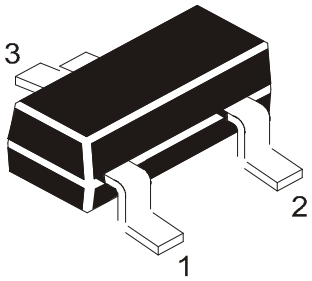
**SOT-23 Formed SMD Package**

**BCW69**
**BCW70**

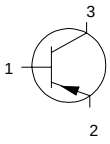
# *SILICON PLANAR EPITAXIAL TRANSISTORS*

*P–N–P transistors*

***Marking***
*BCW69 = H1*
*BCW70 = H2*




**Pin configuration**
1 = BASE
2 = EMITTER
3 = COLLECTOR




## *ABSOLUTE MAXIMUM RATINGS*

| | | | BCW69 | BCW70 | |
|---|---|---|---|---|---|
| *D.C. current gain at $T_j$ = 25 °C* | | > | *120* | *215* | |
| *$-I_C$ = 2 mA; $-V_{CE}$ = 5 V* | $h_{FE}$ | < | *260* | *500* | |
| *Collector–base voltage (open emitter)* | $-V_{CB0}$ | *max.* | *50* | | *V* |
| *Collector–emitter voltage (open base)* | $-V_{CE0}$ | *max.* | *45* | | *V* |
| *Collector current (peak value)* | $-I_{CM}$ | *max.* | *200* | | *mA* |
| *Total power dissipation up to $T_{amb}$ = 25 °C* | $P_{tot}$ | *max.* | *250* | | mW |
| *Junction temperature* | $T_j$ | *max.* | *150* | | *° C* |
| *Transition frequency at f = 35 MHz* | | | | | |
| *$-I_C$ = 10 mA; $-V_{CE}$ = 5 V* | $f_T$ | *typ.* | *150* | | MHz |
| *Noise figure at $R_S$ = 2 kΩ* | | | | | |
| *$-I_C$ = 200 µA; $-V_{CE}$ = 5 V;* | | | | | |
| *f = 1 kHz; B = 200 Hz* | *F* | < | *10* | | *dB* |

***RATINGS*** *(at $T_A$ = 25°C unless otherwise specified)*

| | | | |
|---|---|---|---|
| *Limiting values* | | | |
| *Collector–base voltage (open emitter)* | $-V_{CB0}$ | *max.* | *50 V* |
| *Collector–emitter voltage ($V_{BE}$ = 0)* | $-V_{CES}$ | *max.* | *50 V* |
| *Collector–emitter voltage (open base)* | | | |
| *$-I_C$ = 2 mA* | $-V_{CE0}$ | *max.* | *45 V* |
| *Emitter–base voltage (open collector)* | $-V_{EB0}$ | *max.* | *5 V* |
| *Collector current (d.c.)* | $-I_C$ | *max.* | *100 mA* |
| *Collector current (peak value)* | $-I_{CM}$ | *max.* | *200 mA* |
| *Total power dissipation up to $T_{amb}$ = 25 °C* | $P_{tot}$ | *max.* | *250* mW |
| *Storage temperature* | $T_{stg}$ | | *–55 to +150 °C* |
| *Junction temperature* | $T_j$ | *max.* | *150 °C* |

***THERMAL RESISTANCE***

| | | | |
|---|---|---|---|
| *From junction to ambient* | $R_{th\ j-a}$ | = | *500* K/W |

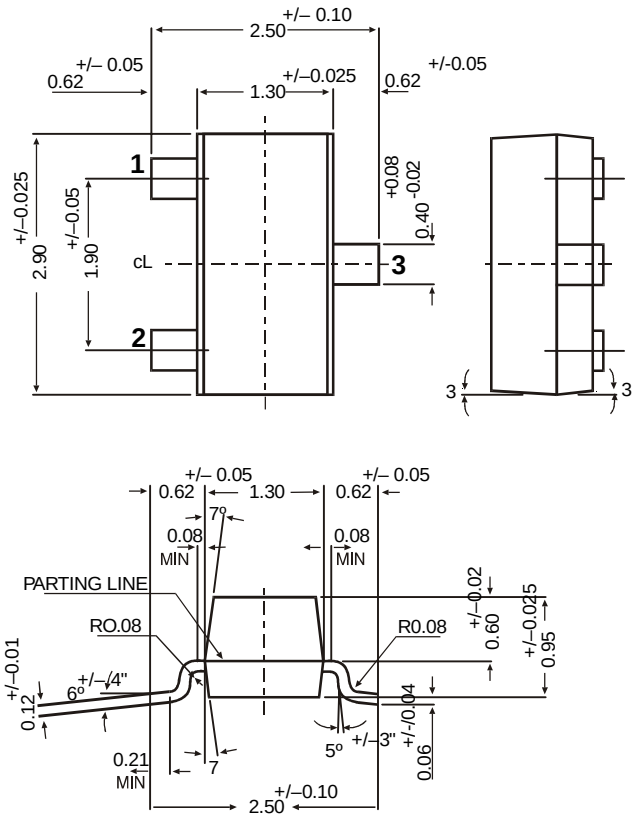
***CHARACTERISTICS***

*$T_j$ = 25 °C unless otherwise specified*

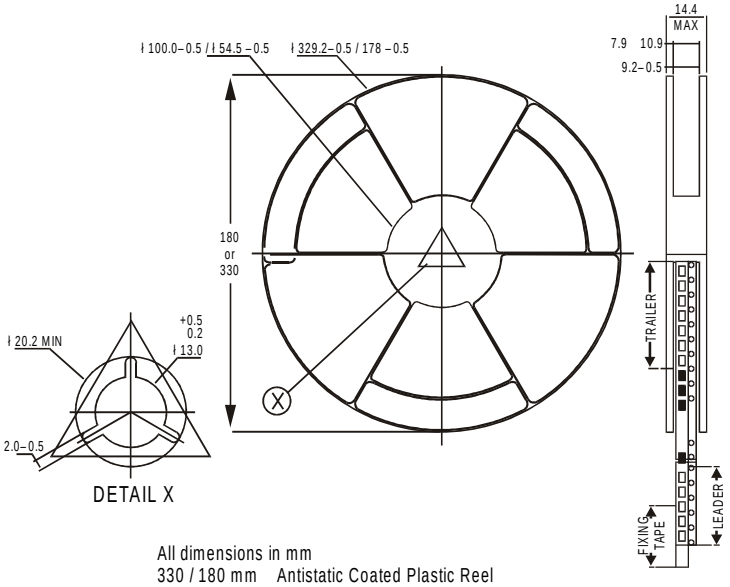
| | | | |
|---|---|---|---|
| *Collector cut–off current* | | | |
| *$I_E$ = 0; $-V_{CB}$ = 20 V* | $-I_{CB0}$ | < | *100 nA* |
| *$I_E$ = 0; $-V_{CB}$ = 20 V; $T_j$ = 100 °C* | $-I_{CB0}$ | < | *10 µA* |
| *Base–emitter voltage* | | | |
| *$-I_C$ = 2 mA; $-V_{CE}$ = 5 V* | $-V_{BE}$ | | *600 to 750 mV* |
| *Saturation voltages* | | | |
| *$-I_C$ = 10 mA; $-I_B$ = 0,5 mA* | $-V_{CEsat}$ | *typ.* | *80 mV* |
| | | < | *300 mV* |
| | $-V_{BEsat}$ | *typ.* | *720 mV* |
| *$-I_C$ = 50 mA; $-I_B$ = 2,5 mA* | $-V_{CEsat}$ | *typ.* | *150 mV* |
| | $-V_{BEsat}$ | *typ.* | *810 mV* |

| | | | ***BCW69*** | ***BCW70*** |
|---|---|---|---|---|
| *D.C. current gain* | | | | |
| *$-I_C$ = 10 µA; $-V_{CE}$ = 5 V* | $h_{FE}$ | *typ.* | *90* | *150* |
| *$-I_C$ = 2 mA; $-V_{CE}$ = 5 V* | | > | *120* | *215* |
| | $h_{FE}$ | < | *260* | *500* |
| *Collector capacitance at f: 1 MHz* | | | | |
| *$I_E$ = $I_e$ = 0; $-V_{CB}$ = 10 V* | $C_c$ | *typ.* | *4,5* | pF |
| *Transition frequency at f = 35 MHz* | | | | |
| *$-I_C$: 10 mA; $-V_{CE}$ = 5 V* | $f_T$ | *typ.* | *150* | MHz |
| *Noise figure at $R_S$ = 2 kΩ* | | | | |
| *$-I_C$ = 200 µA; $-V_{CE}$ = 5 V* | | | | |
| *f = 1 kHz; B = 200 Hz* | *F* | < | *10* | dB |

## SOT-23 Formed SMD Package




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

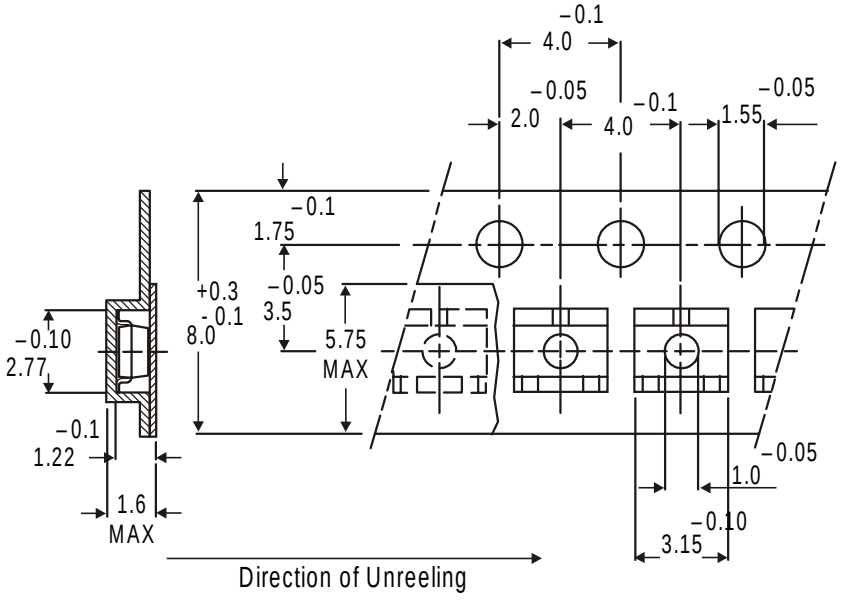



All dimensions in mm
330 / 180 mm Antistatic Coated Plastic Reel

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

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.

## Tape Specification for SOT-23 Surface Mount Device




**All dimensions in mm**

## 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



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