

PNP Darlington Amplifier Transistor

MMBTA63/MMBTA64

FEATURES

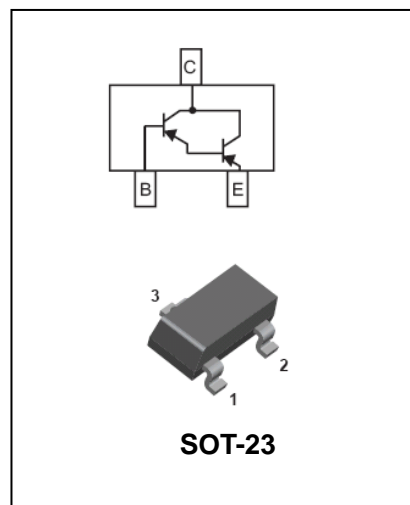
- Epitaxial planar die construction.
- Complementary NPN type available (MMBTA13/MMBTA14).
- High current gain.



Lead-free

APPLICATIONS

- Ideal for medium power amplification and switching.



ORDERING INFORMATION

| Type No. | Marking | Package Code |
|----------|---------|--------------|
| MMBTA63 | 2U | SOT-23 |
| MMBTA64 | 2V | SOT-23 |

MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Value | UNIT |
|-----------------------------------|---|-------------|------|
| V _{CBO} | collector-base voltage | MMBTA63 | -30 |
| | | MMBTA64 | -30 |
| V _{CEO} | collector-emitter voltage | MMBTA63 | -30 |
| | | MMBTA64 | -30 |
| V _{EBO} | emitter-base voltage | -10 | V |
| I _C | collector current (DC) | -0.5 | A |
| P _C | Collector dissipation | 0.3 | W |
| R _{θJA} | Thermal Resistance, Junction to Ambient | 417 | °C/W |
| T _J , T _{stg} | junction and storage temperature | -55 to +150 | °C |



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ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Test conditions | MIN. | MAX. | UNIT |
|---------------|---|--|---------------------------------|------|---------|
| $V_{(BR)CBO}$ | Collector-base breakdown voltage MMBTA63 MMBTA64 | $I_C = -100\mu A, I_E = 0$ | -30 -30 | - | V |
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage MMBTA63 MMBTA64 | $I_C = -0.1mA, I_B = 0$ | -30 -30 | - | V |
| $V_{(BR)EBO}$ | Emitter-base breakdown voltage | $I_E = -100\mu A, I_C = 0$ | -10 | - | V |
| I_{CBO} | collector cut-off current | $I_E = 0; V_{CB} = -30V$ | - | -0.1 | μA |
| I_{CEO} | collector cut-off current | $I_E = 0; V_{CE} = -10V$ | - | -0.1 | μA |
| I_{EBO} | Emitter cut-off current | $I_C = 0; V_{EB} = -10V$ | - | -0.1 | μA |
| h_{FE} | DC current gain MMBTA63 MMBTA64 MMBTA63 MMBTA64 | $V_{CE} = -5V; I_C = -10mA$ $V_{CE} = -5V; I_C = -10mA$ $V_{CE} = -5V; I_C = -100mA$ $V_{CE} = -5V; I_C = -100mA$ | 5000 10000 10000 20000 | - | |
| $V_{CE(sat)}$ | collector-emitter saturation voltage | $I_C = -100mA; I_B = -0.1mA$ | - | -1.5 | V |
| $V_{BE(on)}$ | base-emitter on voltage | $I_C = -100mA; V_{CE} = -5.0V$ | - | -2.0 | V |
| f_T | transition frequency | $I_C = -10mA; V_{CE} = -5.0V;$ $f = 100MHz$ | 125 | - | MHz |

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

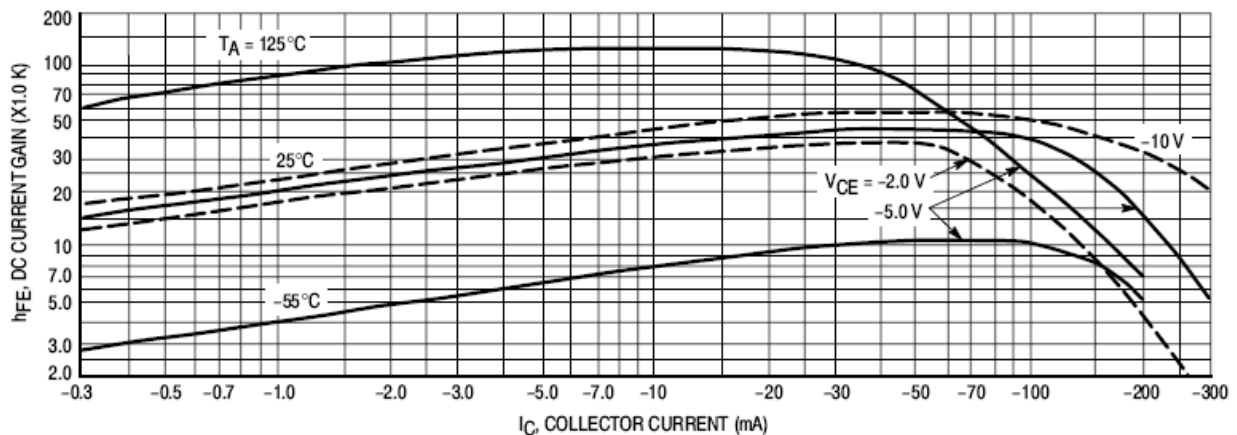


Figure 1. DC Current Gain

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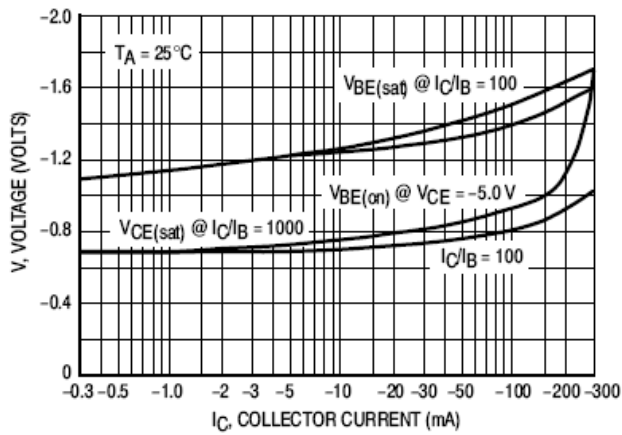


Figure 3. "On" Voltage

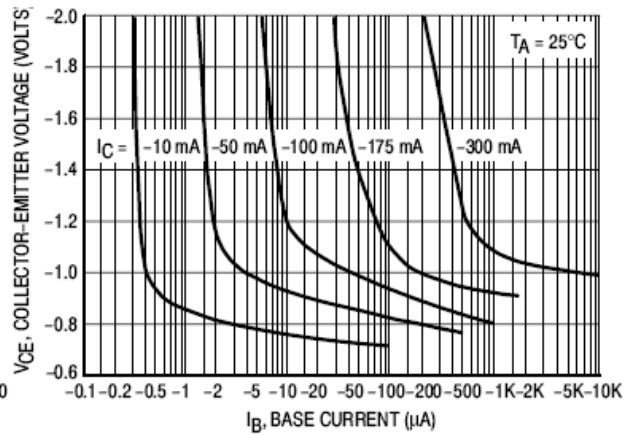
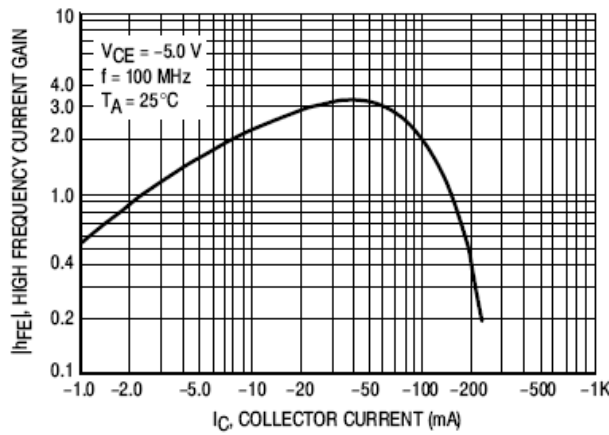


Figure 2. Collector Saturation Region



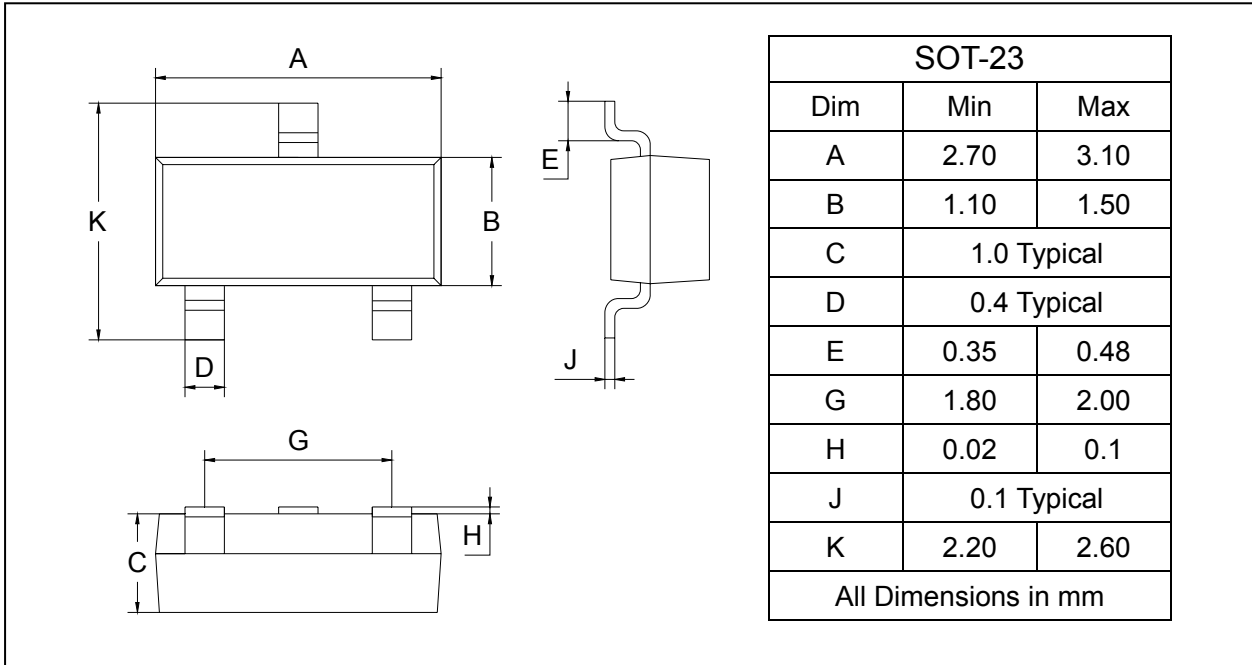
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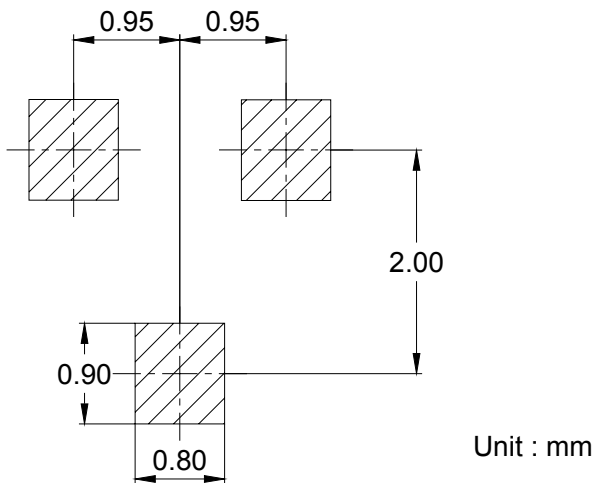
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

| Device | Package | Shipping |
|-----------------|---------|----------------|
| MMBTA63/MMBTA64 | SOT-23 | 3000/Tape&Reel |