

SOT-23 Formed SMD Package

CMBT4126

GENERAL PURPOSE TRANSISTOR

P-N-P transistor

Marking

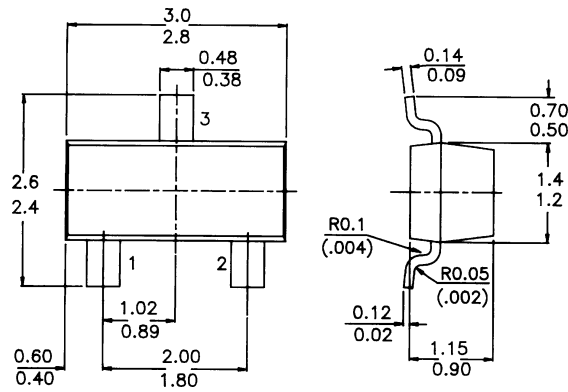
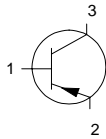
CMBT4126 = 5E

PACKAGE OUTLINE DETAILS

ALL DIMENSIONS IN mm

Pin configuration

- 1 = BASE
- 2 = EMITTER
- 3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

| | | | |
|---|------------|------|--------|
| Collector-base voltage (open emitter) | $-V_{CB0}$ | max. | 25 V |
| Collector-emitter voltage (open base) | $-V_{CEO}$ | max. | 25 V |
| Emitter-base voltage (open collector) | $-V_{EBO}$ | max. | 4 V |
| Collector current (d.c.) | $-I_C$ | max. | 200 mA |
| Total power dissipation at $T_{amb} = 25^\circ C$ | P_{tot} | max | 350 mW |
| D.C. current gain | h_{FE} | min. | 120 |
| $-I_C = 2 \text{ mA}; -V_{CE} = 1 \text{ V}$ | | max. | 360 |

RATINGS (at $T_A = 25^\circ C$ unless otherwise specified)

Limiting values

| | | | |
|---------------------------------------|------------|------|--------|
| Collector-base voltage (open emitter) | $-V_{CB0}$ | max. | 25 V |
| Collector-emitter voltage (open base) | $-V_{CEO}$ | max. | 25 V |
| Emitter-base voltage (open collector) | $-V_{EBO}$ | max. | 4 V |
| Collector current (d.c.) | $-I_C$ | max. | 200 mA |

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| | | | |
|--|-----------|-------------|----------------|
| Total power dissipation at $T_{amb} = 25^{\circ}C$ | P_{tot} | <i>max</i> | 350 mW |
| Storage temperature | T_{stg} | | -55 to +150 °C |
| Junction temperature | T_j | <i>max.</i> | 150 °C |

THERMAL CHARACTERISTICS

$$T_j = P (R_{th\ j-t} + R_{th\ s-a}) + T_{amb}$$

Thermal resistance

| | | |
|--------------------------|---------------|-----------|
| from junction to ambient | $R_{th\ j-a}$ | 556 °C/mW |
|--------------------------|---------------|-----------|

CHARACTERISTICS (at $T_A = 25^{\circ}C$ unless otherwise specified)

Collector-emitter breakdown voltage

| | | | |
|---------------------------|----------------|-------------|------|
| - $I_C = 1$ mA; $I_B = 0$ | $-V_{(BR)CEO}$ | <i>min.</i> | 25 V |
|---------------------------|----------------|-------------|------|

Collector-base breakdown voltage

| | | | |
|---------------------------------|----------------|-------------|------|
| - $I_C = 10$ μ A; $I_E = 0$ | $-V_{(BR)CBO}$ | <i>min.</i> | 25 V |
|---------------------------------|----------------|-------------|------|

Emitter-base breakdown voltage

| | | | |
|---------------------------------|----------------|-------------|-----|
| - $I_E = 10$ μ A; $I_C = 0$ | $-V_{(BR)EBO}$ | <i>min.</i> | 4 V |
|---------------------------------|----------------|-------------|-----|

Collector cut-off current

| | | | |
|--------------------------------|------------|-------------|-------|
| - $V_{CB} = 20$ V; $I_E = 0$ V | $-I_{CBO}$ | <i>max.</i> | 50 nA |
|--------------------------------|------------|-------------|-------|

Emitter cut-off current

| | | | |
|-----------------------------|-----------|-------------|-------|
| - $V_{BE} = 3$ V; $I_C = 0$ | I_{EBO} | <i>max.</i> | 50 nA |
|-----------------------------|-----------|-------------|-------|

Output capacitance at $f = 1$ MHz

| | | | |
|--------------------------------|-------|-------------|--------|
| - $I_E = 0$; - $V_{CB} = 5$ V | C_c | <i>max.</i> | 4.5 pF |
|--------------------------------|-------|-------------|--------|

Input capacitance at $f = 1$ MHz

| | | | |
|----------------------------------|-------|-------------|-------|
| - $I_C = 0$; - $V_{BE} = 0.5$ V | C_e | <i>max.</i> | 10 pF |
|----------------------------------|-------|-------------|-------|

Saturation voltages

| | | | |
|---------------------------------|--------------|-------------|-------|
| - $I_C = 50$ mA; - $I_B = 5$ mA | $-V_{CEsat}$ | <i>max.</i> | 0.4 V |
|---------------------------------|--------------|-------------|-------|

| | | | |
|--|--------------|-------------|--------|
| | $-V_{BEsat}$ | <i>max.</i> | 0.95 V |
|--|--------------|-------------|--------|

D.C. current gain

| | | | |
|----------------------------------|----------|-------------|-----|
| - $I_C = 2$ mA; - $V_{CE} = 1$ V | h_{FE} | <i>min.</i> | 120 |
|----------------------------------|----------|-------------|-----|

| | | | |
|--|--|-------------|-----|
| | | <i>max.</i> | 360 |
|--|--|-------------|-----|

| | | | |
|-----------------------------------|----------|-------------|----|
| - $I_C = 50$ mA; - $V_{CE} = 1$ V | h_{FE} | <i>min.</i> | 60 |
|-----------------------------------|----------|-------------|----|

Noise figure at $R_S = 1$ k Ω

| | | | |
|---|------|-------------|------|
| - $I_C = 100$ μ A; - $V_{CE} = 5$ V | NF | <i>max.</i> | 4 dB |
|---|------|-------------|------|

| | | | |
|---------------------------|--|--|--|
| - $f = 10$ Hz to 15.7 kHz | | | |
|---------------------------|--|--|--|

Small signal current gain

| | | | |
|---|----------|-------------|-----|
| - $V_{CE} = 1$ V; - $I_C = 2$ mA; $f = 1$ KHz | h_{fe} | <i>min.</i> | 120 |
|---|----------|-------------|-----|

| | | | |
|--|--|-------------|-----|
| | | <i>max.</i> | 480 |
|--|--|-------------|-----|

Transition frequency

| | | | |
|---|-------|-------------|---------|
| - $V_{CE} = 20$ V; - $I_C = 10$ mA; $f = 100$ MHz | f_T | <i>min.</i> | 250 MHz |
|---|-------|-------------|---------|

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