

Features

- Halogen Free. "Green" Device (Note 1)
- AEC-Q101 Qualified
- 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

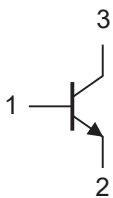
| Parameter | Symbol | Rating | Unit |
|---------------------------|-----------|--------|------|
| Collector-Base Voltage | V_{CBO} | 80 | V |
| Collector-Emitter Voltage | V_{CEO} | 80 | V |
| Emitter-Base Voltage | V_{EBO} | 4 | V |
| Collector Current | I_C | 500 | mA |
| Power Dissipation | P_D | 300 | mW |

Thermal characteristics

| Parameter | Symbol | Rating | Unit |
|---|---------------|----------|------|
| Operating Junction Temperature Range | T_{OPR} | -55~+150 | °C |
| Storage Temperature Range | T_{STR} | -55~+150 | °C |
| Thermal Resistance from Junction to Ambient | $R_{th(j-a)}$ | 417 | °C/W |

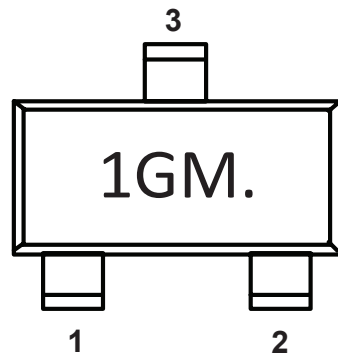
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure



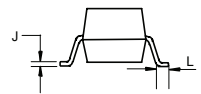
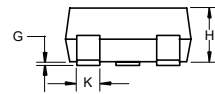
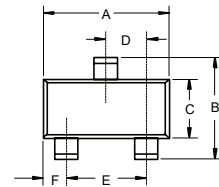
- 1.BASE
- 2.EMITTER
- 3.COLLECTOR

Device Marking



NPN General Purpose Amplifier Transistors

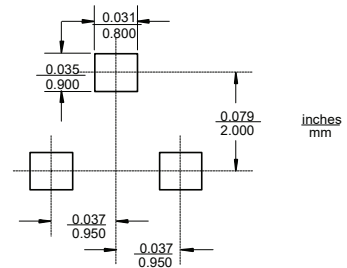
SOT-23



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 | |

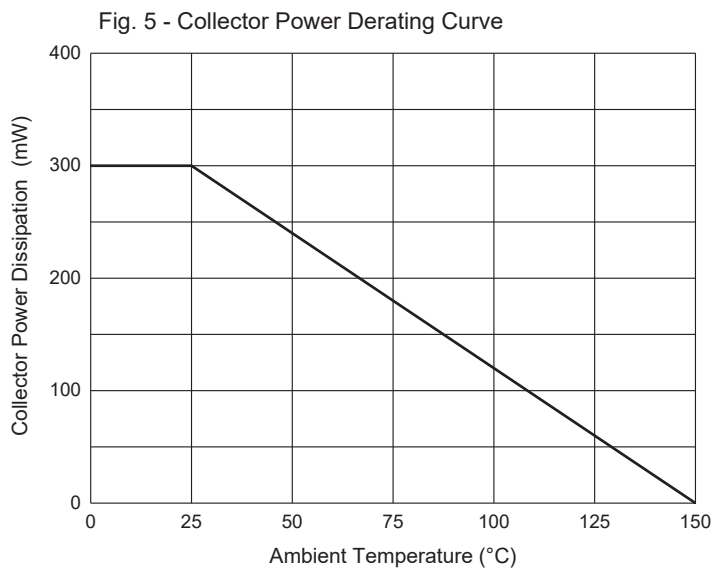
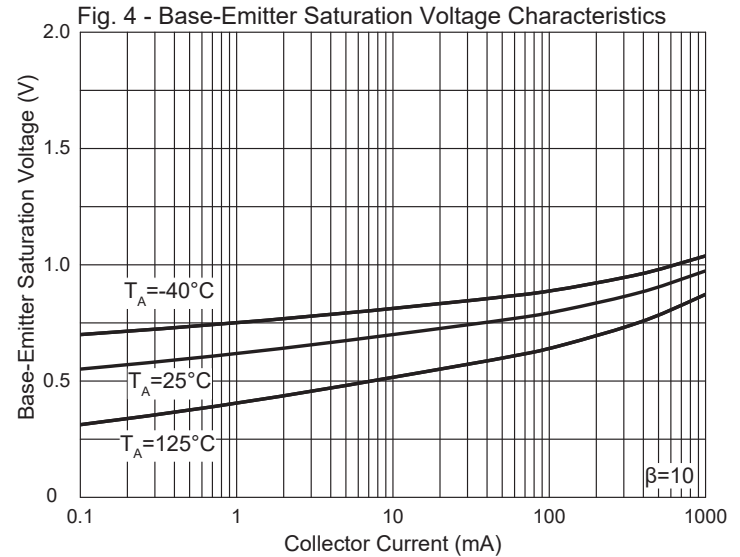
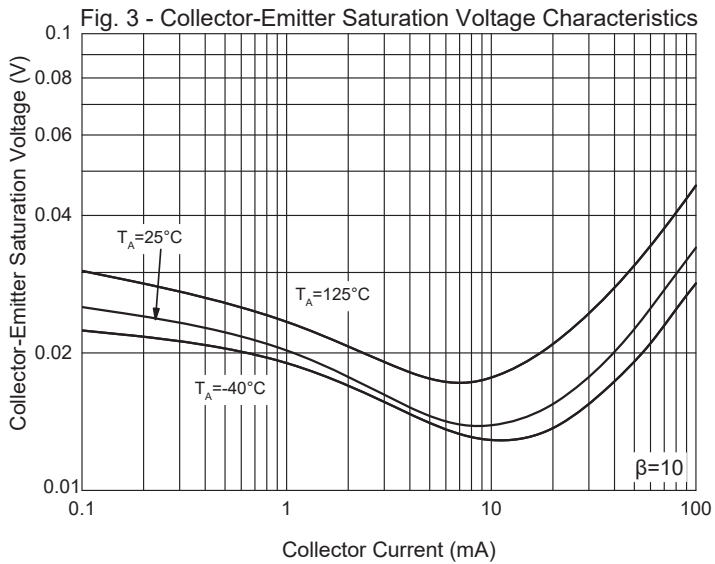
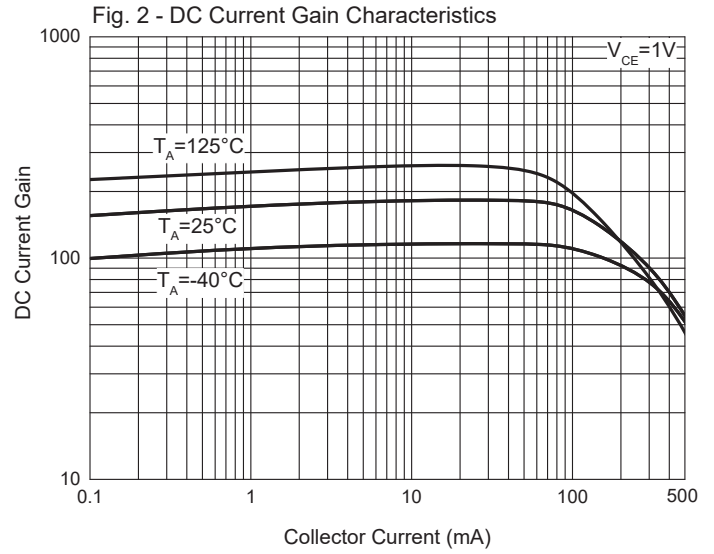
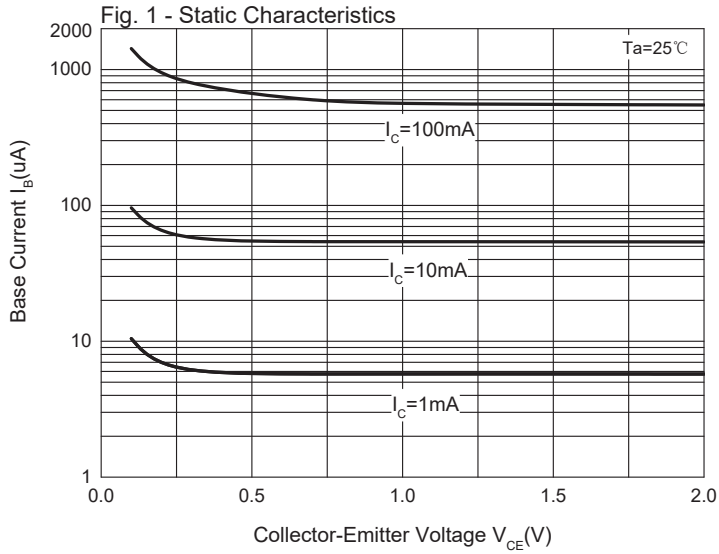
Suggested Solder Pad Layout



Electrical Characteristics @ $T_A=25^\circ\text{C}$ Unless Otherwise Specified

| Parameter | Symbol | Min | Typ | Max | Units | Conditions |
|--------------------------------------|---------------|-----|-----|------|---------------|--|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 80 | | | V | $I_C=100\mu\text{A}$, $I_E=0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 80 | | | V | $I_C=1\text{mA}$, $I_B=0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 4 | | | V | $I_E=100\mu\text{A}$, $I_C=0$ |
| Collector-Base Cutoff Current | I_{CBO} | | | 0.1 | μA | $V_{CB}=80\text{V}$, $I_E=0$ |
| Collector-Emitter Cutoff Current | I_{CEO} | | | 0.1 | μA | $V_{CE}=60\text{V}$, $I_B=0$ |
| Emitter-Base Cutoff Current | I_{EBO} | | | 0.1 | μA | $V_{EB}=3\text{V}$, $I_C=0$ |
| DC Current Gain | $h_{FE(1)}$ | 100 | | 400 | | $V_{CE}=1\text{V}$, $I_C=10\text{mA}$ |
| | $h_{FE(2)}$ | 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 Saturation Voltage | $V_{BE(sat)}$ | | | 1.2 | V | $I_C=100\text{mA}$, $I_B=10\text{mA}$ |
| Transition Frequency | f_T | 100 | | | MHz | $V_{CE}=2\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$ |

Curve Characteristics



Ordering Information

| Device | Packing |
|---------------|-----------------------|
| MMBTA06HE3-TP | Tape&Reel: 3Kpcs/Reel |

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