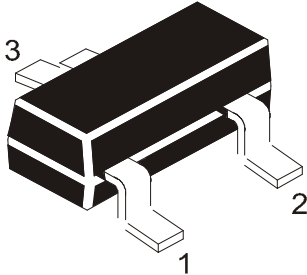


## NPN SILICON PLANAR EPITAXIAL TRANSISTOR

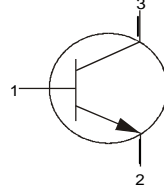
CSD1306 (SAW)

SOT-23  
Formed SMD Package



PIN CONFIGURATION (NPN)

1 = BASE  
2 = EMITTER  
3 = COLLECTOR



Marking  
CSD1306E=06

### ABSOLUTE MAXIMUM RATINGS

| DESCRIPTION                                      | SYMBOL         | VALUE        | UNITS            |
|--|----------------|--------------|------------------|
| Collector Base Voltage                           | $V_{CBO}$      | 30           | V                |
| Collector Emitter Voltage                        | $V_{CEO}$      | 15           | V                |
| Emitter Base Voltage                             | $V_{EBO}$      | 5            | V                |
| Collector Current Continuous                     | $I_C$          | 700          | mA               |
| Collector Current Peak                           | $I_{CP}$       | 1            | A                |
| Power Dissipation @ $T_a=25^\circ\text{C}$       | $P_D$          | 200          | mW               |
| Operating and Storage Junction Temperature Range | $T_j, T_{stg}$ | - 55 to +150 | $^\circ\text{C}$ |

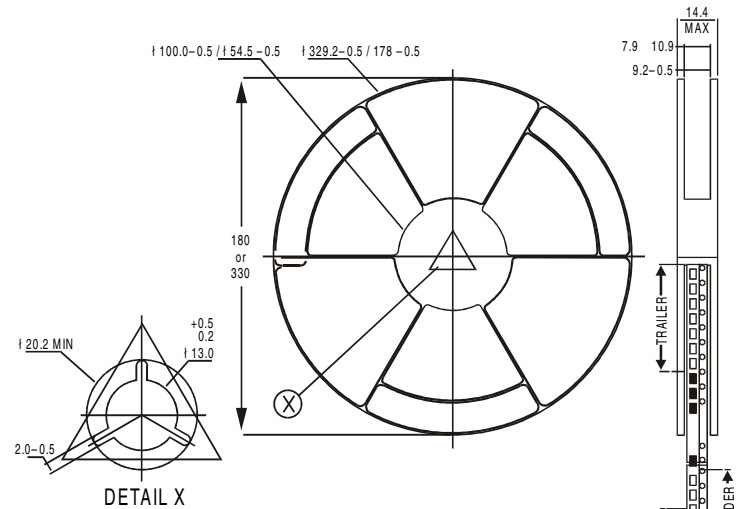
### Electrical Characteristics ( $T_a=25^\circ\text{C}$ unless specified otherwise)

| DESCRIPTION                          | SYMBOL        | CONDITIONS                                 | MIN | TYP | MAX  | UNIT          |
|--------------------------------------|---------------|--|-----|-----|------|---------------|
| Collector Base Voltage               | $V_{CBO}$     | $I_C=10\mu\text{A}, I_E=0$                 | 30  |     |      | V             |
| Collector Emitter Voltage            | $V_{CEO}$     | $I_C=10\text{mA}, I_B=0$                   | 15  |     |      | V             |
| Emitter Base Voltage                 | $V_{EBO}$     | $I_E=1\mu\text{A}, I_C=0$                  | 5   |     |      | V             |
| Collector Cut off Current            | $I_{CBO}$     | $V_{CB}=20\text{V}, I_E=0$                 |     |     | 1.0  | $\mu\text{A}$ |
| Emitter Cut off Current              | $I_{EBO}$     | $V_{EB}=5\text{V}, I_C=0$                  |     |     | 1.0  | $\mu\text{A}$ |
| Base Emitter On Voltage              | $V_{BE(on)}$  | $V_{CE}=1\text{V}, I_C=150\text{mA}$       |     |     | 1.0  | V             |
| Collector Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$        |     |     | 0.5  | V             |
| DC Current Gain                      | $h_{FE}$      | $V_{CE}=1\text{V}, I_C=150\text{mA}$       | 250 |     | 1200 |               |
| Transition Frequency                 | $f_T$         | $V_{CE}=1\text{V}, I_C=150\text{mA}$       |     | 250 |      | MHz           |
| Output Capacitance                   | $C_{ob}$      | $V_{CB}=10\text{V}, f=1\text{MHz}$         |     |     | 10   | pF            |
| Input Capacitance                    | $C_{ib}$      | $V_{EB}=0.5\text{V}, I_C=0, f=1\text{MHz}$ |     |     | 100  | pF            |

|                         |               |               |               |
|-------------------------|---------------|---------------|---------------|
| $h_{FE}$ Classification | D : 250 - 500 | E : 300 - 800 | F : 600 -1200 |
|-------------------------|---------------|---------------|---------------|

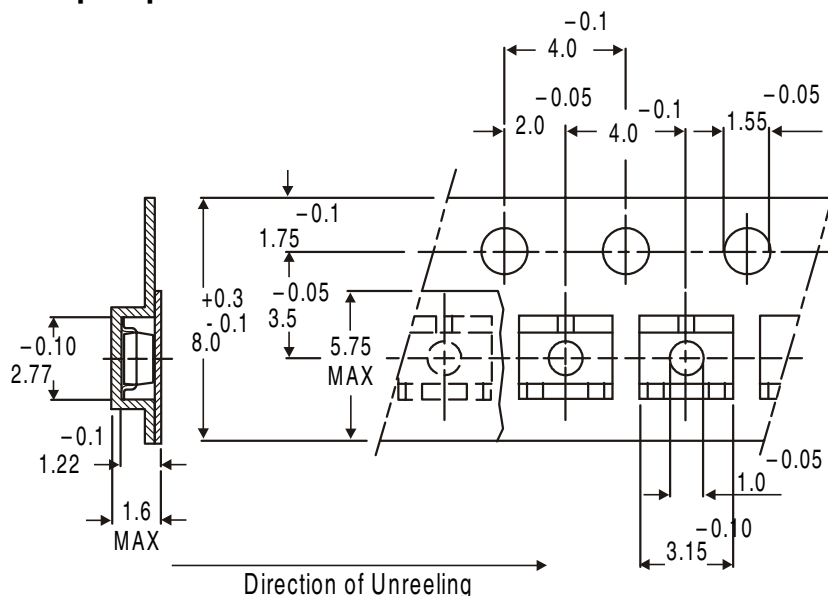
CSD1306ERev\_3 300103E

**SOT-23 Package Reel Information**  
**Reel specifications for Packing (13"/7" reels)**



|                |              |              |
|----------------|--------------|--------------|
|                | 8mm Tape     | 8mm Tape     |
|                | Size of Reel | Size of Reel |
|                | 330 mm (13") | 180 mm (7")  |
| No. of Devices | 10,000 Pcs   | 3,000 Pcs    |

- ## Tape Specification for SOT-23 Surface Mount Device



Page 2 of 3

## 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" | 12.0K | 17" x 15" x 13.5" | 192.0K | 12 kgs |
|            |               |                | 9" x 9" x 9"     | 51.0K | 19" x 19" x 19"   | 408.0K | 28 kgs |
|            | 10K/reel      | 415 gm/10K pcs | 13" x 13" x 0.5" | 10.0K | 17" x 15" x 13.5" | 300.0K | 16 kgs |

## Customer Notes

### Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

## Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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