



Micro Commercial Components



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MMBTA05 THRU MMBTA06

Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (MMBTA55/MMBTA56)
- Ideal for Medium Power Amplification and Switching.
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: MMBTA05:1H/K1H
MMBTA06:1GM/K1G

Maximum Ratings

| Symbol | Rating | Rating | Unit |
|-----------------|---|-------------|------|
| V_{CEO} | Collector-Emitter Voltage MMBTA05 MMBTA06 | 60 80 | V |
| V_{CBO} | Collector-Base Voltage MMBTA05 MMBTA06 | 60 80 | V |
| V_{EBO} | Emitter-Base Voltage | 4.0 | V |
| I_C | Collector Current-Continuous | 500 | mA |
| P_D | Power Dissipation* | 300 | mW |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357 | K/W |
| T_J | Operating Junction Temperature | -55 to +150 | °C |
| T_{STG} | Storage Temperature | -55 to +150 | °C |

Electrical Characteristics @ 25°C Unless Otherwise Specified

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

OFF CHARACTERISTICS

| | | | | |
|---------------|--|----------|-----|---------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage ($I_C=1.0mA$, $I_B=0$) MMBTA05 MMBTA06 | 60 80 | --- | Vdc |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage ($I_E=100\mu A$, $I_C=0$) | 4.0 | --- | Vdc |
| I_{CBO} | Collector Cutoff Current ($V_{CB}=60Vdc$, $I_E=0$) MMBTA05 ($V_{CB}=80Vdc$, $I_E=0$) MMBTA06 | --- | 0.1 | μA |
| I_{CES} | Emitter Cutoff Current ($V_{CE}=60Vdc$, $I_B=0$) MMBTA05 ($V_{CE}=80Vdc$, $I_B=0$) MMBTA06 | --- | 0.1 | μA |

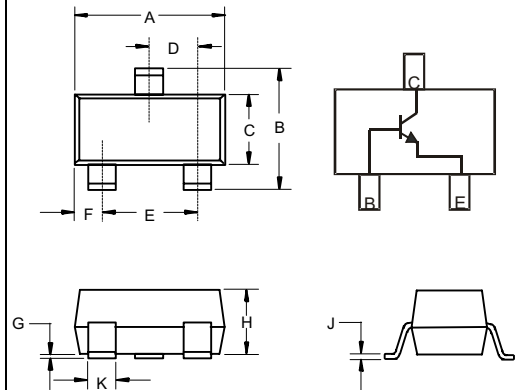
ON CHARACTERISTICS

| | | | | |
|---------------|--|------------|------|-----|
| h_{FE} | DC Current Gain ($V_{CE}=1.0Vdc$, $I_C=10mA$) ($V_{CE}=1.0Vdc$, $I_C=100mA$) | 100 100 | --- | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage ($I_C=100mA$, $I_B=10mA$) | --- | 0.25 | Vdc |
| $V_{BE(on)}$ | Base-Emitter On Voltage ($I_C=100mA$, $I_B=10mA$) | --- | 1.2 | Vdc |
| f_T | Current-Gain—Bandwidth Product ($I_C=10mA$, $V_{CE}=2.0Vdc$, $f=100MHz$) | 100 | --- | MHz |

* Valid provided that terminals are kept at ambient temperature..

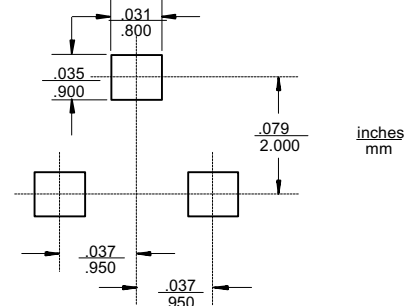
NPN Small Signal General Purpose Amplifier Transistors

SOT-23



| 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 | |

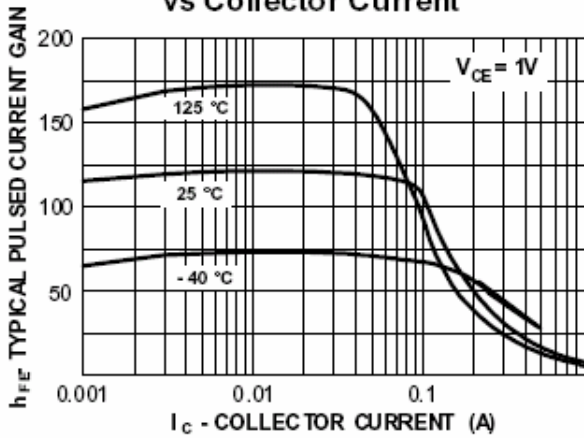
Suggested Solder Pad Layout



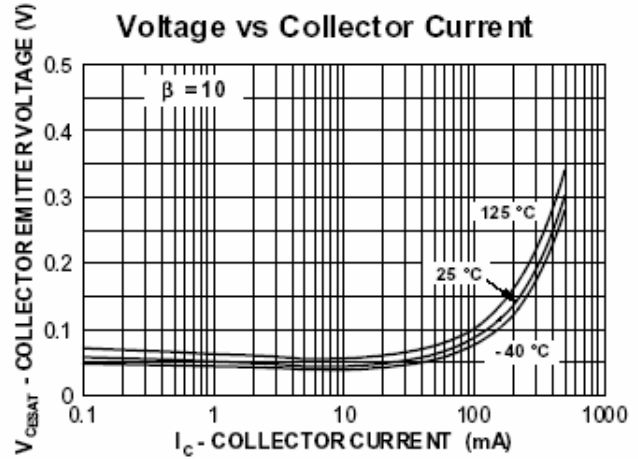
MMBTA05

Typical Characteristics

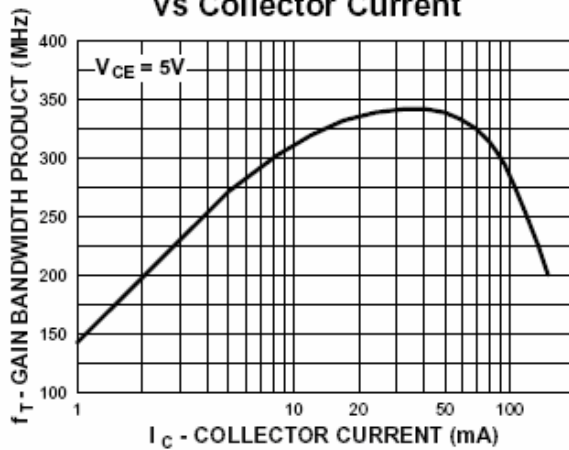
Typical Pulsed Current Gain vs Collector Current



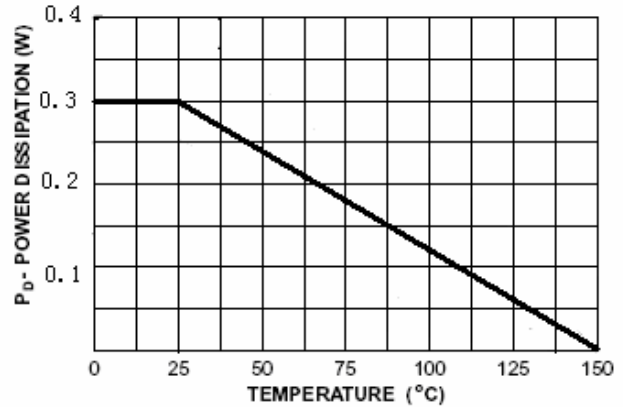
Collector-Emitter Saturation Voltage vs Collector Current



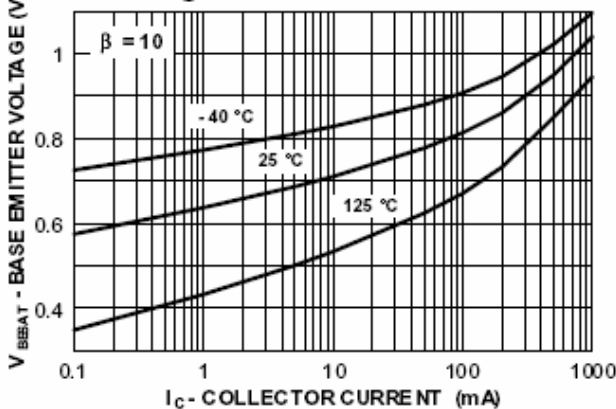
Gain Bandwidth Product vs Collector Current



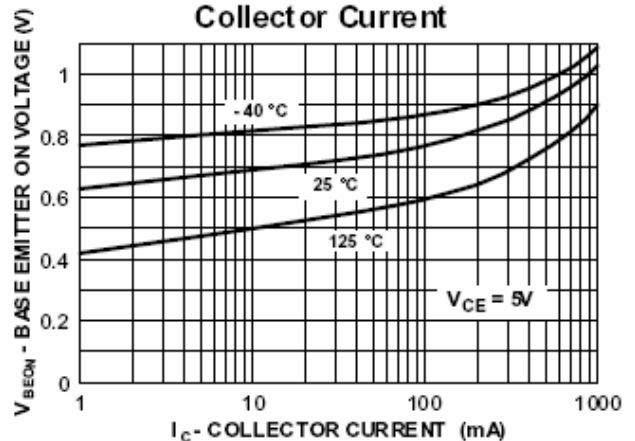
Power Dissipation vs Ambient Temperature



Base-Emitter Saturation Voltage vs Collector Current



Base Emitter ON Voltage vs Collector Current



MMBTA06

Typical characteristics

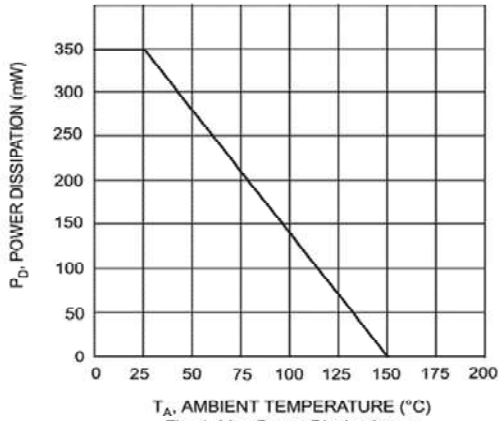


Fig. 1, Max Power Dissipation vs Ambient Temperature

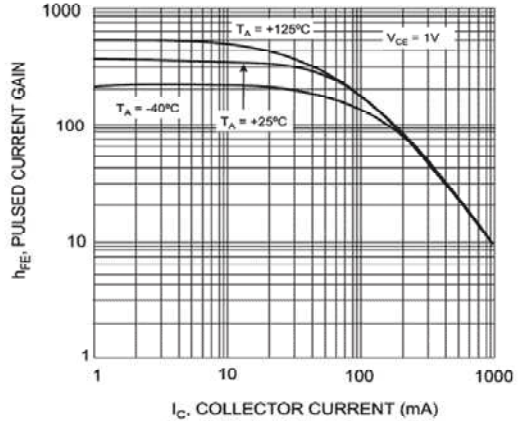


Fig. 2, Typical Pulsed Current Gain vs. Collector Current

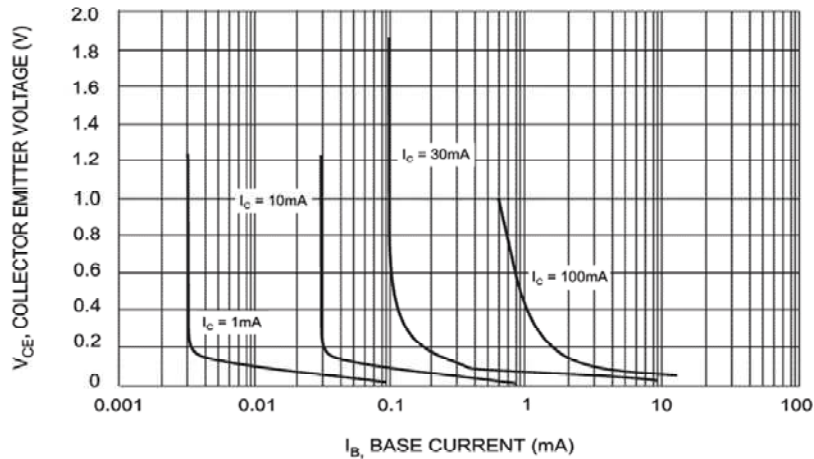


Fig. 3 Typical Collector Saturation Region

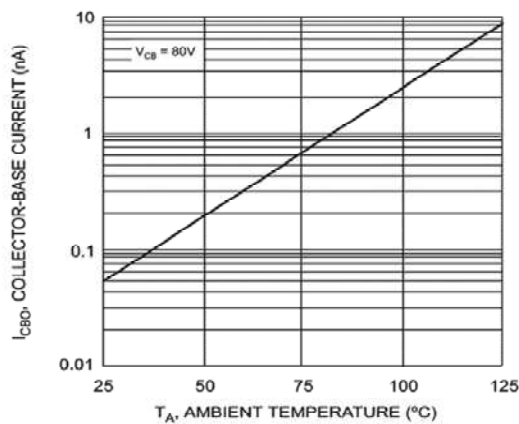


Fig. 4 Typical Collector-Cutoff Current vs. Ambient Temperature



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Ordering Information :

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

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