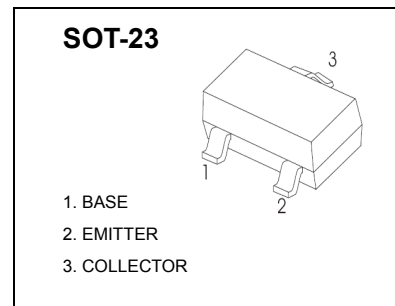


**SOT-23 Plastic-Encapsulate Transistors**

**FEATURE**

- Ideally suited for automatic insertion
- Epitaxial planar die construction
- Complementary NPN type available( TKBC817)



**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

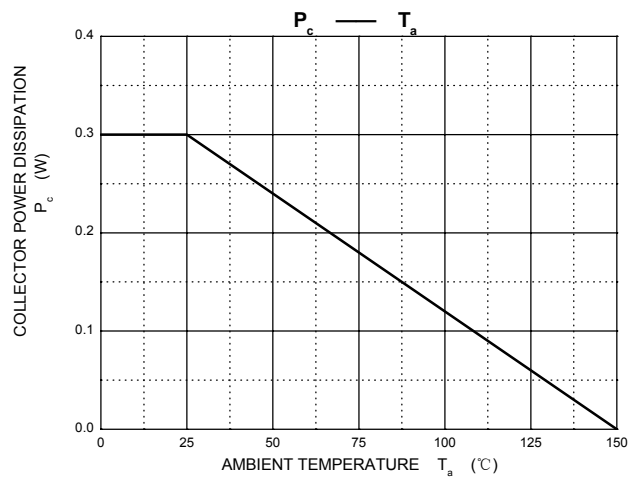
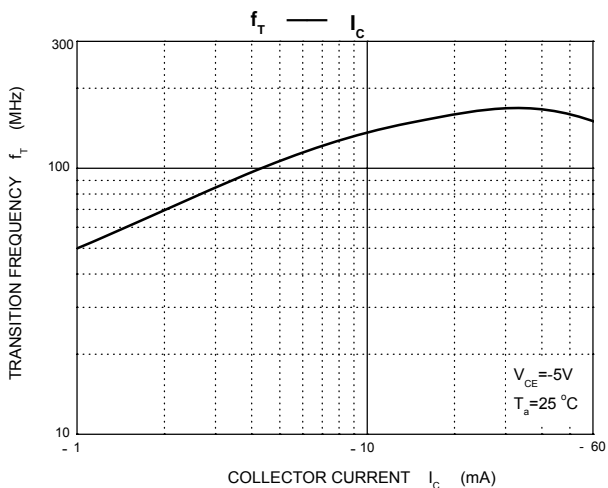
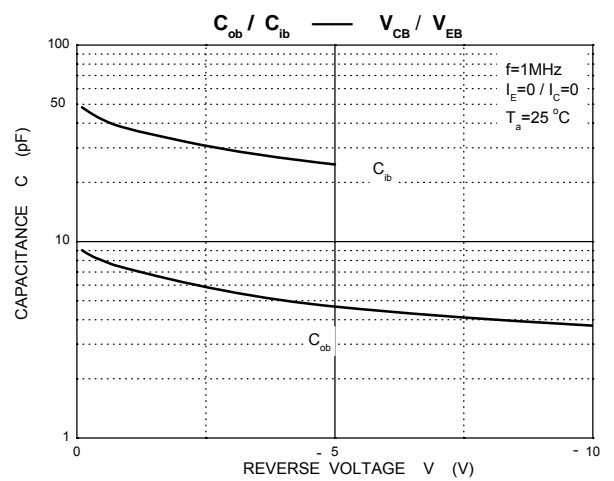
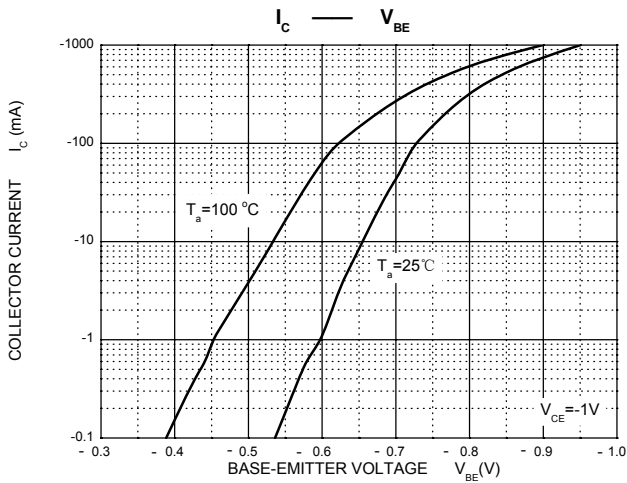
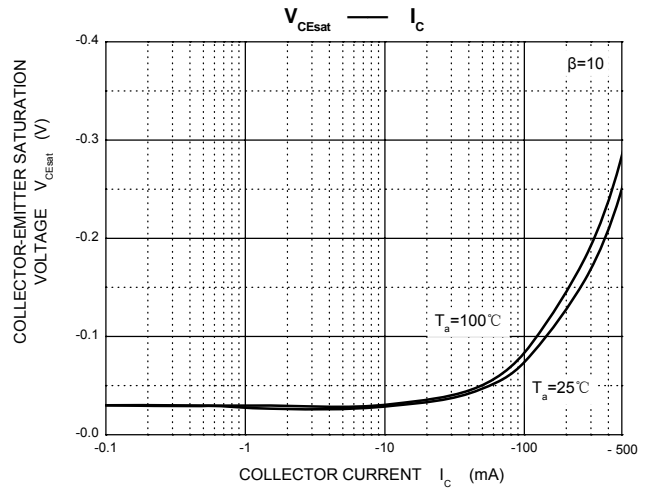
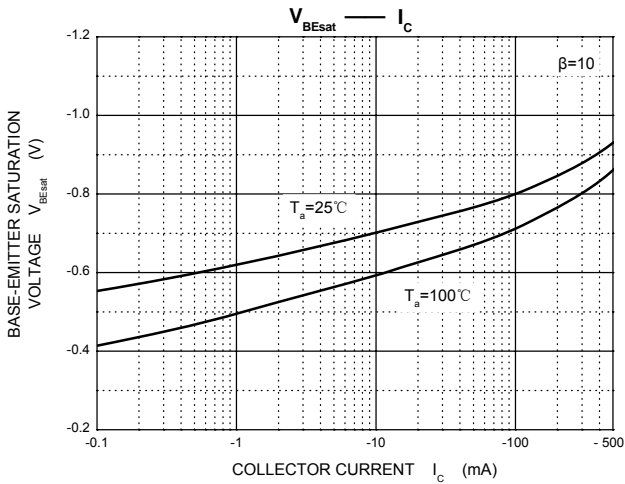
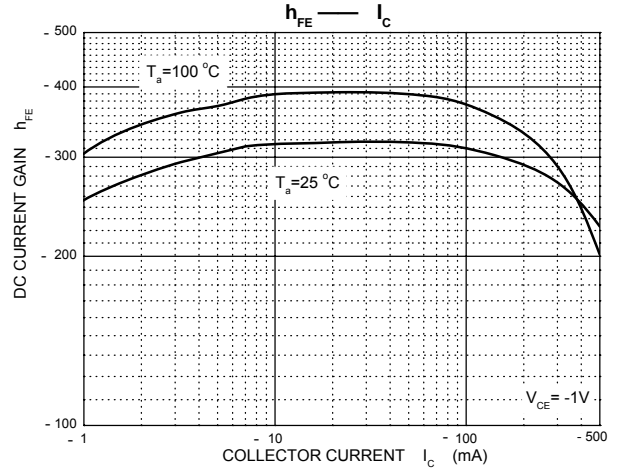
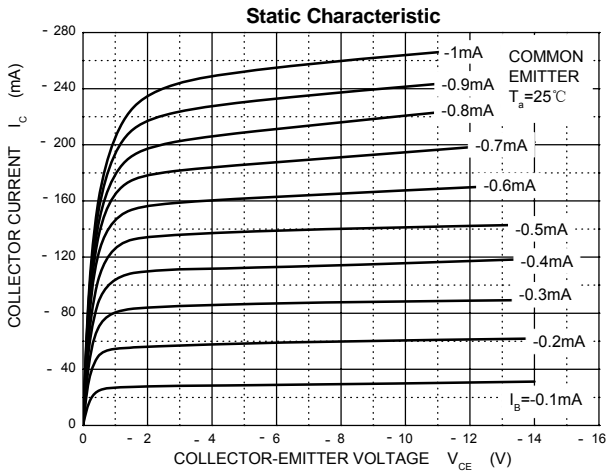
| Symbol           | Parameter                                   | Value    | Unit |
|------------------|---|----------|------|
| V <sub>CB0</sub> | Collector-Base Voltage                      | -50      | V    |
| V <sub>CEO</sub> | Collector-Emitter Voltage                   | -45      | V    |
| V <sub>EBO</sub> | Emitter-Base Voltage                        | -5       | V    |
| I <sub>C</sub>   | Collector Current                           | -500     | mA   |
| P <sub>C</sub>   | Collector Power Dissipation                 | 300      | mW   |
| R <sub>θJA</sub> | Thermal Resistance From Junction To Ambient | 417      | °C/W |
| T <sub>J</sub>   | Junction Temperature                        | 150      | °C   |
| T <sub>stg</sub> | Storage Temperature                         | -55~+150 | °C   |

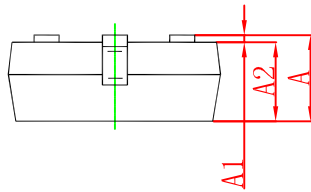
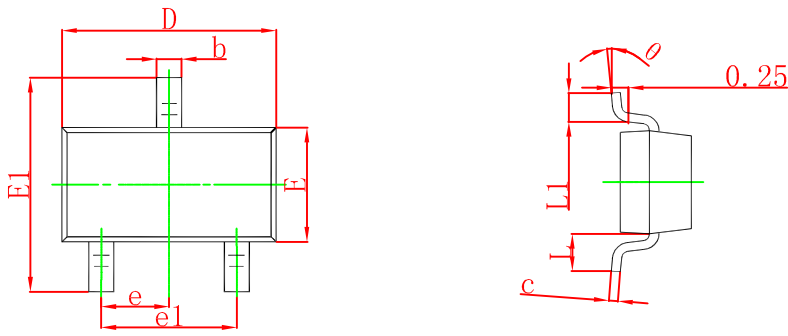
**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

| Parameter                            | Symbol               | Test conditions   | Min | Max  | Unit |
|--------------------------------------|----------------------|---|-----|------|------|
| Collector-base breakdown voltage     | V <sub>CB0</sub>     | I <sub>C</sub> = -10μA, I <sub>E</sub> =0                 | -50 |      | V    |
| Collector-emitter breakdown voltage  | V <sub>CEO</sub>     | I <sub>C</sub> = -10mA, I <sub>B</sub> =0                 | -45 |      | V    |
| Emitter-base breakdown voltage       | V <sub>EBO</sub>     | I <sub>E</sub> = -1μA, I <sub>C</sub> =0                  | -5  |      | V    |
| Collector cut-off current            | I <sub>CB0</sub>     | V <sub>CB</sub> = -45V, I <sub>E</sub> =0                 |     | -0.1 | μA   |
| Emitter cut-off current              | I <sub>EBO</sub>     | V <sub>EB</sub> = -4 V, I <sub>C</sub> =0                 |     | -0.1 | μA   |
| DC current gain                      | h <sub>FE(1)</sub>   | V <sub>CE</sub> = -1V, I <sub>C</sub> = -100mA            | 100 | 600  |      |
|                                      | h <sub>FE(2)</sub>   | V <sub>CE</sub> = -1V, I <sub>C</sub> = -500mA            | 40  |      |      |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =-500mA, I <sub>B</sub> = -50mA            |     | -0.7 | V    |
| Base-emitter saturation voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> = -500mA, I <sub>B</sub> = -50mA           |     | -1.2 | V    |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> = -5V, I <sub>C</sub> = -10mA<br>f=100MHz | 100 |      | MHz  |

**CLASSIFICATION OF h<sub>FE</sub>(1)**

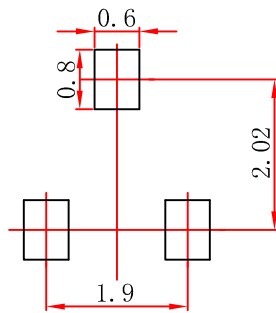
| Rank    | TKBC807-16 | TKBC807-25 | TKBC807-40 |
|---------|------------|------------|------------|
| Range   | 100-250    | 160-400    | 250-600    |
| Marking | 5A         | 5B         | 5C         |





| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.050 | 0.035                | 0.041 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.800                     | 3.000 | 0.110                | 0.118 |
| E      | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.950 TYP                 |       | 0.037 TYP            |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF                 |       | 0.022 REF            |       |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

## SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.