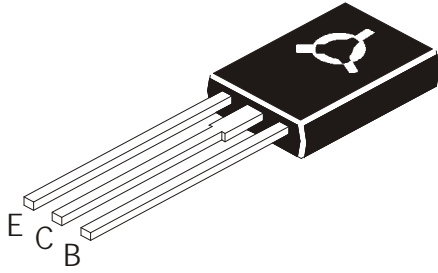


**PNP PLASTIC POWER DARLINGTON TRANSISTORS**

**BD676, BD676A  
BD678, BD678A  
BD680, BD680A  
BD682, BD684**



**TO126  
Plastic Package**

**Complementary BD675, 675A, 677, 677A, 679, 679A, 681 & 683**

**ABSOLUTE MAXIMUM RATINGS**

DESCRIPTION	SYMBOL	BD676 BD676A	678 678A	680 680A	682	684	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 @ $T_a=25^\circ\text{C}$	$P_D$	1.25					W
Derate above $25^\circ\text{C}$		10					mW/ $^\circ\text{C}$
Total Power Dissipation @ $T_c=25^\circ\text{C}$	$P_D$	40					W
Derate above $25^\circ\text{C}$		0.32					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	$^\circ\text{C/W}$

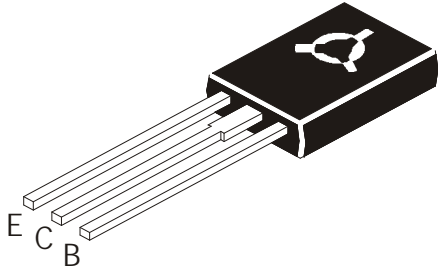
**ELECTRICAL CHARACTERISTICS ( $T_c=25^\circ\text{C}$  unless specified otherwise)**

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNITS
Collector Emitter Voltage	$V_{CEO}^*$	$I_C=50\text{mA}, I_B=0$ BD676/BD676A BD678/BD678A BD680/BD680A BD682 BD684	45 60 80 100 120		V
Collector-Cut Off Current	$I_{CEO}$ $I_{CBO}$	$V_{CE}=\text{half rated } V_{CEO}, I_B=0$ $V_{CB}=\text{rated } V_{CBO}, I_E=0$		500 0.2	$\mu\text{A}$ mA
	$I_{CBO}$	$V_{CB}=\text{rated } V_{CBO}, I_E=0$ $T_C=100^\circ\text{C}$		2.0	
Emitter cut Off Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$		2.0	mA

# PNP PLASTIC POWER DARLINGTON TRANSISTORS

BD676, BD676A  
 BD678, BD678A  
 BD680, BD680A  
 BD682, BD684

TO126  
 Plastic Package



## ELECTRICAL CHARACTERISTICS (Tc=25°C unless specified otherwise)

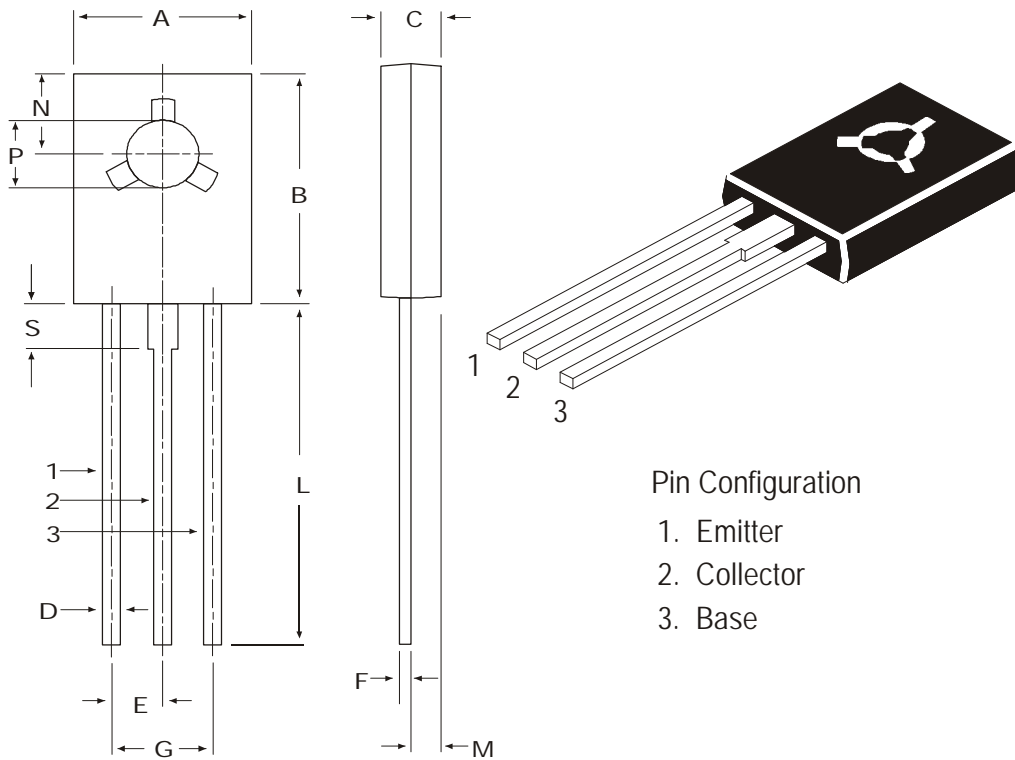
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNITS
Collector Emitter Saturation voltage	NON A	$V_{CE(sat)}$ * $I_C=1.5A, I_B=6mA$		2.5	V
	A				
Base Emitter On Voltage	NON A	$V_{BE(on)}$ * $I_C=1.5A, V_{CE}=3V$		2.5	V
	A				
DC Current Gain	NON A	$h_{FE}$ * $I_C=1.5A, V_{CE}=3V$	750		
	A				
Small signal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

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

**BD676, BD676A  
BD678, BD678A  
BD680, BD680A  
BD682, BD684**

**TO126  
Plastic Package**

**TO-126 (SOT-32) Plastic Package**



**Pin Configuration**

- 1. Emitter
- 2. Collector
- 3. Base

DIM	MIN	MAX
A	7.4	7.8
B	10.5	10.8
C	2.4	2.7
D	0.7	0.9
E	2.25 TYP.	
F	0.49	0.75
G	4.5 TYP.	
L	15.7 TYP.	
M	1.27 TYP.	
N	3.75 TYP.	
P	3.0	3.2
S	2.5 TYP.	

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
TO-126 Bulk	500 pcs/polybag	340 gm/500 pcs	3" x 7.5" x 7.5"	2K	17" x 15" x 13.5"	32K	31 kgs
TO-126 Tube	50 pcs/tube	73 gm/50 pcs	3" x 3.7" x 21.5"	1K	19" x 19" x 19"	10K	15 kgs

### **Disclaimer**

The product information and the selection guides facilitate selection of the CDIL's Discrete 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 is 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).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



CDIL is a registered Trademark of  
Continental Device India Limited

C-120 Naraina Industrial Area, New Delhi 110 028, India.  
Telephone + 91-11-2579 6150, 5141 1112 Fax + 91-11-2579 5290, 5141 1119  
email@cdil.com www.cdilsemi.com