

## Features

- Halogen Free. "Green" Device (Note 1)
- 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)

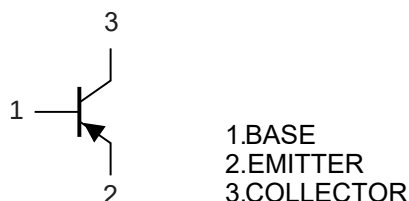
## Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 625°C/W Junction to Ambient

| Parameter                    | Symbol    | Rating | Unit |
|------------------------------|-----------|--------|------|
| Collector-Base Voltage       | $V_{CBO}$ | -50    | V    |
| Collector-Emitter Voltage    | $V_{CEO}$ | -45    | V    |
| Emitter-Base Voltage         | $V_{EBO}$ | -5     | V    |
| Continuous Collector Current | $I_C$     | -500   | mA   |
| Power Dissipation            | $P_D$     | 200    | mW   |

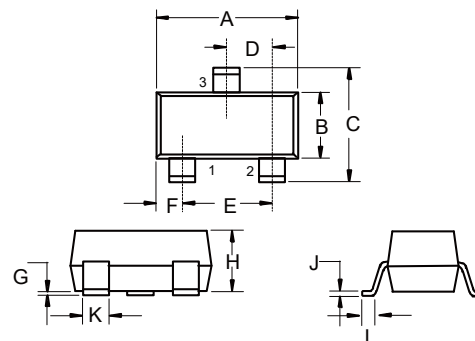
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Internal Structure



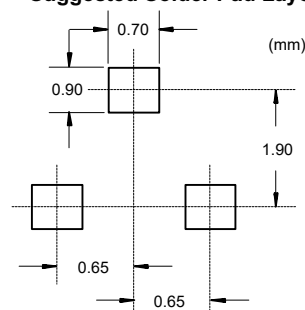
# PNP Silicon General Purpose Transistors

## SOT-323



| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | 0.071  | 0.087 | 1.80 | 2.20 |      |
| B   | 0.045  | 0.053 | 1.15 | 1.35 |      |
| C   | 0.083  | 0.096 | 2.10 | 2.45 |      |
| D   | 0.026  |       | 0.65 |      | TYP. |
| E   | 0.047  | 0.055 | 1.20 | 1.40 |      |
| F   | 0.012  | 0.016 | 0.30 | 0.40 |      |
| G   | 0.000  | 0.004 | 0.00 | 0.10 |      |
| H   | 0.035  | 0.044 | 0.90 | 1.10 |      |
| J   | 0.002  | 0.010 | 0.05 | 0.25 |      |
| K   | 0.006  | 0.016 | 0.15 | 0.40 |      |
| L   | 0.010  | 0.018 | 0.26 | 0.46 |      |

## Suggested Solder Pad Layout



**Electrical Characteristics @  $T_A=25^\circ\text{C}$  Unless Otherwise Specified**

| Parameter                            | Symbol        | Min | Typ | Max  | Units         | Conditions                                                   |
|--------------------------------------|---------------|-----|-----|------|---------------|--------------------------------------------------------------|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | -50 |     |      | V             | $I_C=-10\mu\text{A}$ , $I_E=0$                               |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | -45 |     |      | V             | $I_C=-10\text{mA}$ , $I_B=0$                                 |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ | -5  |     |      | V             | $I_E=-1\mu\text{A}$ , $I_C=0$                                |
| Collector Cutoff Current             | $I_{CBO}$     |     |     | -0.1 | $\mu\text{A}$ | $V_{CB}=-20\text{V}$ , $I_E=0$                               |
| Collector Cutoff Current             | $I_{CEO}$     |     |     | -0.2 | $\mu\text{A}$ | $V_{CE}=-20\text{V}$ , $I_B=0$                               |
| Emitter Cutoff Current               | $I_{EBO}$     |     |     | -0.1 | $\mu\text{A}$ | $V_{EB}=-5\text{V}$ , $I_C=0$                                |
| DC Current Gain                      | $h_{FE(1)}$   | 100 |     | 600  |               | $V_{CE}=-1\text{V}$ , $I_C=-100\text{mA}$                    |
|                                      | $h_{FE(2)}$   | 40  |     |      |               | $V_{CE}=-1\text{V}$ , $I_C=-500\text{mA}$                    |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ |     |     | -0.7 | V             | $I_C=-500\text{mA}$ , $I_B=-50\text{mA}$                     |
| Base-Emitter Voltage                 | $V_{BE}$      |     |     | -1.2 | V             | $V_{CE}=-1\text{V}$ , $I_C=-500\text{mA}$                    |
| Transition Frequency                 | $f_T$         | 80  |     |      | MHz           | $V_{CE}=-5\text{V}$ , $I_C=-10\text{mA}$ , $f=100\text{MHz}$ |
| Collector Capacitance                | $C_C$         |     |     | 10   | pF            | $V_{CB}=-10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$             |

**Classification of  $h_{FE(1)}$**

| Rank    | BC807-16W | BC807-25W | BC807-40W |
|---------|-----------|-----------|-----------|
| Range   | 100-250   | 160-400   | 250-600   |
| Marking | 5A        | 5B        | 5C        |

## Curve Characteristics

Fig. 1 - Static Characteristics

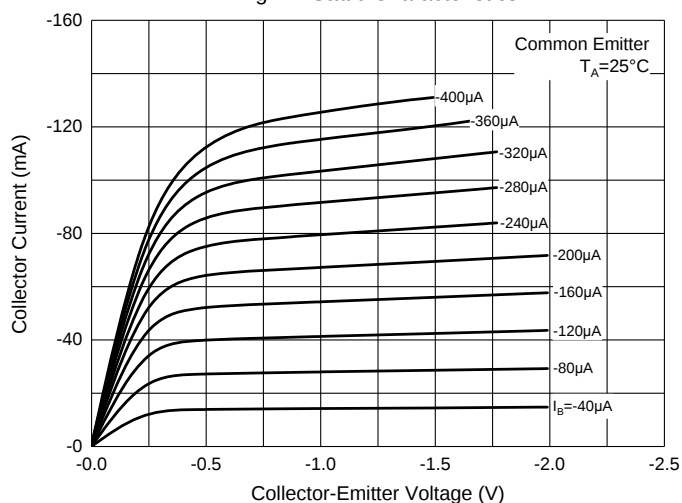


Fig. 2 - DC Current Gain Characteristics

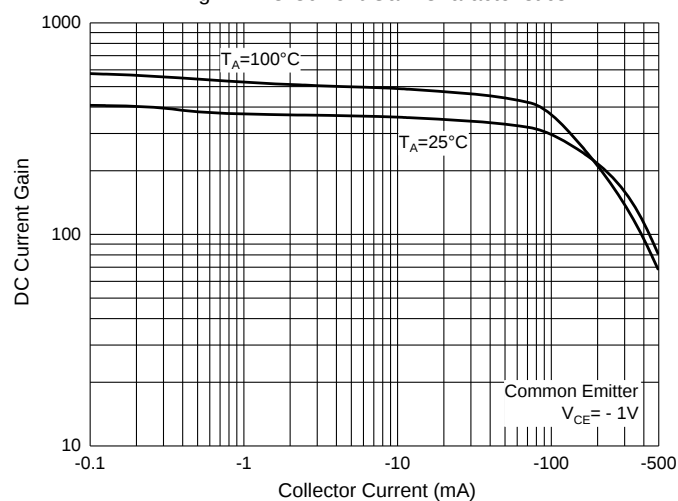


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

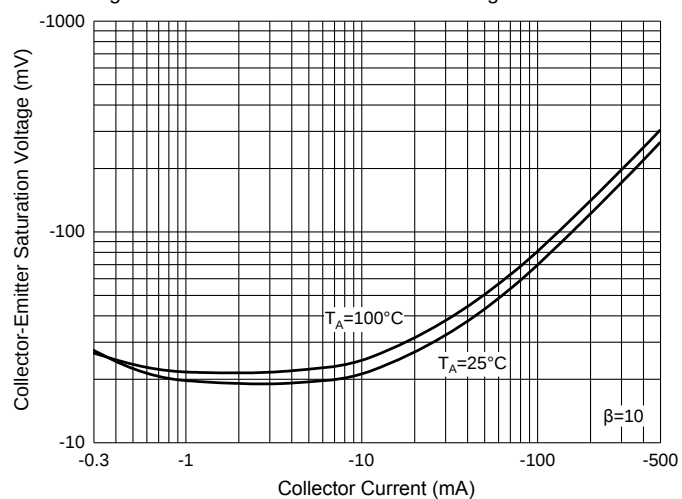


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

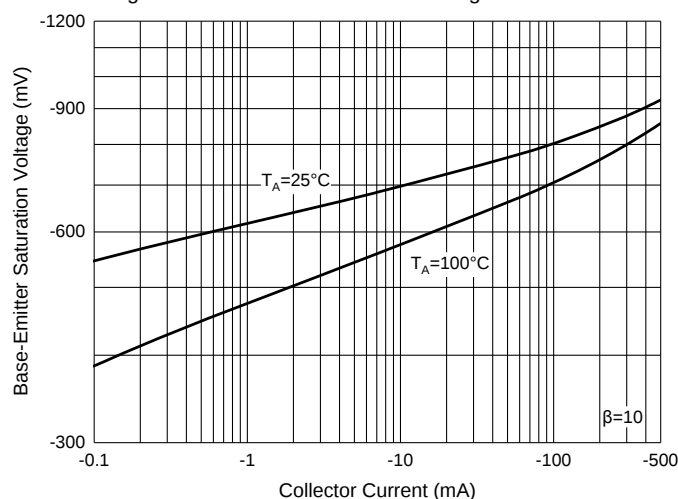


Fig. 5 - Base-Emitter Voltage Characteristics

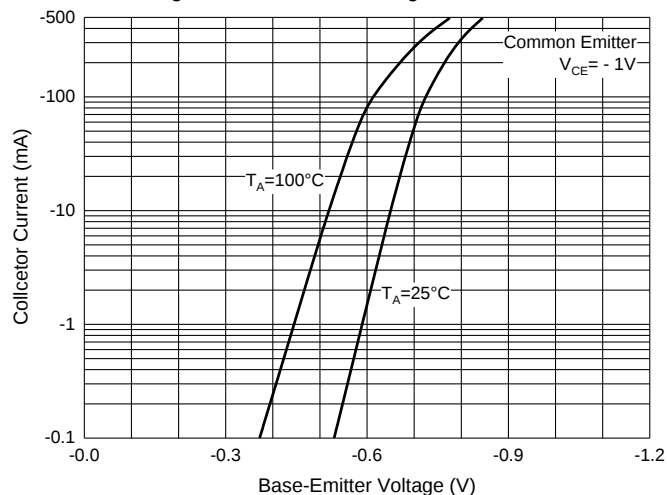
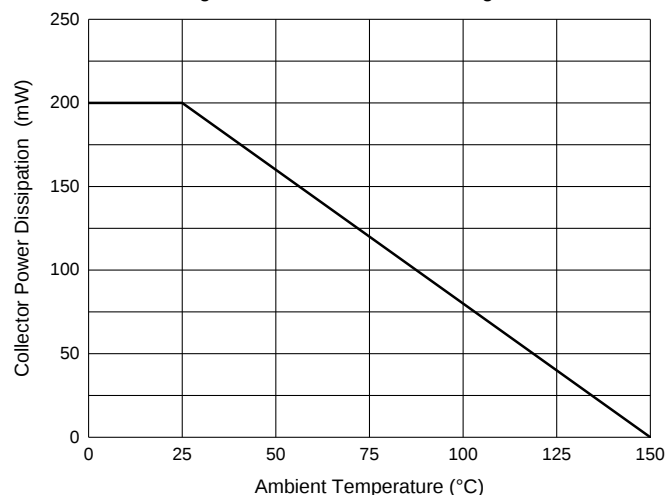


Fig. 6 - Collector Power Derating Curve



## Ordering Information

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

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