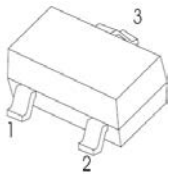
# SOT-23 Plastic-Encapsulate Transistors

**SOT-23**

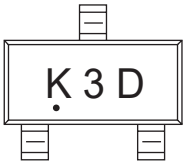



1. BASE
2. EMITTER
3. COLLECTOR

## MMBTA14 TRANSISTOR (NPN)

**FEATURES**

Darlington Amplifier




**Marking :** K3D

K3D = Device code
Solid dot = Green molding compound device.

**MAXIMUM RATINGS ($T_a$=25℃ unless otherwise noted)**

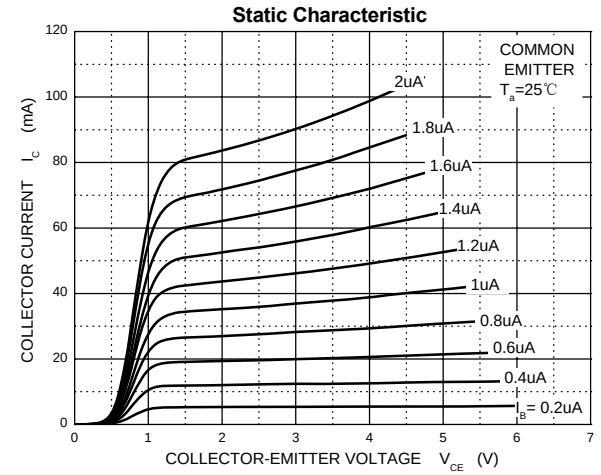
| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 30 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 30 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 10 | V |
| $I_C$ | Collector Current -Continuous | 0.3 | A |
| $P_C$ | Collector Power Dissipation | 300 | mW |
| $R_{\theta JA}$ | Thermal Resistance from Junction to Ambient | 417 | ℃/W |
| $T_J$,$T_{stg}$ | Operation Junction and Storage Temperature Range | -55~+150 | ℃ |

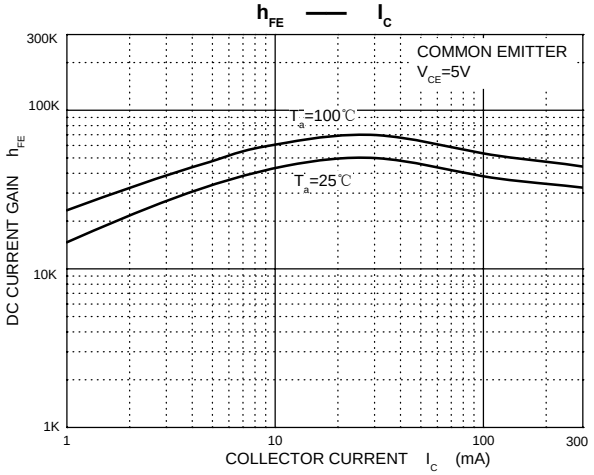
**ELECTRICAL CHARACTERISTICS ($T_a$=25℃ unless otherwise specified)**

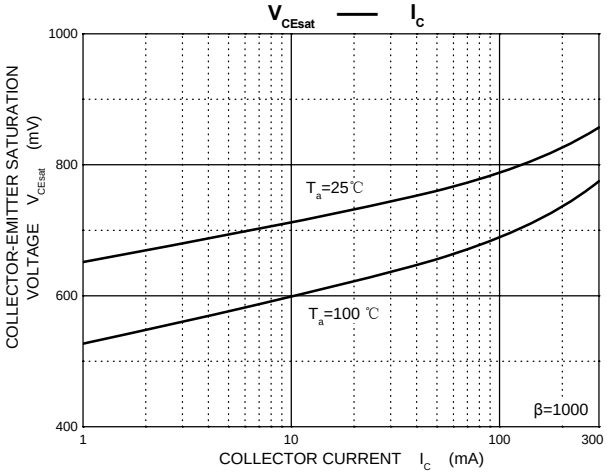
| Parameter | Symbol | Test conditions | Min | Max | Unit |
|---|---|---|---|---|---|
| **Collector-base breakdown voltage** | $V_{(BR)CBO}$ | $I_C$= 100μA,$I_E$=0 | 30 | | V |
| **Collector-emitter breakdown voltage** | $V_{(BR)CEO}$ | $I_C$= 100μA, $I_B$=0 | 30 | | V |
| **Emitter-base breakdown voltage** | $V_{(BR)EBO}$ | $I_E$= 100μA, $I_C$=0 | 10 | | V |
| **Collector cut-off current** | $I_{CBO}$* | $V_{CB}$=30 V, $I_E$=0 | | 0.1 | μA |
| **Emitter cut-off current** | $I_{EBO}$* | $V_{EB}$= 10V ,$I_C$=0 | | 0.1 | μA |
| **DC current gain** | $h_{FE(1)}$* | $V_{CE}$=5V, $I_C$= 10mA | 10000 | | |
| | $h_{FE(2)}$* | $V_{CE}$=5V, $I_C$= 100mA | 20000 | | |
| **Collector-emitter saturation voltage** | $V_{CE\ (sat)}$* | $I_C$=100mA, $I_B$=0.1mA | | 1.5 | V |
| **Base-emitter saturation voltage** | $V_{BE\ (sat)}$* | $I_C$=100mA, $I_B$=0.1mA | | 2 | V |
| **Base-emitter voltage** | $V_{BE}$* | $V_{CE}$=5V,$I_C$= 100mA | | 2.0 | V |
| **Transition frequency** | $f_T$ | $V_{CE}$=5V, $I_C$= 10mA f=100MHz | 125 | | MHz |
| **Collector output capacitance** | $C_{ob}$ | $V_{CB}$=10V,$I_E$=0,f=1MHz | | 12 | pF |

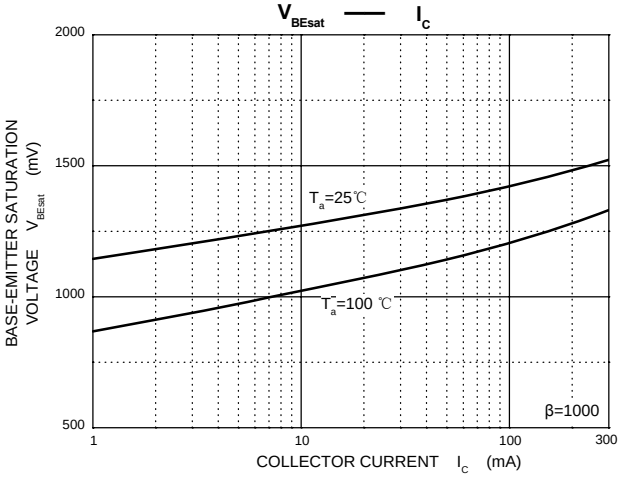
* Pulse Test : pulse width≤300μs,duty cycle≤2%.

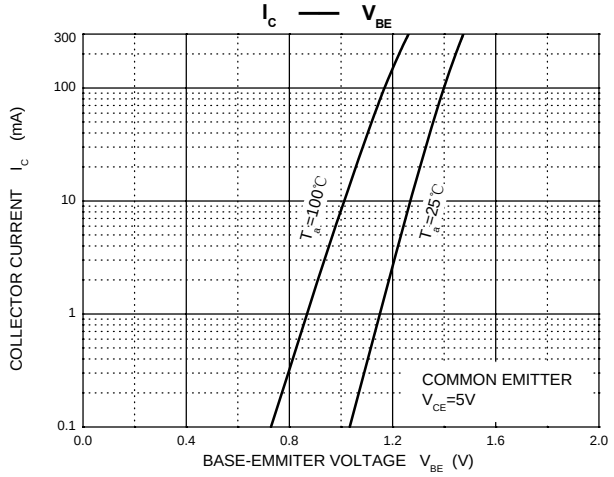
## Typical Characteristics

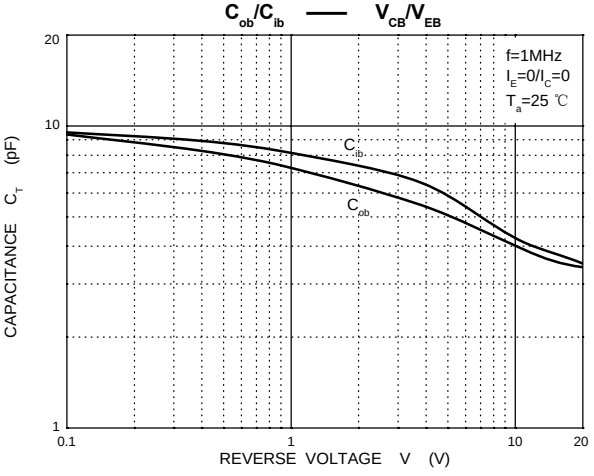


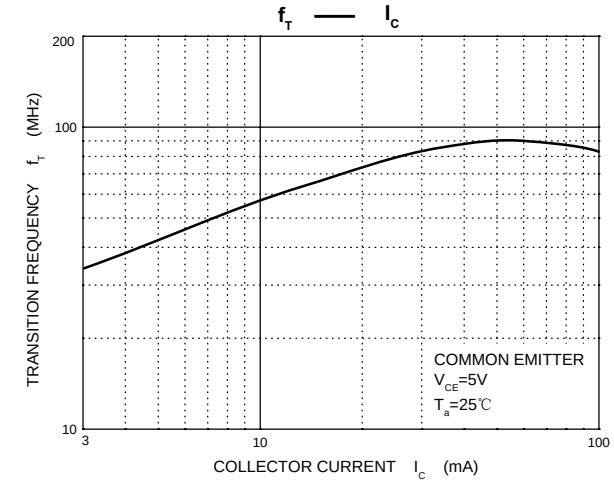



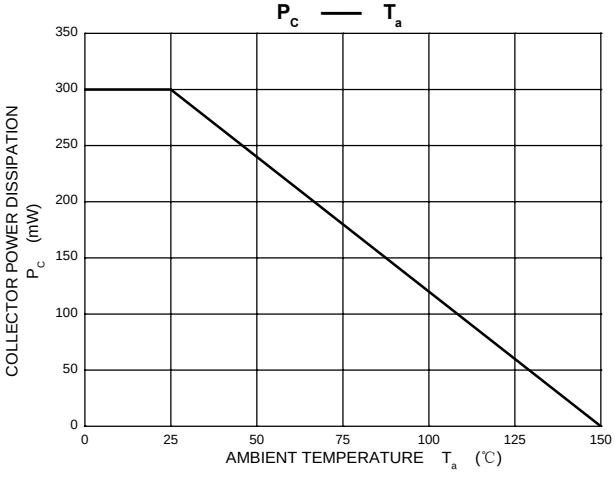



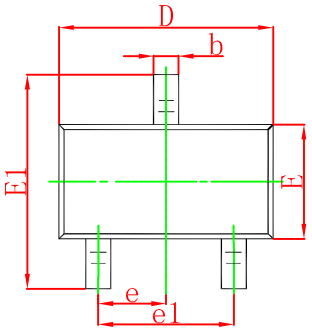



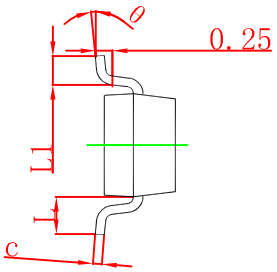



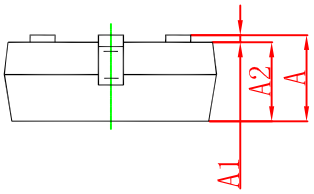



## SOT-23 Package Outline Dimensions

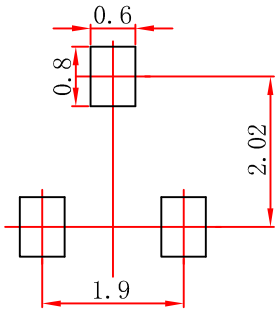



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| 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

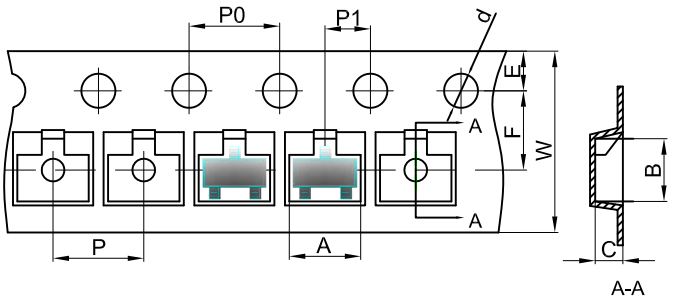



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

NOTICE
SZCJ reserves the right to make modifications,enhan nts,improvements,corrections or other es without further notice to any product herein. SZCJ does not assume any liability arising out of the application or use of any product described h

# SOT-23 Tape and Reel

## SOT-23 Embossed Carrier Tape

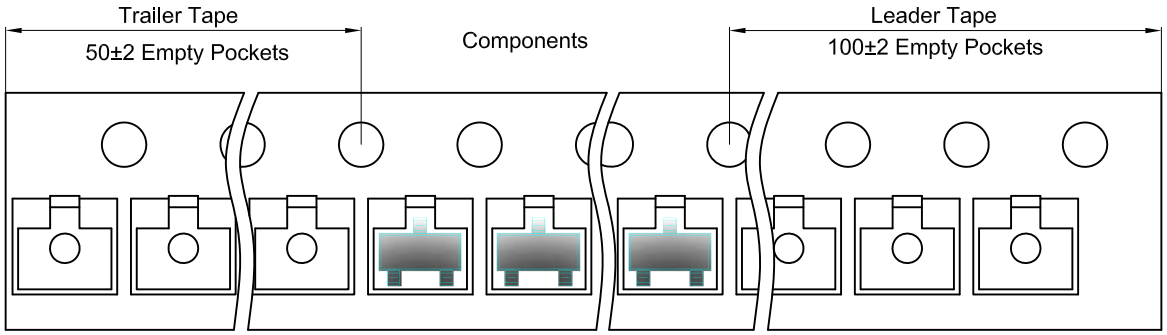



Packaging Description:

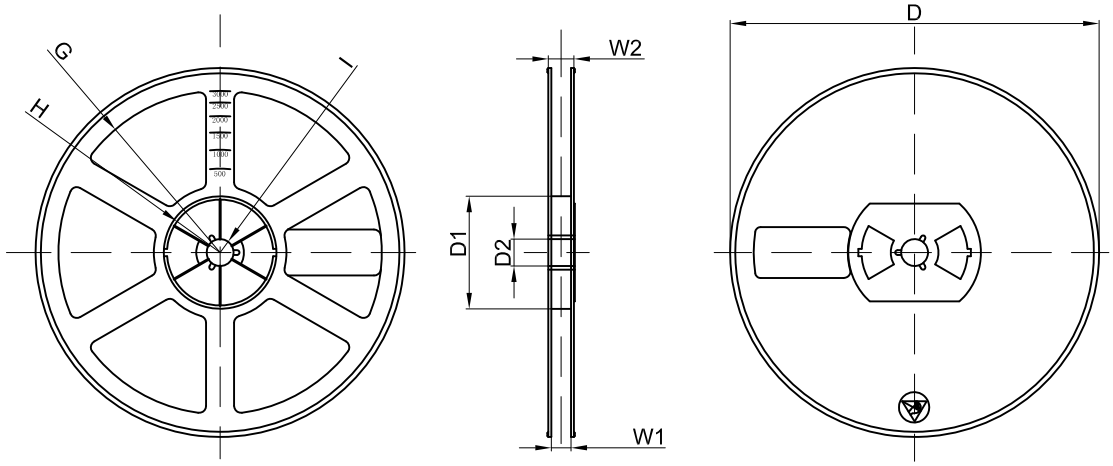
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

| Dimensions are in millimeter | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| SOT-23 | 3.15 | 2.77 | 1.22 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

## SOT-23 Tape Leader and Trailer




## SOT-23 Reel




| Dimensions are in millimeter | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Reel Option | D | D1 | D2 | G | H | I | W1 | W2 |
| 7"Dia | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) | G.W.(kg) |
|---|---|---|---|---|---|---|
| 3000 pcs | 7 inch | 45,000 pcs | 203×203×195 | 180,000 pcs | 438×438×220 | |