

## 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)

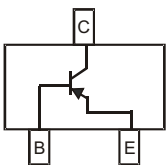
## Maximum Ratings

- 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      | $V_{CBO}$ | -160   | V    |
| Collector-Emitter Voltage   | $V_{CEO}$ | -150   | V    |
| Emitter-Base Voltage        | $V_{EBO}$ | -5     | V    |
| Collector Current           | $I_C$     | -200   | mA   |
| Collector Power Dissipation | $P_C$     | 200    | mW   |

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <100ppm antimony compounds.

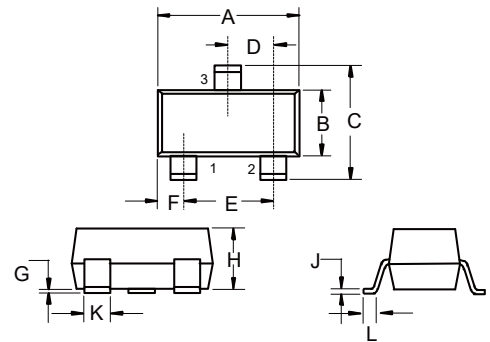
## Internal Structure



Marking: K4M

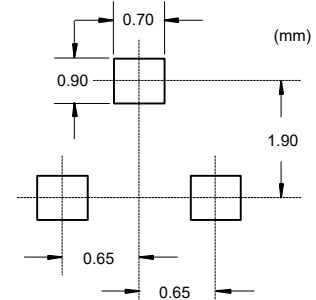
# PNP Plastic Encapsulate Transistor

## SOT-323



| DIM | DIMENSIONS |       |      |      | NOTE |
|-----|------------|-------|------|------|------|
|     | INCHES     |       | MM   |      |      |
|     | 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 @ 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-Base Cutoff Current        | $I_{CBO}$     |      |     | -50  | nA    | $V_{CB} = -120V, I_E = 0$                                 |
| Emitter-Base Cutoff Current          | $I_{EBO}$     |      |     | -50  | nA    | $V_{EB} = -3V, I_C = 0$                                   |
| DC Current Gain                      | $h_{FE(1)}$   | 50   |     |      |       | $V_{CE} = -5V, I_C = -1mA$                                |
|                                      | $h_{FE(2)}$   | 60   |     | 300  |       | $V_{CE} = -5V, I_C = -10mA$                               |
|                                      | $h_{FE(3)}$   | 50   |     |      |       | $V_{CE} = -5V, I_C = -50mA$                               |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ |      |     | -0.2 | V     | $I_C = -10mA, I_B = -1mA$                                 |
|                                      |               |      |     | -0.5 | V     | $I_C = -50mA, I_B = -5mA$                                 |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ |      |     | -1   | V     | $I_C = -10mA, I_B = -1mA$                                 |
|                                      |               |      |     | -1   | V     | $I_C = -50mA, I_B = -5mA$                                 |
| Transition Frequency                 | $f_T$         | 100  |     | 300  | MHz   | $V_{CE} = -10V, I_C = -10mA, f = 100MHz$                  |
| Output Capacitance                   | $C_{ob}$      |      |     | 6    | pF    | $V_{CB} = -10V, I_E = 0, f = 1MHz$                        |
| Noise Figure                         | NF            |      |     | 8    | dB    | $V_{CE} = -5V, I_C = -200\mu A, R_g = 10\Omega, f = 1KHz$ |

**Curve Characteristics**

Fig. 1 - Static Characteristics

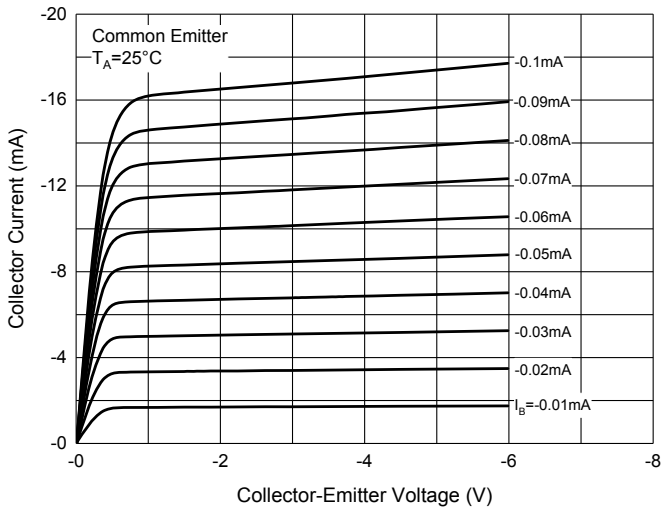


Fig. 2 - DC Current Gain Characteristics

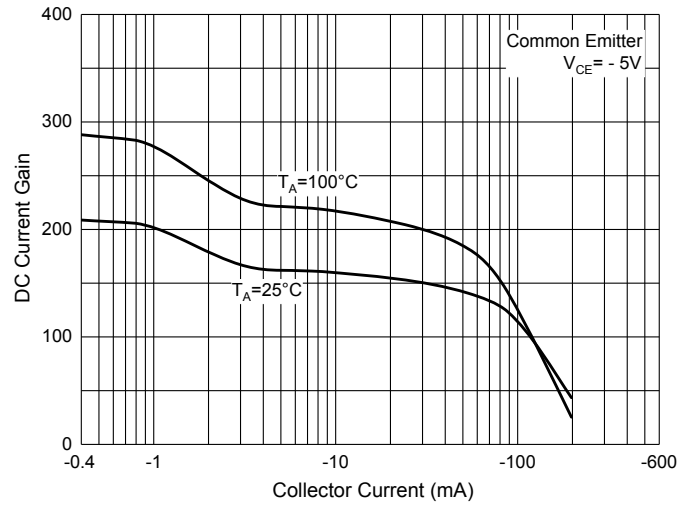


Fig. H - Base-Emitter Saturation Voltage Characteristics

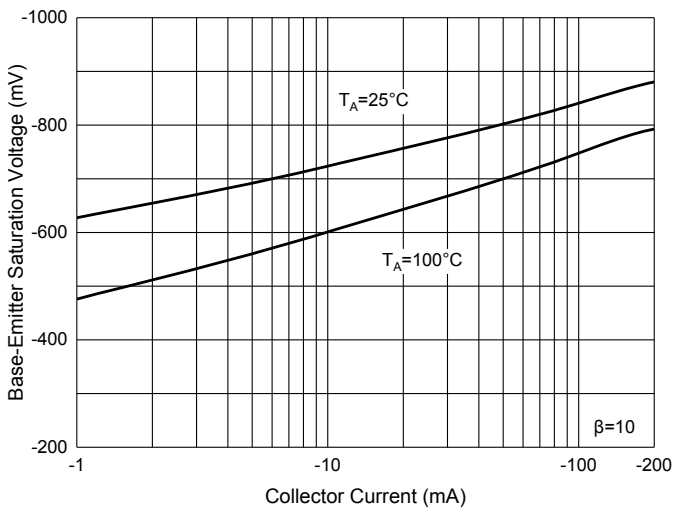


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

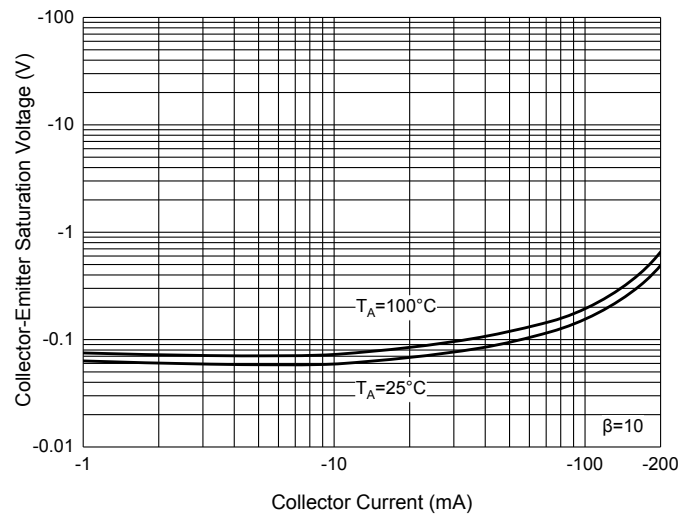


Fig. 5 - Base-Emitter Voltage Characteristics

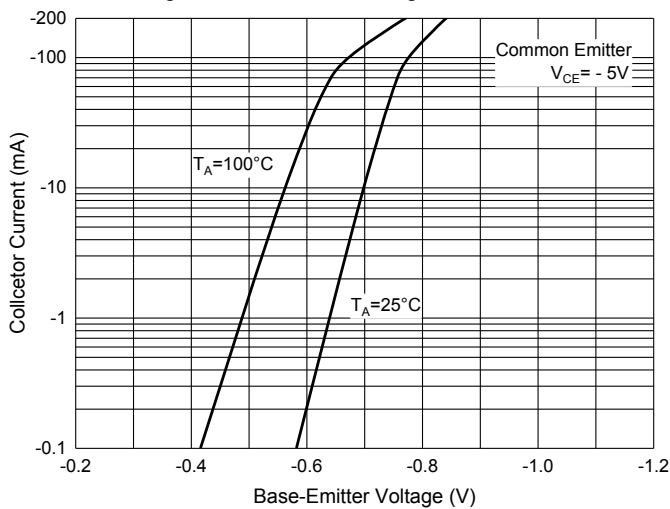
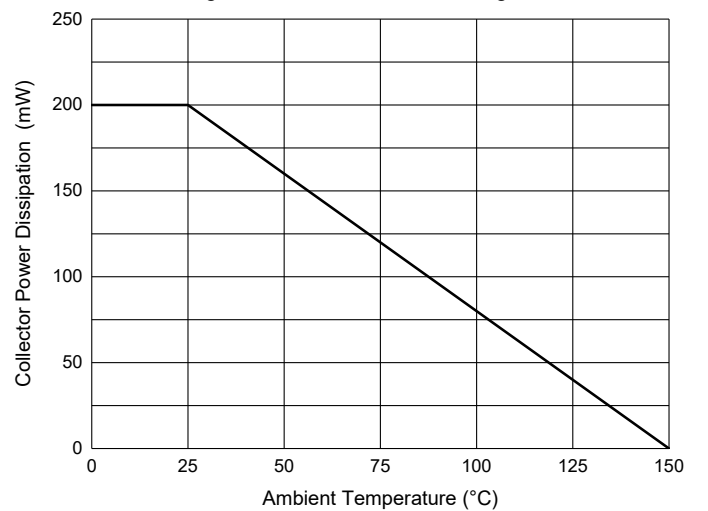


Fig. 6 - Collector Power Derating Curve



## Ordering Information

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

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