

## 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

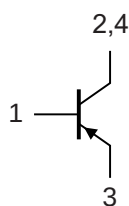
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 125°C/W Junction to Ambient

| Parameter                 | Symbol    | Rating | Unit |
|---------------------------|-----------|--------|------|
| Collector-Base Voltage    | $V_{CBO}$ | -60    | V    |
| Collector-Emitter Voltage | $V_{CEO}$ | -60    | V    |
| Emitter-Base Voltage      | $V_{EBO}$ | -5     | V    |
| Collector Current         | $I_C$     | -600   | mA   |
| Power Dissipation         | $P_D$     | 1      | W    |

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

## Marking: ZT2907A

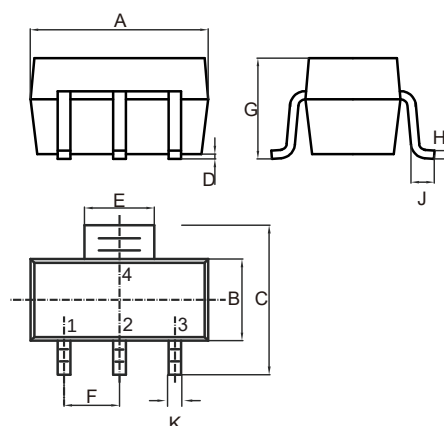
## Internal Structure



1.BASE  
2,4.COLLECTOR  
3.EMITTER

## PNP Plastic Encapsulate Transistors

## SOT-223



| DIMENSIONS |        |       |      |      |      |
|------------|--------|-------|------|------|------|
| DIM        | INCHES |       | MM   |      | NOTE |
|            | MIN    | MAX   | MIN  | MAX  |      |
| A          | 0.248  | 0.264 | 6.30 | 6.70 |      |
| B          | 0.130  | 0.146 | 3.30 | 3.70 |      |
| C          | 0.264  | 0.287 | 6.70 | 7.30 |      |
| D          | 0.001  | 0.004 | 0.02 | 0.10 |      |
| E          | 0.114  | 0.122 | 2.90 | 3.10 |      |
| F          | 0.091  |       | 2.30 |      | TYP. |
| G          | ---    | 0.071 | ---  | 1.80 |      |
| H          | 0.009  | 0.014 | 0.23 | 0.35 |      |
| J          | 0.030  | ---   | 0.75 | ---  |      |
| K          | 0.026  | 0.033 | 0.66 | 0.84 |      |

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

| Parameter                            | Symbol        | Min | Typ | Max  | Units | Conditions                                                   |
|--------------------------------------|---------------|-----|-----|------|-------|--------------------------------------------------------------|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | -60 |     |      | V     | $I_C = -1mA, I_E = 0$                                        |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | -60 |     |      | V     | $I_C = -10mA, I_B = 0$                                       |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ | -5  |     |      | V     | $I_E = -1mA, I_C = 0$                                        |
| Collector-Base Cutoff Current        | $I_{CBO}$     |     |     | -10  | nA    | $V_{CB} = -50V, I_E = 0$                                     |
| Emitter-Base Cutoff Current          | $I_{EBO}$     |     |     | -10  | nA    | $V_{EB} = -5V, I_C = 0$                                      |
| DC Current Gain <sup>(Note 2)</sup>  | $h_{FE(1)}$   | 75  |     |      |       | $V_{CE} = -10V, I_C = -0.1mA$                                |
|                                      | $h_{FE(2)}$   | 100 |     |      |       | $V_{CE} = -10V, I_C = -1mA$                                  |
|                                      | $h_{FE(3)}$   | 100 |     |      |       | $V_{CE} = -10V, I_C = -10mA$                                 |
|                                      | $h_{FE(4)}$   | 100 |     | 300  |       | $V_{CE} = -10V, I_C = -150mA$                                |
|                                      | $h_{FE(5)}$   | 50  |     |      |       | $V_{CE} = -10V, I_C = -500mA$                                |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ |     |     | -0.4 | V     | $I_C = -150mA, I_B = -15mA$                                  |
|                                      |               |     |     | -1.6 | V     | $I_C = -500mA, I_B = -50mA$                                  |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ |     |     | -1.3 | V     | $I_C = -150mA, I_B = -15mA$                                  |
|                                      |               |     |     | -2.6 | V     | $I_C = -500mA, I_B = -50mA$                                  |
| Transition Frequency                 | $f_T$         | 200 |     |      | MHz   | $V_{CE} = -10V, I_C = -20mA, f = 100MHz$                     |
| Output Capacitance                   | $C_{cbo}$     |     |     | 8    | pF    | $V_{CB} = -10V, I_E = 0, f = 1MHz,$                          |
| Input Capacitance                    | $C_{ibo}$     |     |     | 30   | pF    | $V_{EB} = -2V, I_C = 0, f = 1MHz,$                           |
| Delay Time                           | $t_d$         |     |     | 12   | ns    | $V_{CC} = -30V, I_C = -150mA,$<br>$I_{B1} = -I_{B2} = -15mA$ |
| Rise Time                            | $t_r$         |     |     | 30   | ns    |                                                              |
| Turn On Time                         | $t_{on}$      |     |     | 40   | ns    |                                                              |
| Storage Time                         | $t_s$         |     |     | 300  | ns    |                                                              |
| Fall Time                            | $t_f$         |     |     | 65   | ns    |                                                              |
| Turn Off Time                        | $t_{off}$     |     |     | 365  | ns    |                                                              |

Note: 2. Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$

## Curve Characteristics

Fig. 1 - Static Characteristics

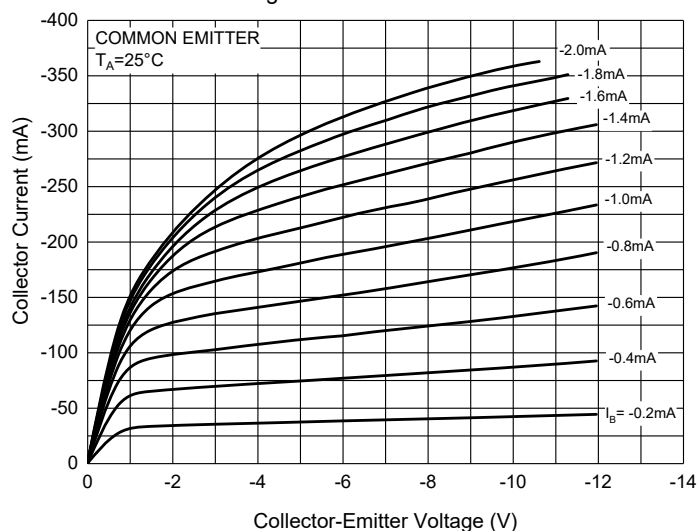


Fig. 2 - DC Current Gain Characteristics

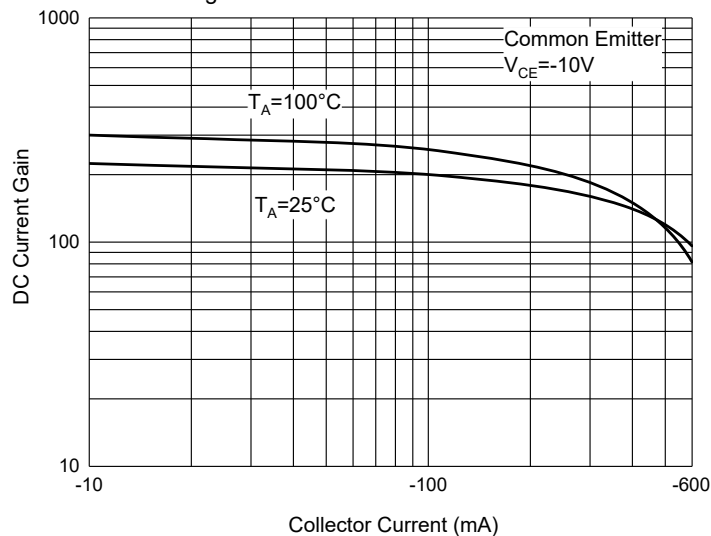


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

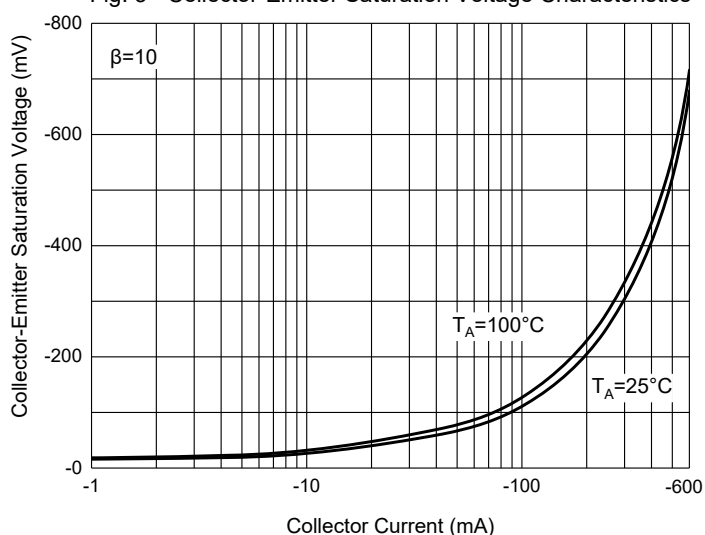


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

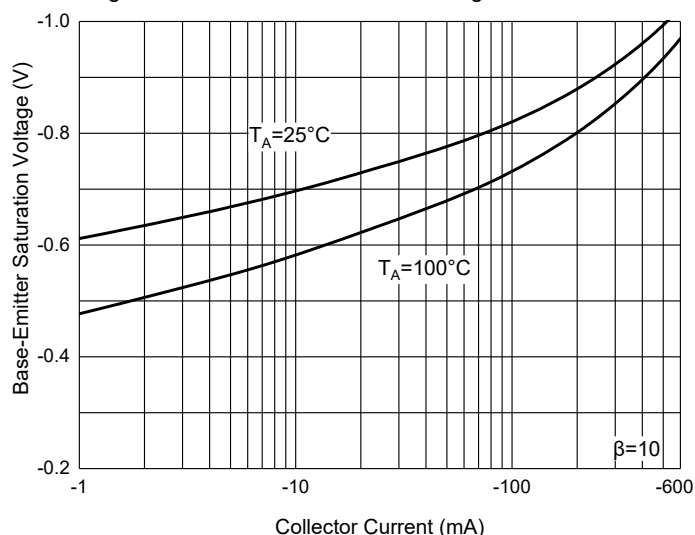


Fig. 5 - Base-Emitter Voltage Characteristics

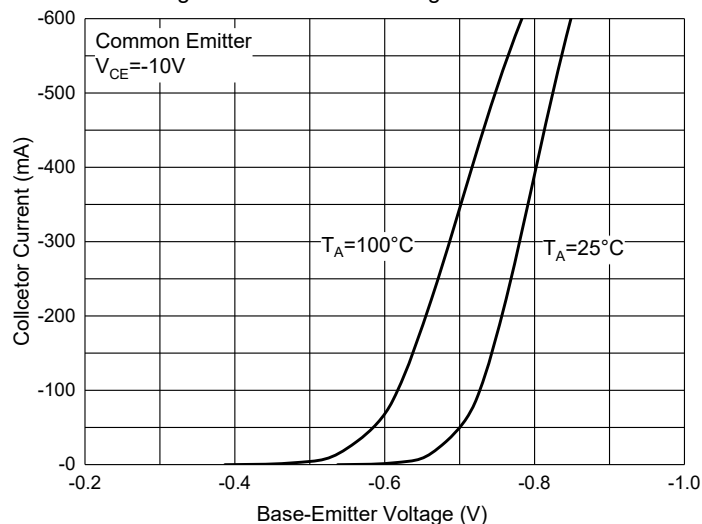
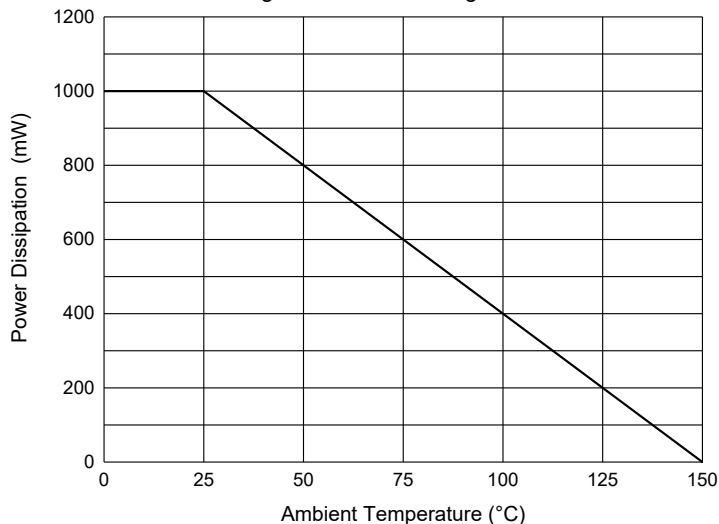


Fig. 6 - Power Derating Curve



# Ordering Information

| Device         | Packing                 |
|----------------|-------------------------|
| Part Number-TP | Tape&Reel: 2.5Kpcs/Reel |

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