

# MMBTA56-TP Datasheet

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|                              |   |
|------------------------------|---|
| DiGi Electronics Part Number | MMBTA56-TP-DG   |
| Manufacturer                 | <a href="#">Micro Commercial Co</a>   |
| Manufacturer Product Number  | MMBTA56-TP  |
| Description                  | TRANS PNP 80V 0.5A SOT23  |
| Detailed Description         | Bipolar (BJT) Transistor PNP 80 V 500 mA 50MHz 22 5 mW Surface Mount SOT-23 |

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## Purchase and inquiry

Manufacturer Product Number:

MMBTA56-TP

Series:

-

Transistor Type:

PNP

Voltage - Collector Emitter Breakdown (Max):

80 V

Current - Collector Cutoff (Max):

100nA

Power - Max:

225 mW

Operating Temperature:

-55°C ~ 150°C (TJ)

Package / Case:

TO-236-3, SC-59, SOT-23-3

Base Product Number:

MMBTA56

Manufacturer:

Micro Commercial Co

Product Status:

Active

Current - Collector (Ic) (Max):

500 mA

Vce Saturation (Max) @ Ib, Ic:

250mV @ 10mA, 100mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

100 @ 100mA, 1V

Frequency - Transition:

50MHz

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-23

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0095

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

## 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   | -60    | V    |
|                              | MMBTA56   | -80    |      |
| Collector-Emitter Voltage    | MMBTA55   | -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:

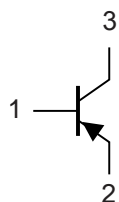
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Marking:

**MMBTA55: 2H**

**MMBTA56: 2GM**

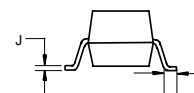
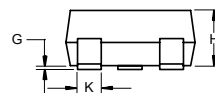
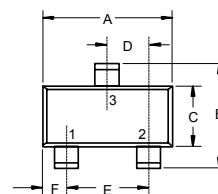
## Internal Structure



1.BASE  
2.EMITTER  
3.COLLECTOR

# PNP General Purpose Amplifier

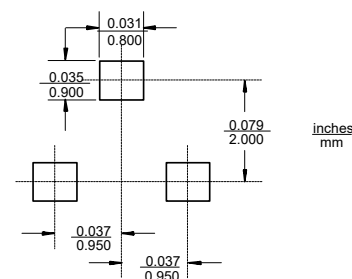
## SOT-23



## 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

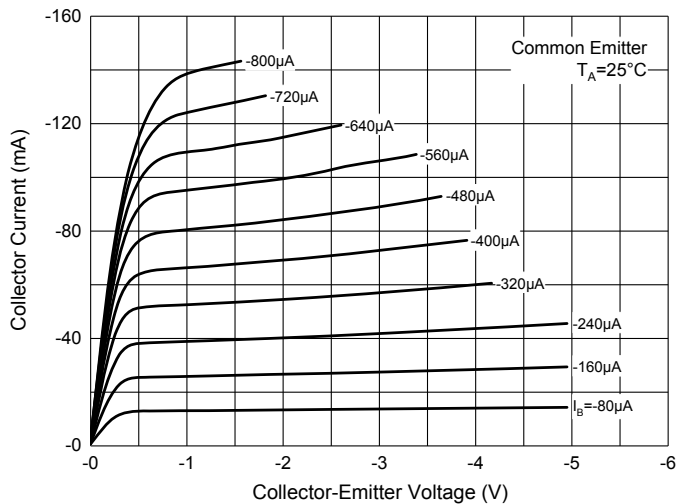


Fig. 2 - DC Current Gain Characteristics

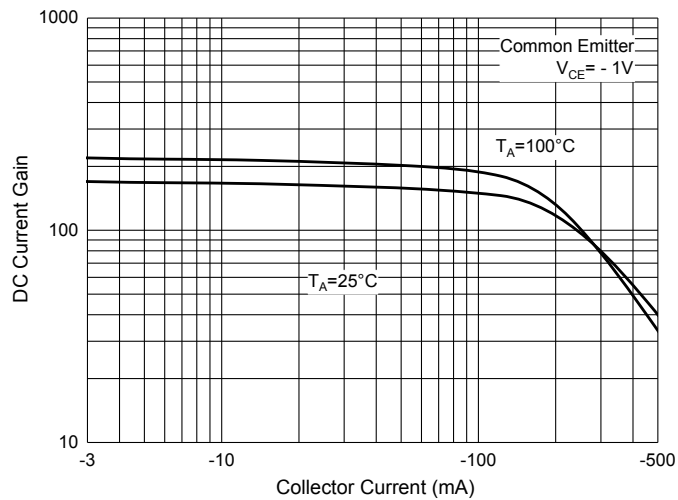


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

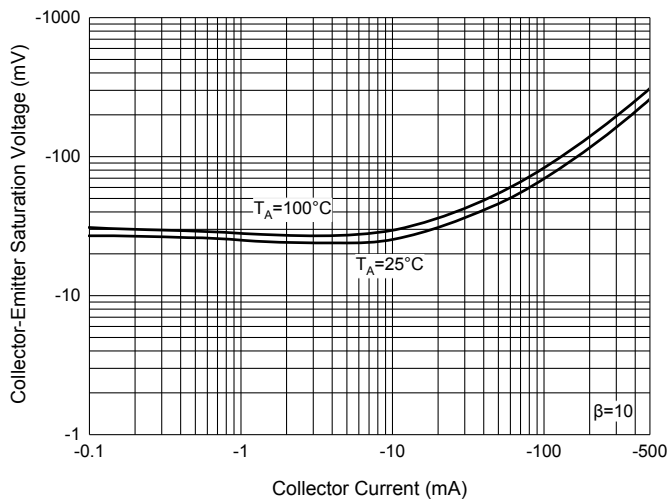


Fig. 4 - Base-Emitter Voltage Characteristics

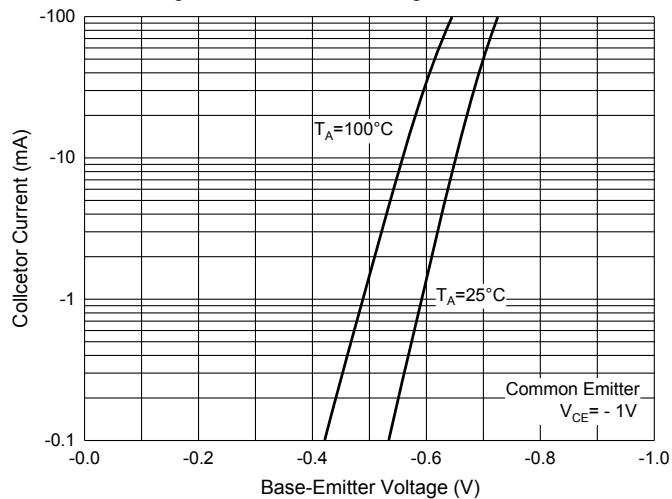
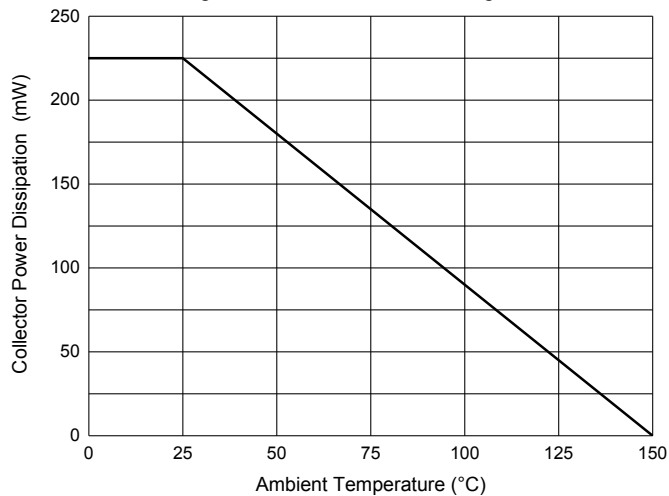


Fig. 5 - Collector Power Derating Curve



## Ordering Information

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

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