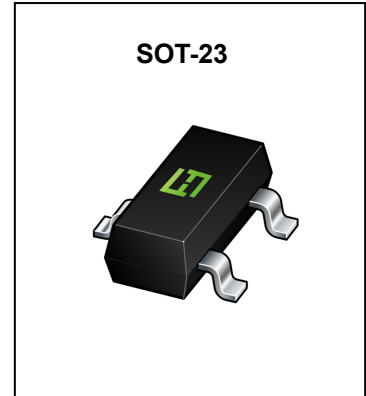


FEATURES

- Ideally suited for automatic insertion
- Epitaxial planar die construction
- Complementary PNP type available(BC807)

MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|-----------------------------------|--|----------|------|
| V _{CB0} | Collector-Base Voltage | 50 | V |
| V _{CE0} | Collector-Emitter Voltage | 45 | V |
| V _{EB0} | Emitter-Base Voltage | 5 | V |
| I _C | Collector Current | 500 | mA |
| P _C | Collector Power Dissipation | 300 | mW |
| R _{θJA} | Thermal Resistance From Junction To Ambient | 417 | °C/W |
| T _J , T _{stg} | Operation Junction and Storage Temperature Range | -55~+150 | °C |

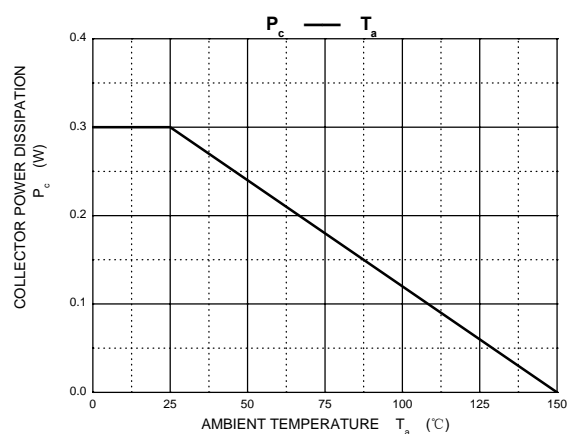
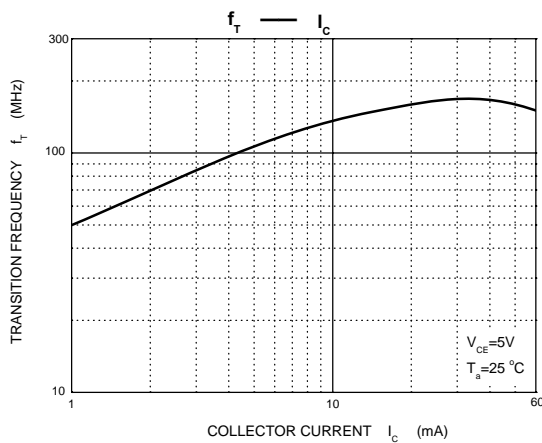
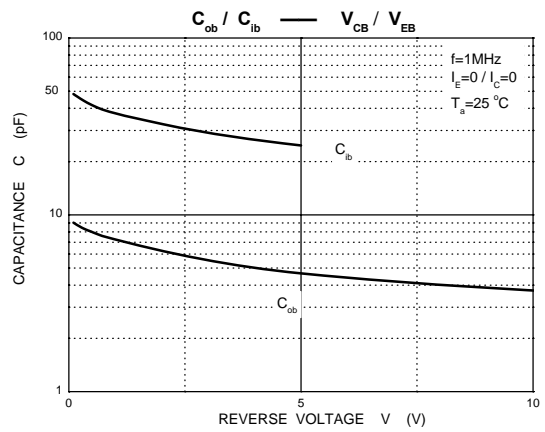
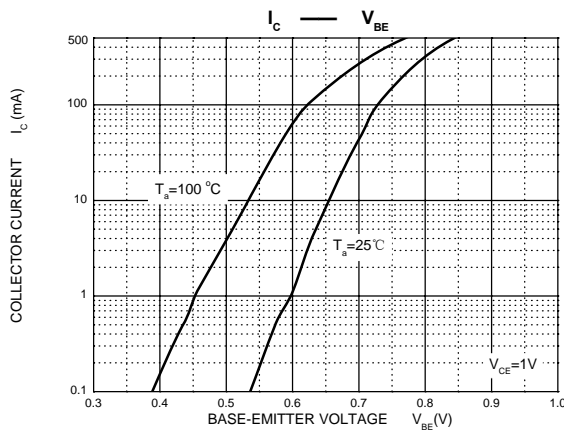
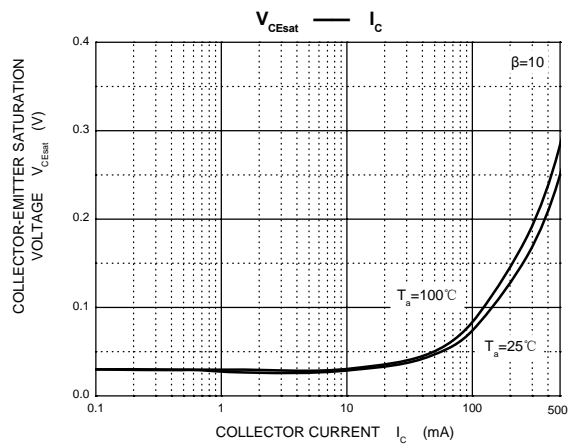
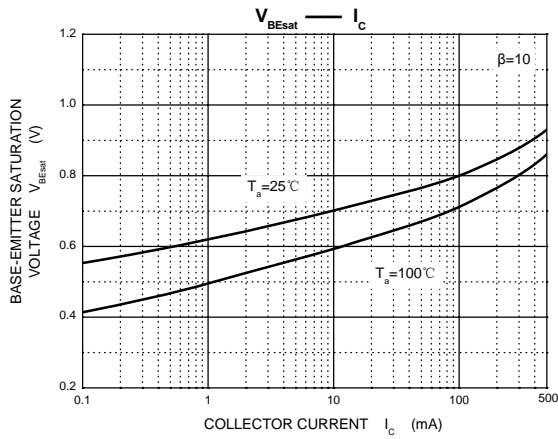
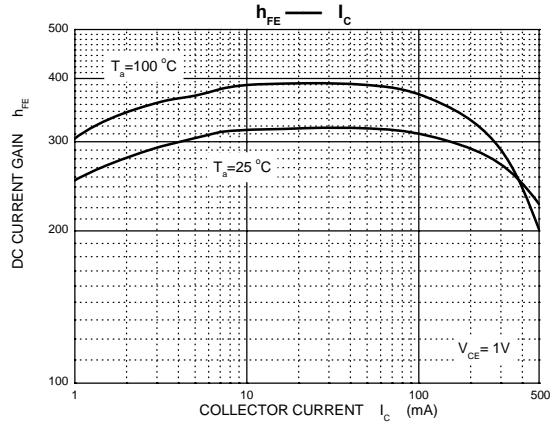
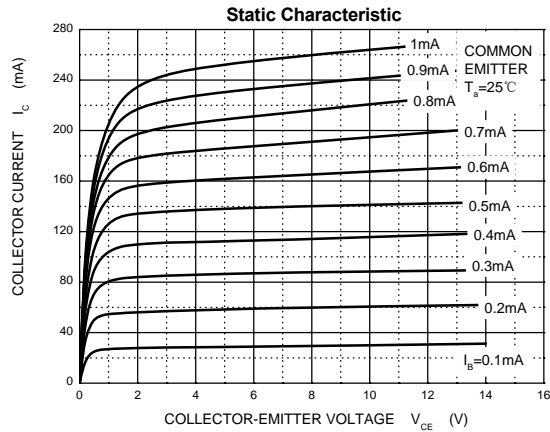


ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

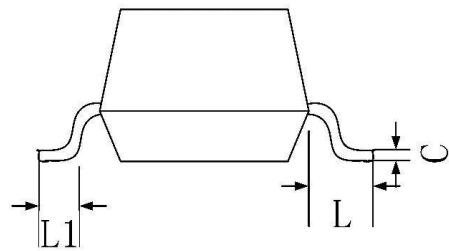
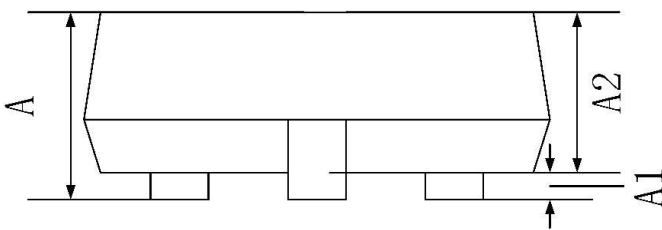
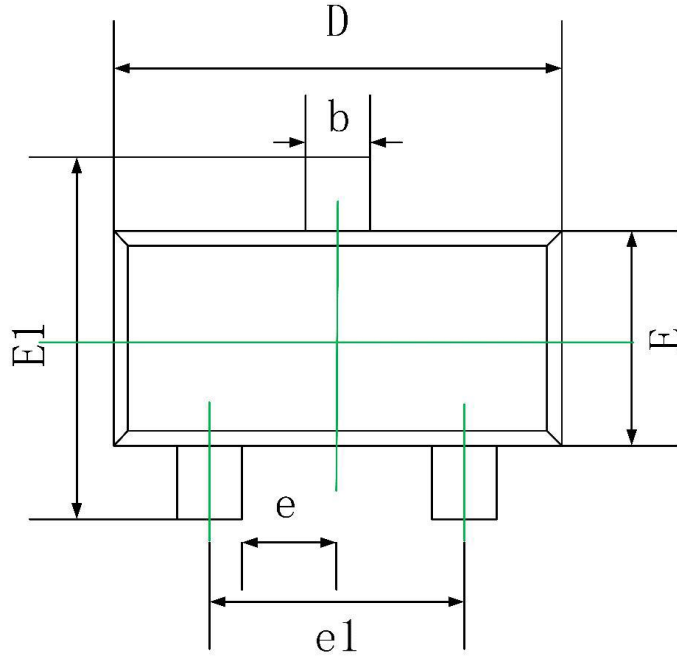
| Symbol | Parameter | Test Conditions | A _{in} | Typ | A _{ax} | Unit |
|----------------------|---|-----------------|-----------------|-----|-----------------|------|
| V _{CB0} | I _C = 10μA, I _E = 0 | | 50 | | | V |
| V _{CE0} | I _C = 10mA, I _B = 0 | | 45 | | | V |
| V _{EB0} | I _E = 1μA, I _C = 0 | | 5 | | | V |
| I _{CB0} | V _{CB} = 45V, I _E = 0 | | | | 0.1 | μA |
| I _{EB0} | V _{EB} = 4V, I _C = 0 | | | | 0.1 | μA |
| h _{FE(1)} | V _{CE} = 1V, I _C = 100mA | | 100 | | 600 | |
| | V _{CE} = 1V, I _C = 500mA | | 40 | | | |
| V _{CE(sat)} | I _C = 500mA, I _B = 50mA | | | | 0.7 | V |
| V _{BE(sat)} | I _C = 500mA, I _B = 50mA | | | | 1.2 | V |
| V _{BE} | V _{CE} = 1V, I _C = 500mA | | | | 1.2 | V |
| C _{ob} | V _{CB} = 10V, f = 1MHz | | | 10 | | pF |
| f _T | V _{CE} = 5V, I _C = 10mA, f = 100MHz | | 100 | | | MHz |

CLASSIFICATION OF h_{FE(1)}

| | | | |
|-----------------------|-----------|-------------|----------------|
| F _{Ub} | 67, %! | 67, %!& | 67, %!(\$ |
| F _{Ub} [Y | %%\$!& \$ | % \$(\$ \$ | &) \$! * \$ \$ |
| A _{Uf} [b] | * 5 | * 6 | * 7 |



SOT-23 Package Information



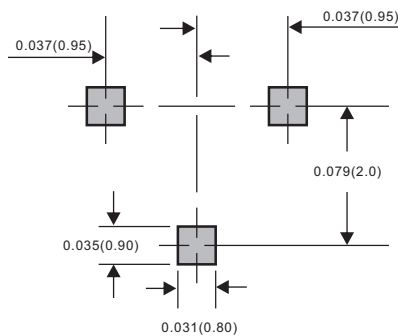
| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 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 |

Pinning information

| Pin | Simplified outline | Symbol |
|---|--------------------|--------|
| PinB Base PinC Collector PinE Emitter | | |

Suggested solder pad layout

SOT-23



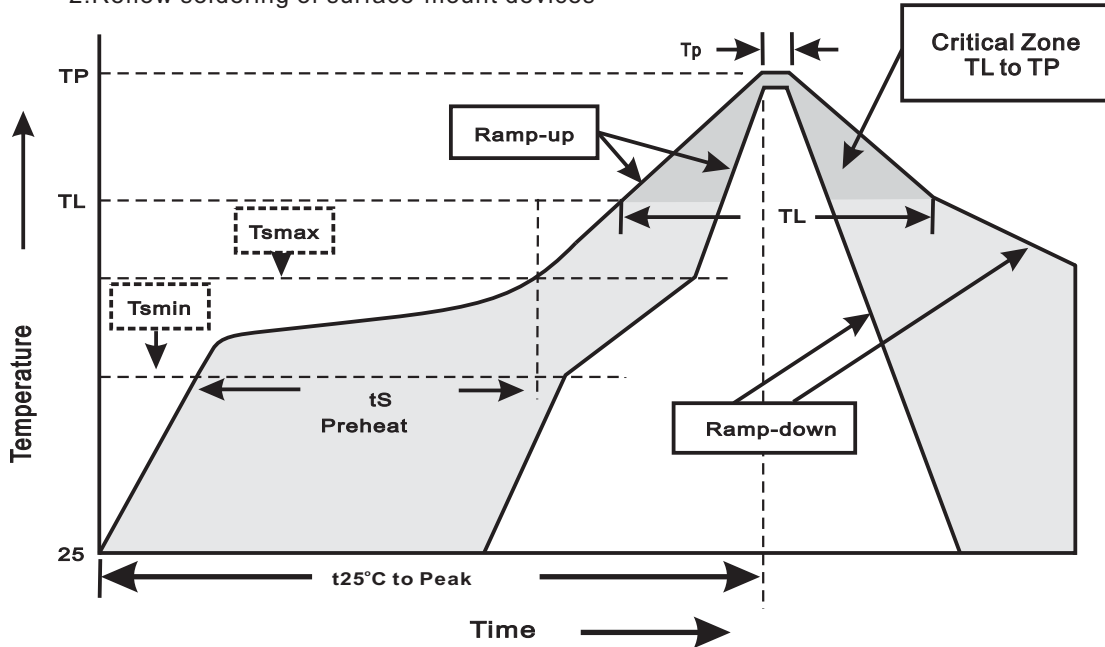
Dimensions in inches and (millimeters)

Reel packing

| PACKAGE | REEL SIZE | REEL (pcs) | COMPONENT SPACING (m/m) | BOX (pcs) | INNER BOX (m/m) | REEL DIA, (m/m) | CARTON SIZE (m/m) | CARTON (pcs) | APPROX. GROSS WEIGHT (kg) |
|---------|-----------|------------|-------------------------|-----------|-----------------|-----------------|-------------------|--------------|---------------------------|
| SOT-23 | 7" | 3,000 | 4.0 | 30,000 | 183*123*183 | 178 | 382*257*387 | 240,000 | 11.6 |

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

| Profile Feature | Soldering Condition |
|---|-----------------------------|
| Average ramp-up rate(T _L to T _P) | <3°C/sec |
| Preheat -Temperature Min(T _{smin}) -Temperature Max(T _{smax}) -Time(min to max)(t _s) | 150°C 200°C 60~120sec |
| T _{smax} to T _L -Ramp-upRate | <3°C/sec |
| Time maintained above: -Temperature(T _L) -Time(t _L) | 217°C 60~260sec |
| Peak Temperature(T _P) | 255°C-0/+5°C |
| Time within 5°C of actual Peak Temperature(t _P) | 10~30sec |
| Ramp-down Rate | <6°C/sec |
| Time 25°C to Peak Temperature | <6minutes |