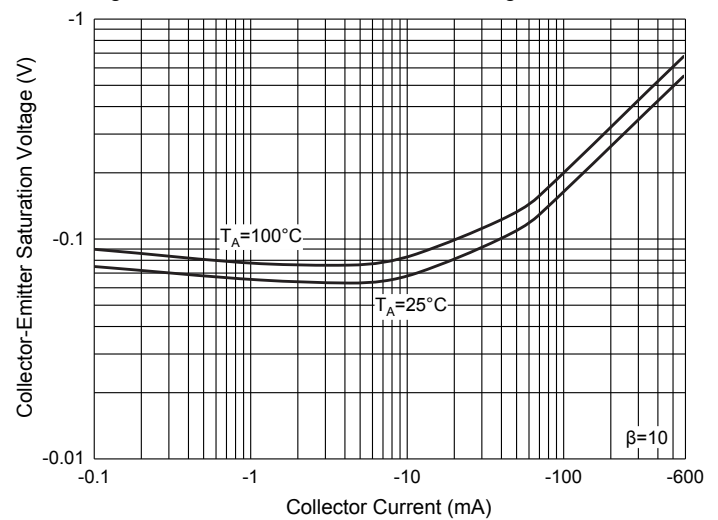


Fig. 5 - Base-Emitter Voltage Characteristics

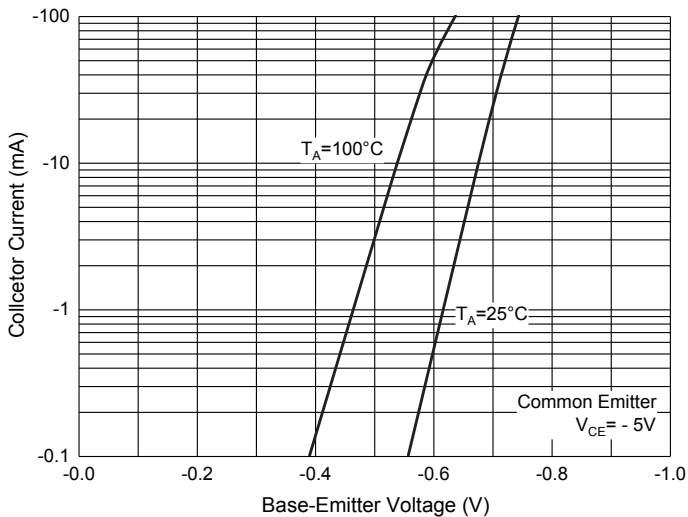
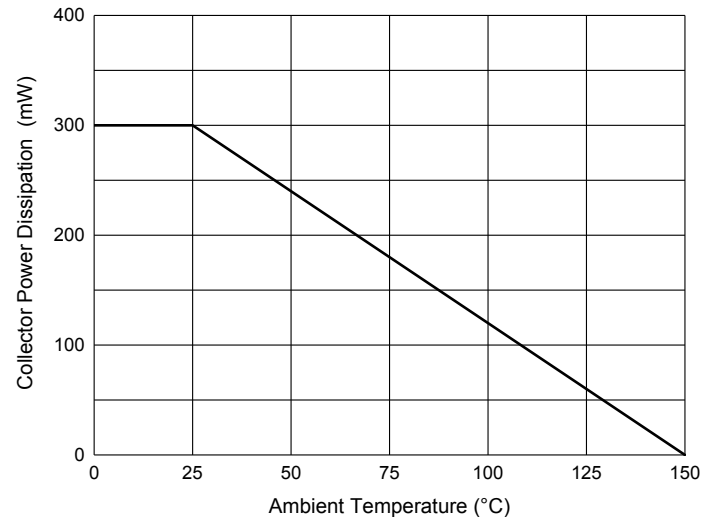


Fig. 6 - Collector Power Derating Curve



## Ordering Information

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

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