

## 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: 556°C/W Junction to Ambient

| Parameter                    |         | Symbol    | Rating | Unit |
|------------------------------|---------|-----------|--------|------|
| Collector-Base Voltage       | MMBTA55 | $V_{CBO}$ | -60    | V    |
|                              | MMBTA56 |           | -80    |      |
| Collector-Emitter Voltage    | MMBTA55 | $V_{CEO}$ | -60    | V    |
|                              | MMBTA56 |           | -80    |      |
| Emitter-Base Voltage         |         | $V_{EBO}$ | -4     | V    |
| Continuous Collector Current |         | $I_C$     | -500   | mA   |
| Power Dissipation            |         | $P_D$     | 225    | mW   |

Note:

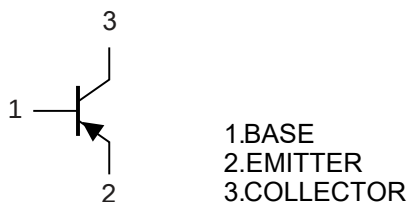
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Marking:

MMBTA55: 2H

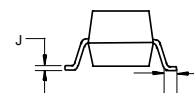
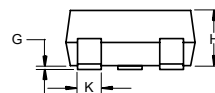
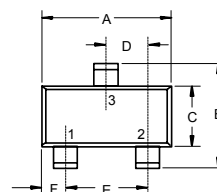
MMBTA56: 2GM

## Internal Structure



# PNP General Purpose Amplifier

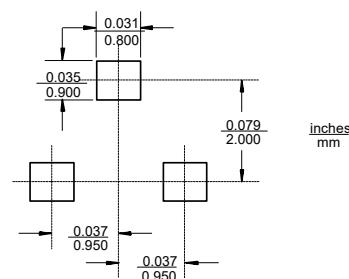
## SOT-23



## DIMENSIONS

| 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   | 0.012  | 0.020 | 0.30 | 0.51 |      |
| L   | 0.007  | 0.020 | 0.20 | 0.50 |      |

## 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     | MMBTA55 | $V_{(BR)CBO}$ | -60 |     |       | V             | $I_C=-100\mu\text{A}, I_E=0$                            |
|                                      | MMBTA56 |               | -80 |     |       | V             |                                                         |
| Collector-Emitter Breakdown Voltage  | MMBTA55 | $V_{(BR)CEO}$ | -60 |     |       | V             | $I_C=-1\text{mA}, I_B=0$                                |
|                                      | MMBTA56 |               | -80 |     |       | V             |                                                         |
| Emitter-Base Breakdown Voltage       |         | $V_{(BR)EBO}$ | -4  |     |       | V             | $I_E=-100\mu\text{A}, I_C=0$                            |
| Collector Cutoff Current             | MMBTA55 | $I_{CBO}$     |     |     | -0.1  | $\mu\text{A}$ | $V_{CB}=-60\text{V}, I_E=0$                             |
|                                      | MMBTA56 |               |     |     | -0.1  | $\mu\text{A}$ | $V_{CB}=-80\text{V}, I_E=0$                             |
| Emitter Cutoff Current               |         | $I_{CES}$     |     |     | -0.1  | $\mu\text{A}$ | $V_{CE}=-60\text{V}, I_B=0$                             |
| DC Current Gain                      |         | $h_{FE(1)}$   | 100 |     |       |               | $V_{CE}=-1\text{V}, I_C=-10\text{mA}$                   |
|                                      |         | $h_{FE(2)}$   | 100 |     |       |               | $V_{CE}=-1\text{V}, I_C=-100\text{mA}$                  |
| Collector-Emitter Saturation Voltage |         | $V_{CE(sat)}$ |     |     | -0.25 | V             | $I_C=-100\text{mA}, I_B=-10\text{mA}$                   |
| Base-Emitter Voltage                 |         | $V_{BE}$      |     |     | -1.2  | V             | $V_{CE}=-1\text{V}, I_C=-100\text{mA}$                  |
| Transition Frequency                 |         | $f_T$         | 50  |     |       | MHz           | $V_{CE}=-1\text{V}, I_C=-100\text{mA}, f=100\text{MHz}$ |

## Curve Characteristics

Fig. 1 - Static Characteristics

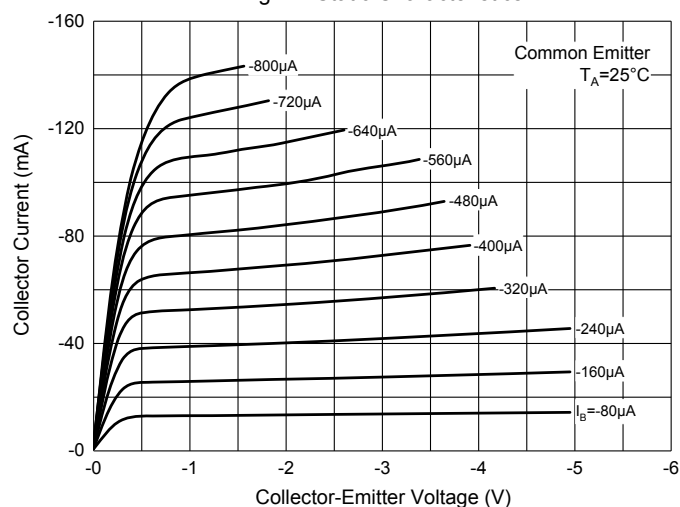


Fig. 2 - DC Current Gain Characteristics

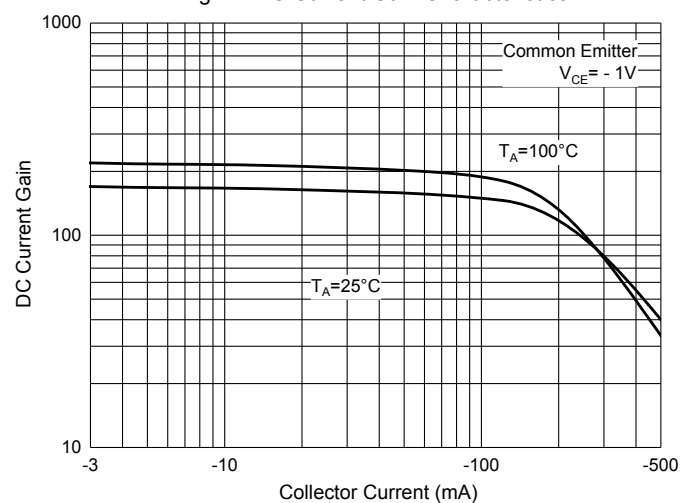


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

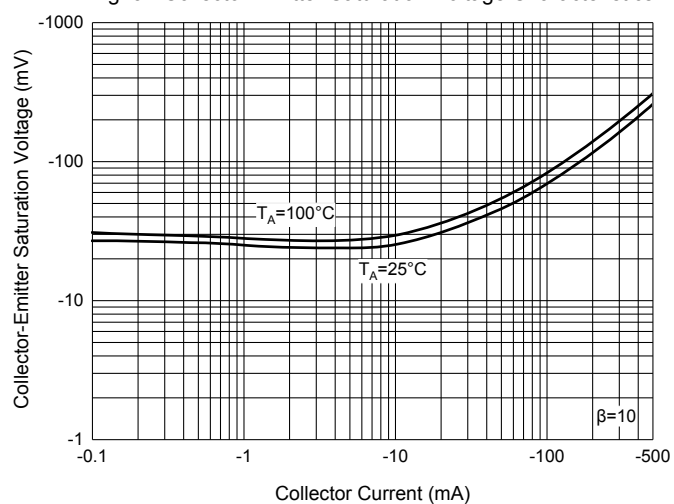


Fig. 4 - Base-Emitter Voltage Characteristics

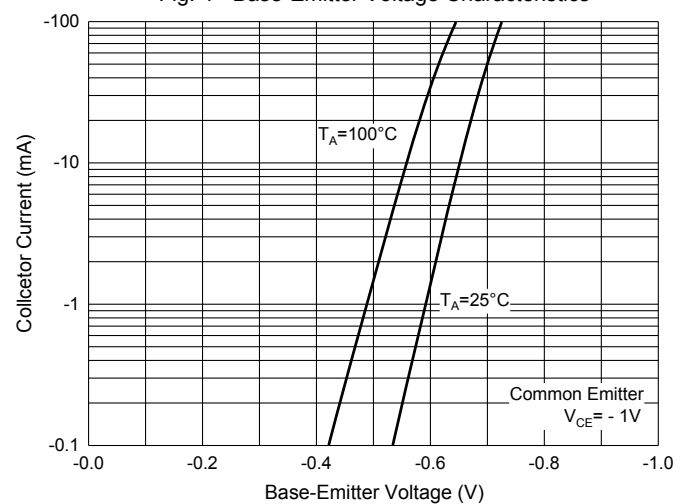
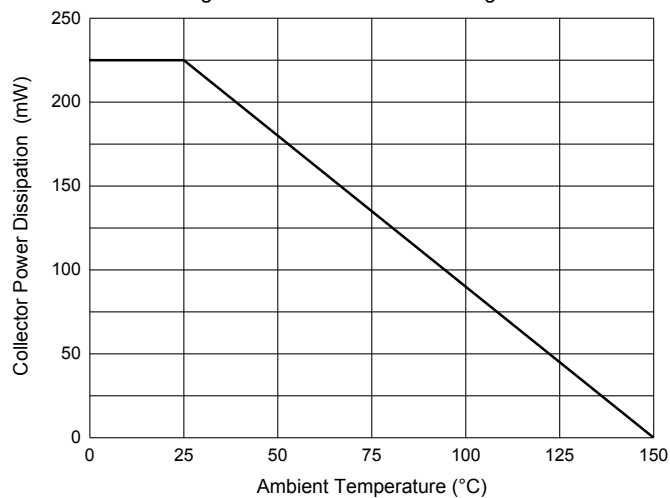


Fig. 5 - Collector Power Derating Curve



## Ordering Information

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

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