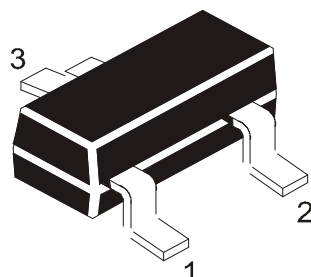


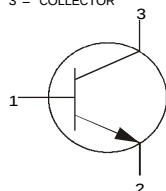
## NPN SILICON PLANAR EPITAXIAL TRANSISTOR

**CMBT8050**



### PIN CONFIGURATION (NPN)

1 = BASE  
2 = EMITTER  
3 = COLLECTOR



**SOT-23**

**Formed SMD Package**

## ABSOLUTE MAXIMUM RATINGS

| DESCRIPTION                                      | SYMBOL         | VALUE        | UNITS            |
|--------------------------------------------------|----------------|--------------|------------------|
| Collector Base Voltage                           | $V_{CBO}$      | 30           | V                |
| Collector Emitter Voltage                        | $V_{CEO}$      | 25           | V                |
| Emitter Base Voltage                             | $V_{EBO}$      | 6            | V                |
| Collector Current Continuous                     | $I_C$          | 800          | mA               |
| Collector Dissipation @ $T_a=25^\circ\text{C}$   | $P_C$          | 250          | mW               |
| Operating And Storage Junction Temperature Range | $T_j, T_{stg}$ | - 55 to +125 | $^\circ\text{C}$ |

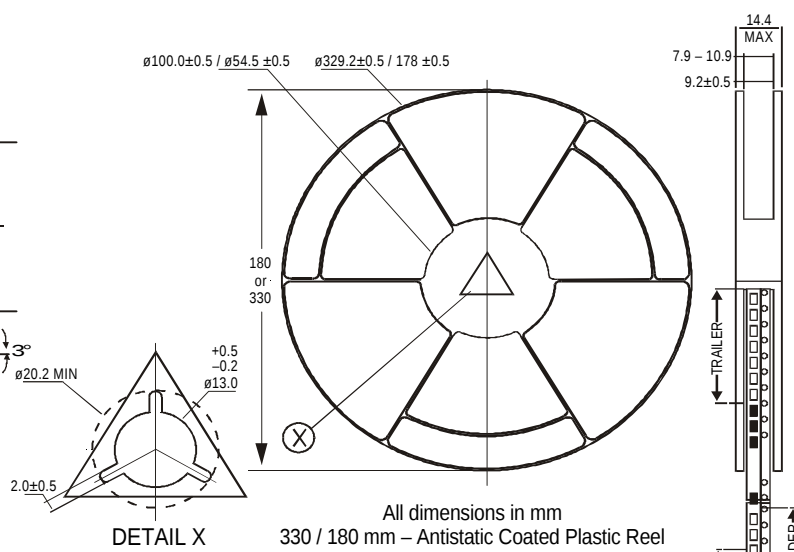
## ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ unless specified otherwise)

| DESCRIPTION                          | SYMBOL        | TEST CONDITION                                                                | MIN       | TYP | MAX | UNITS |
|--------------------------------------|---------------|-------------------------------------------------------------------------------|-----------|-----|-----|-------|
| Collector Base Voltage               | $V_{CBO}$     | $I_C=100\mu\text{A}, I_E=0$                                                   | 30        |     |     | V     |
| Collector Emitter Voltage            | $V_{CEO}$     | $I_C=10\text{mA}, I_B=0$                                                      | 25        |     |     | V     |
| Emitter Base Voltage                 | $V_{EBO}$     | $I_E=10\mu\text{A}, I_C=0$                                                    | 6         |     |     | V     |
| Collector Cut Off Current            | $I_{CBO}$     | $V_{CB}=15\text{V}, I_E=0$                                                    |           |     | 50  | nA    |
| Emitter Cut Off Current              | $I_{EBO}$     | $V_{EB}=4\text{V}, I_C=0$                                                     |           |     | 500 | nA    |
| DC Current Gain                      | $h_{FE}$      | * $I_C=50\text{mA}, V_{CE}=1\text{V}$<br>$I_C=350\text{mA}, V_{CE}=1\text{V}$ | 100<br>60 |     | 400 |       |
| Collector Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$                                           |           |     | 0.5 | V     |
| Base Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$                                           |           |     | 1.2 | V     |
| Transition Frequency                 | $f_T$         | $I_C=100\text{mA}, V_{CE}=10\text{V}, f=100\text{MHz}$                        | 150       |     |     | MHz   |
| Output Capacitance                   | $C_{ob}$      | $V_{CB}=10\text{V}, f=1\text{MHz}$                                            |           |     | 20  | pF    |

| CLASSIFICATIONS | CMBT8050  | C         | D         | E         |
|-----------------|-----------|-----------|-----------|-----------|
| * $h_{FE}$      | 100 - 400 | 100 - 200 | 150 - 300 | 280 - 400 |
| MARKING         | 05        | 05C       | 05D       | 05E       |

## SOT-23 Package Reel Information

### Reel Specifications for W Packing (13") and 7"



1. The bandolier of 330 mm reel contains at least 10,000 devices.
2. The bandolier of 180 mm reel contains at least 3,000 devices.
3. No more than 0.5% missing devices / reel. 50 empty compartments for 330 mm reel. 15 empty compartments for 180 mm reel.
4. Three consecutive empty places might be found provided this gap is followed by 6 consecutive devices.
5. The carrier tape (leader) starts with at least 75 empty positions (equivalent to 330 mm). In order to fix the carrier tape a self adhesive tape of 20 to 50 mm is applied. At the end of the bandolier at least 40 empty positions (equivalent to 160 mm) are there.

## Packing Detail

| PACKAGE    | STANDARD PACK |                 | INNER CARTON BOX |      | OUTER CARTON BOX  |       |        |
|------------|---------------|-----------------|------------------|------|-------------------|-------|--------|
|            | Details       | Net Weight /Qty | Size             | Qty  | Size              | Qty   | Gr Wt  |
| SOT-23 T&R | 3K/reel       | 136 gm/3K pcs   | 3" x 7.5" x 7.5" | 12 K | 17" x 15" x 13.5" | 192 K | 12 kgs |
|            |               |                 | 9" x 9" x 9"     | 51 K | 19" x 19" x 19"   | 408 K | 28 kgs |
|            | 10K/reel      | 415 gm/10K pcs  | 13" x 13" x 0.5" | 10 K | 17" x 15" x 13.5" | 300 K | 16 kgs |

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