



Micro Commercial Components



Micro Commercial Components  
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# MMBTA55 THRU MMBTA56

## PNP General Purpose Amplifier

### Features

- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- This device is designed for general purpose amplifier applications at collector current to 300mA
- Markin : MMBTA55=2H/B55, MMBTA56=2GM/B56
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

### Maximum Ratings

| Symbol    | Rating                                          | Rating      | Unit |
|-----------|-------------------------------------------------|-------------|------|
| $V_{CEO}$ | Collector-Emitter Voltage<br>MMBTA55<br>MMBTA56 | 60<br>80    | V    |
| $V_{CBO}$ | Collector-Base Voltage<br>MMBTA55<br>MMBTA56    | 60<br>80    | V    |
| $V_{EBO}$ | Emitter-Base Voltage                            | 4.0         | V    |
| $I_C$     | Collector Current, Continuous                   | 500         | mA   |
| $T_J$     | Operating Junction Temperature                  | -55 to +150 | °C   |
| $T_{STG}$ | Storage Temperature                             | -55 to +150 | °C   |

### Thermal Characteristics

| Symbol   | Rating                                         | Max        | Unit        |
|----------|------------------------------------------------|------------|-------------|
| $P_D$    | Total Device Dissipation*<br>Derate above 25°C | 225<br>1.8 | mW<br>mW/°C |
| $R_{JA}$ | Thermal Resistance, Junction to Ambient        | 556        | °C/W        |

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

| Symbol | Parameter | Min | Max | Units |
|--------|-----------|-----|-----|-------|
|--------|-----------|-----|-----|-------|

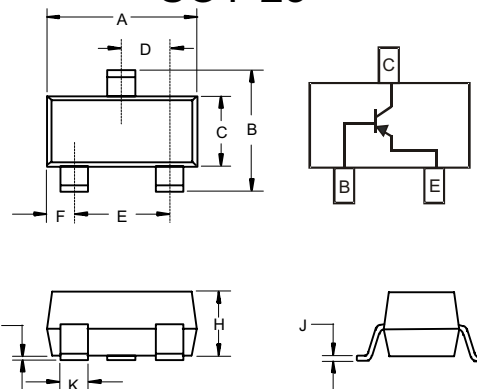
### OFF CHARACTERISTICS

|               |                                                                                                       |          |            |         |
|---------------|-------------------------------------------------------------------------------------------------------|----------|------------|---------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage <sup>(1)</sup><br>( $I_C=1.0mA$ , $I_B=0$ )<br>MMBTA55<br>MMBTA56 | 60<br>80 | ---        | Vdc     |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage<br>( $I_E=100mA$ , $I_C=0$ )                                           | 4.0      | ---        | Vdc     |
| $I_{CBO}$     | Collector Cutoff Current<br>( $V_{CB}=60Vdc$ , $I_E=0$ )<br>MMBTA55<br>MMBTA56                        | ---      | 0.1<br>0.1 | $\mu A$ |
| $I_{CES}$     | Emitter Cutoff Current<br>( $V_{CE}=60Vdc$ , $I_B=0$ )                                                | ---      | 0.1        | $\mu A$ |

### ON CHARACTERISTICS

|               |                                                                                                 |            |      |     |
|---------------|-------------------------------------------------------------------------------------------------|------------|------|-----|
| $h_{FE}$      | DC Current Gain<br>( $V_{CE}=1.0Vdc$ , $I_C=10mA$ )<br>( $V_{CE}=1.0Vdc$ , $I_C=100mA$ )        | 100<br>100 | ---  | --- |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage<br>( $I_C=100mA$ , $I_B=10mA$ )                            | ---        | 0.25 | Vdc |
| $V_{BE(on)}$  | Base-Emitter On Voltage<br>( $I_C=100mA$ , $V_{CE}=1.0Vdc$ )                                    | ---        | 1.2  | Vdc |
| $f_T$         | Current Gain—Bandwidth Product <sup>(2)</sup><br>( $I_C=100mA$ , $V_{CE}=1.0Vdc$ , $f=100MHz$ ) | 50         | ---  | MHz |

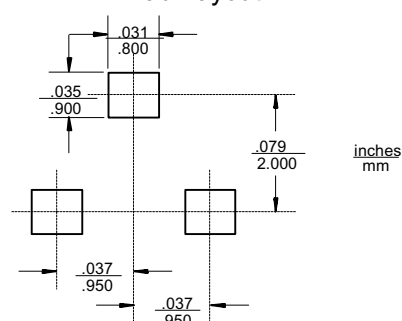
### SOT-23



#### DIMENSIONS

| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | .110   | .120  | 2.80 | 3.04 |      |
| B   | .083   | .104  | 2.10 | 2.64 |      |
| C   | .047   | .055  | 1.20 | 1.40 |      |
| D   | .035   | .041  | .89  | 1.03 |      |
| E   | .070   | .081  | 1.78 | 2.05 |      |
| F   | .018   | .024  | .45  | .60  |      |
| G   | .0005  | .0039 | .013 | .100 |      |
| H   | .035   | .044  | .89  | 1.12 |      |
| J   | .003   | .007  | .085 | .180 |      |
| K   | .015   | .020  | .37  | .51  |      |

### Suggested Solder Pad Layout



# MMBTA55 thru MMBTA56

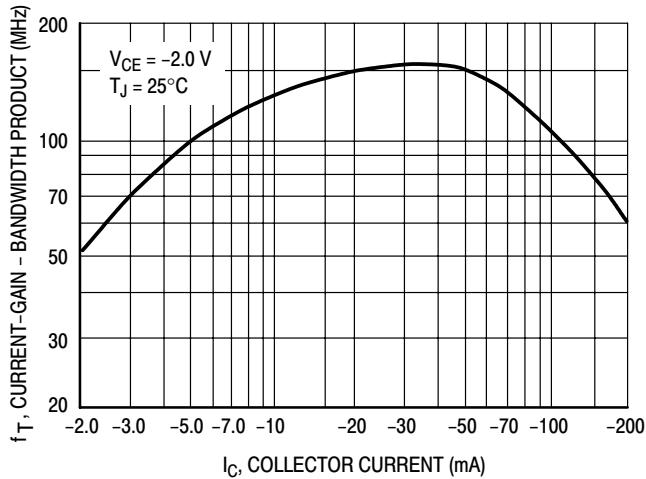


Figure 2. Current-Gain — Bandwidth Product

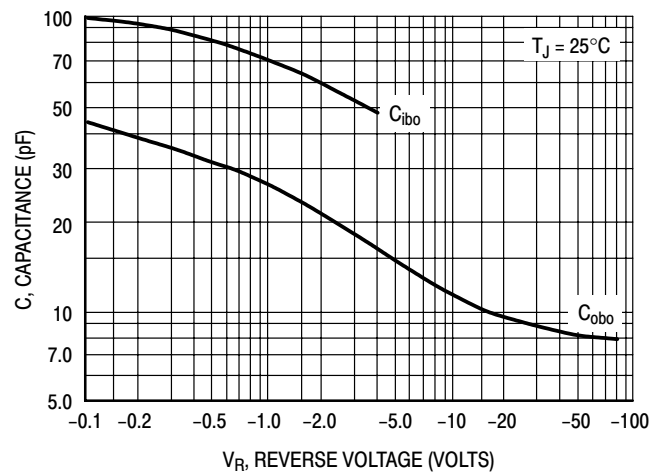


Figure 3. Capacitance

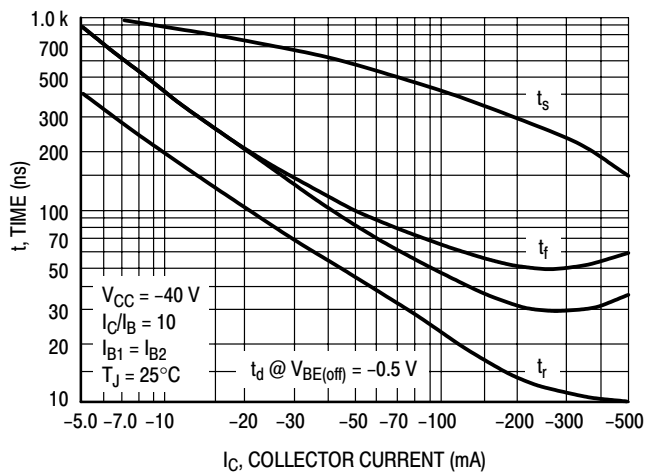


Figure 4. Switching Time

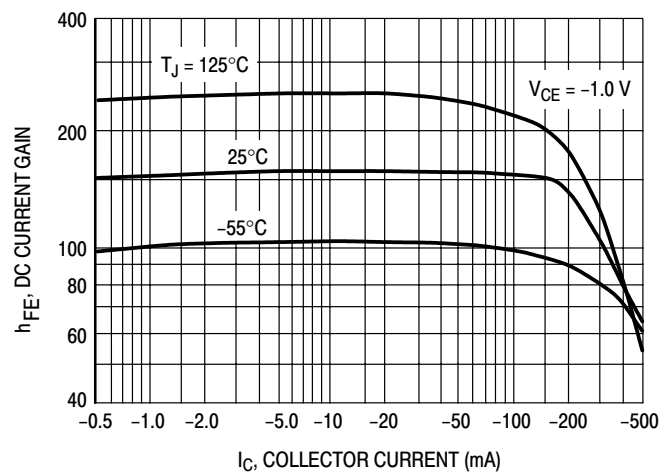


Figure 5. DC Current Gain

# MMBTA55 thru MMBTA56



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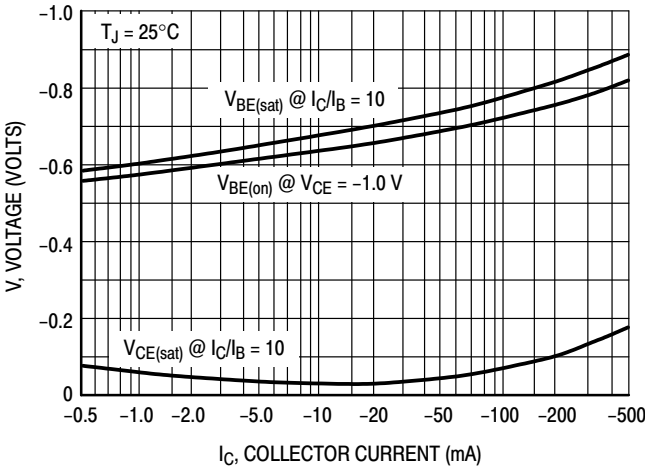


Figure 6. "ON" Voltages

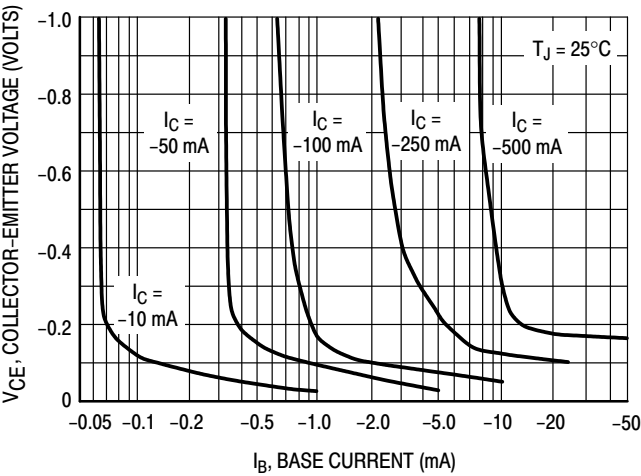


Figure 7. Collector Saturation Region

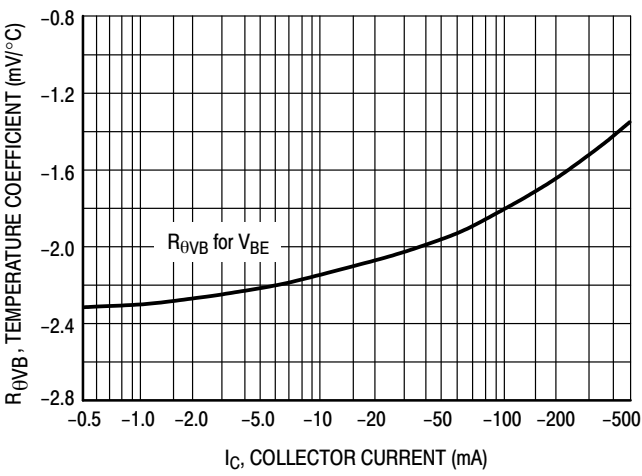


Figure 8. Base-Emitter Temperature Coefficient

## Ordering Information :

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

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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