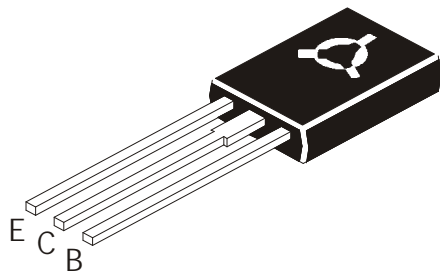


NPN PLASTIC POWER DARLINGTON TRANSISTORS



**BD675, BD675A
BD677, BD677A
BD679, BD679A
BD681, BD683**

**TO126
Plastic Package**

Complementary BD676, 676A, 678, 678A, 680, 680A, 682 & 684

ABSOLUTE MAXIMUM RATINGS

| DESCRIPTION | SYMBOL | BD675 BD675A | 677 677A | 679 679A | 681 | 683 | UNITS |
|--|----------------|-----------------|-------------|-------------|-----|-----|---------------------------|
| Collector Base Voltage | V_{CBO} | 45 | 60 | 80 | 100 | 120 | V |
| Collector Emitter Voltage | V_{CEO} | 45 | 60 | 80 | 100 | 120 | V |
| Emitter Base Voltage | V_{EBO} | 5.0 | | | | | V |
| Collector Current | I_C | 4.0 | | | | | A |
| Base Current | I_B | 0.1 | | | | | A |
| Total Power Dissipation@ $T_a=25^\circ\text{C}$ Derate above 25°C | P_D | 1.25 10 | | | | | W mW/ $^\circ\text{C}$ |
| Total Power Dissipation@ $T_c=25^\circ\text{C}$ Derate above 25°C | P_D | 40 0.32 | | | | | W W / $^\circ\text{C}$ |
| Operating & Storage Junction Temperature Range | T_j, T_{stg} | - 55 to + 150 | | | | | $^\circ\text{C}$ |

THERMAL RESISTANCE

| | | | |
|---------------------------------|---------------|------|--------------------|
| From Junction to case | $R_{th(j-c)}$ | 3.13 | $^\circ\text{C/W}$ |
| Junction to Ambient in free air | $R_{th(j-a)}$ | 100 | $^\circ\text{C/W}$ |

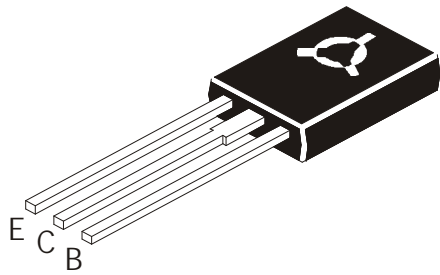
ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$ unless specified otherwise)

| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | MAX | UNITS |
|---------------------------|-------------------------------------|---|------------------------------|-------------------|---------------------|
| Collector Emitter Voltage | V_{CEO}^* | $I_C=50\text{mA}, I_B=0$ BD675/BD675A BD677/BD677A BD679/BD679A BD681 BD683 | 45 60 80 100 120 | | V |
| Collector-Cut off Current | I_{CEO} I_{CBO} I_{CBO} | $V_{CE}=\text{half rated } V_{CEO}, I_B=0$ $V_{CB}=\text{rated } V_{CBO}, I_E=0$ $V_{CB}=\text{rated } V_{CBO}, I_E=0$ $T_c=100^\circ\text{C}$ | | 500 0.2 2.0 | μA mA |
| Emitter cut off Current | I_{EBO} | $V_{EB}=5\text{V}, I_C=0$ | | 2.0 | mA |

NPN PLASTIC POWER DARLINGTON TRANSISTORS

BD675, BD675A
BD677, BD677A
BD679, BD679A
BD681, BD683

TO126
Plastic Package



| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | MAX | UNITS |
|--------------------------------------|--------|--|-----|-----|-------|
| Collector Emitter Saturation voltage | NON A | $V_{CE(sat)}^*$ $I_C=1.5A, I_B=6mA$ | | 2.5 | V |
| | A | $V_{CE(sat)}^*$ $I_C=2.0A, I_B=8mA$ | | 2.8 | |
| Base Emitter On Voltage | NON A | $V_{BE(on)}^*$ $I_C=1.5A, V_{CE}=3V$ | | 2.5 | V |
| | A | $V_{BE(on)}^*$ $I_C=2A, V_{CE}=3V$ | | 2.5 | |
| DC Current Gain | NON A | h_{FE}^* $I_C=1.5A, V_{CE}=3V$ | 750 | | |
| | A | h_{FE}^* $I_C=2A, V_{CE}=3V$ | 750 | | |
| Small signal Current Gain | | $ h_{fe} $ $I_C=1.5A, V_{CE}=3V$ $f=1MHz$ | 1.0 | | |

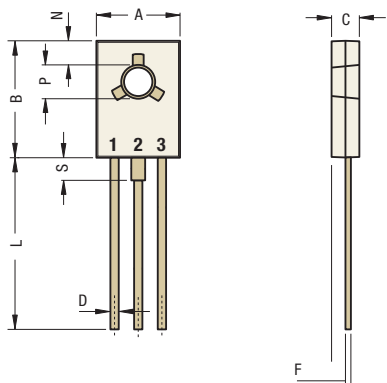
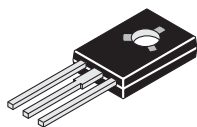
Pulse test: Pulse Width $\leq 300ms$; Duty cycle $\leq 2\%$.

BD675_683 Rev_2 101002E

BD675, BD675A
BD677, BD677A
BD679, BD679A
BD681, BD683

T0126
Plastic Package

T0-126
Leaded Plastic
Package

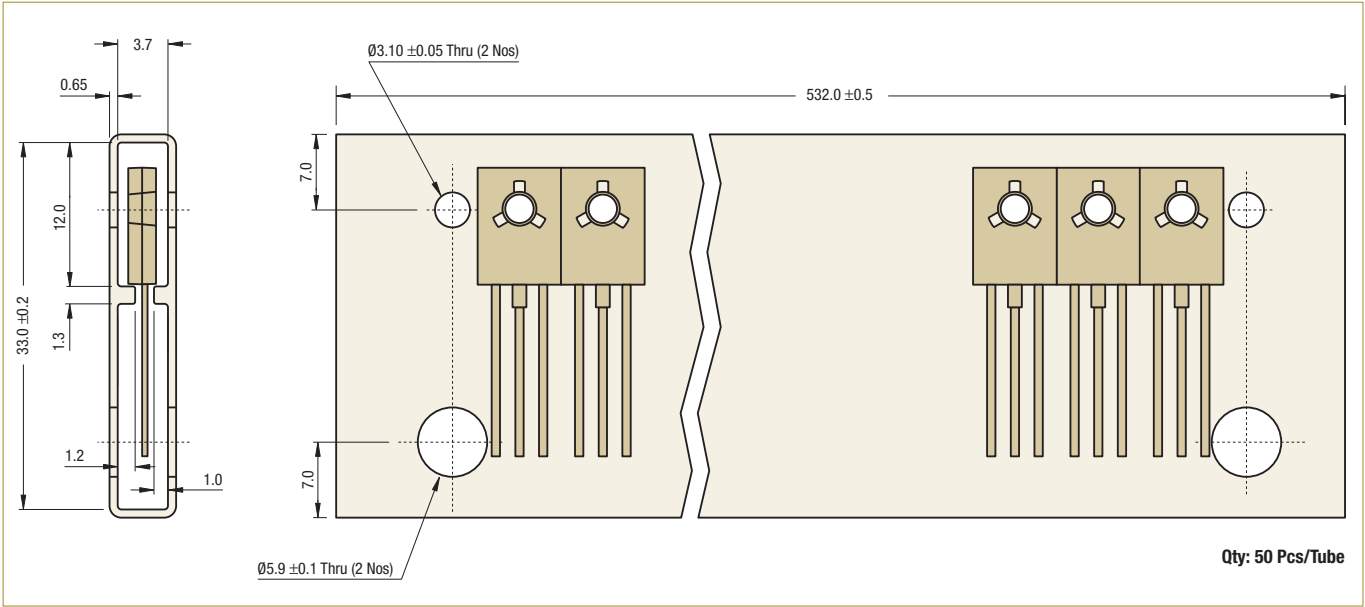


| DIM | Min | Max |
|-----|-------|-------|
| A | 7.12 | 8.38 |
| B | 10.16 | 11.43 |
| C | 2.29 | 3.04 |
| D | 0.64 | 0.88 |
| E | 2.040 | 2.285 |
| F | 0.39 | 0.63 |

| DIM | Min | Max |
|-----|-------|-------|
| G | 4.07 | 5.08 |
| L | 15.00 | 16.63 |
| M | 0.89 | 1.65 |
| N | 3.31 | 4.44 |
| P | 2.54 | 3.30 |
| S | — | 2.54 |

Pin Configurations
Pin 1: Emitter Pin 2: Collector Pin 3: Base

T0-126 Series Packaging Tube



Packaging Specifications ...

T & A: Tape and Ammo Pack; T & R: Tape and Reel; Bulk: Loose in Poly Bags; Tube: Tube and Carton; K: 1,000

| Package / Case Type | Packaging Type | Std. Packing | Inner Carton | | | Outer Carton | | |
|---------------------|----------------|---------------------|--------------|---------------------|-------------------|--------------|---------------------|-------------------|
| | | | Qty | Size L x W x H (cm) | Gross Weight (Kg) | Qty | Size L x W x H (cm) | Gross Weight (Kg) |
| T0-126 | Bulk | 2,000 | 2K | 19 x 19 x 8 | 1.4 | 20K | 46 x 38 x 22 | 15.6 |
| | Tube | 1,000 (50 pcs/tube) | 1K | 55 x 8 x 10 | 1.5 | 10K | 55 x 35 x 27 | 16.3 |

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 in the Data Sheet and 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 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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