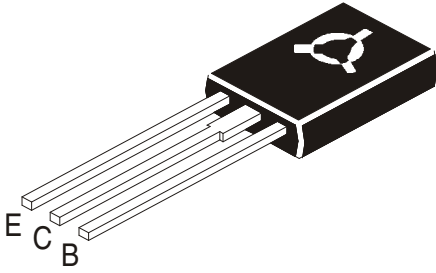


## NPN PLASTIC POWER DARLINGTON TRANSISTORS

**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 $25^\circ\text{C}$	$P_D$	1.25 10					W mW/ $^\circ\text{C}$
Total Power Dissipation@ $T_c=25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	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	$^\circ\text{C/W}$

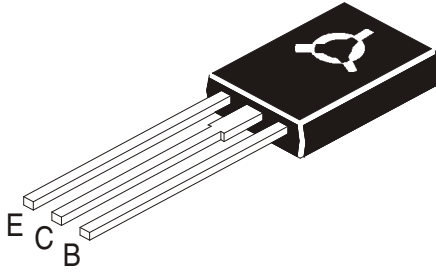
### ELECTRICAL CHARACTERISTICS ( $T_c=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNITS
Collector Emitter Voltage	$V_{CEO}^*$	$I_C=50\text{mA}, I_B=0$ <b>BD675/BD675A</b> <b>BD677/BD677A</b> <b>BD679/BD679A</b> <b>BD681</b> <b>BD683</b>	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	$\mu\text{A}$ 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		

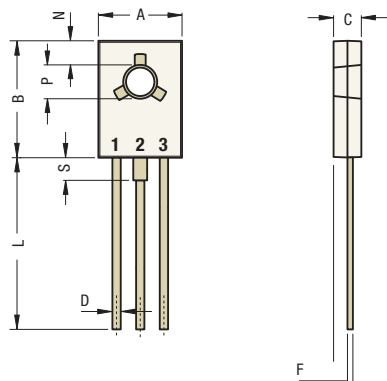
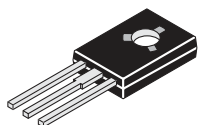
Pulse test: Pulse Width  $\leq 300\mu s$  ; Duty cycle  $\leq 2\%$ .

BD675\_683 Rev\_2 101002E

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

TO126  
 Plastic Package

**TO-126**  
 Leaded Plastic  
 Package



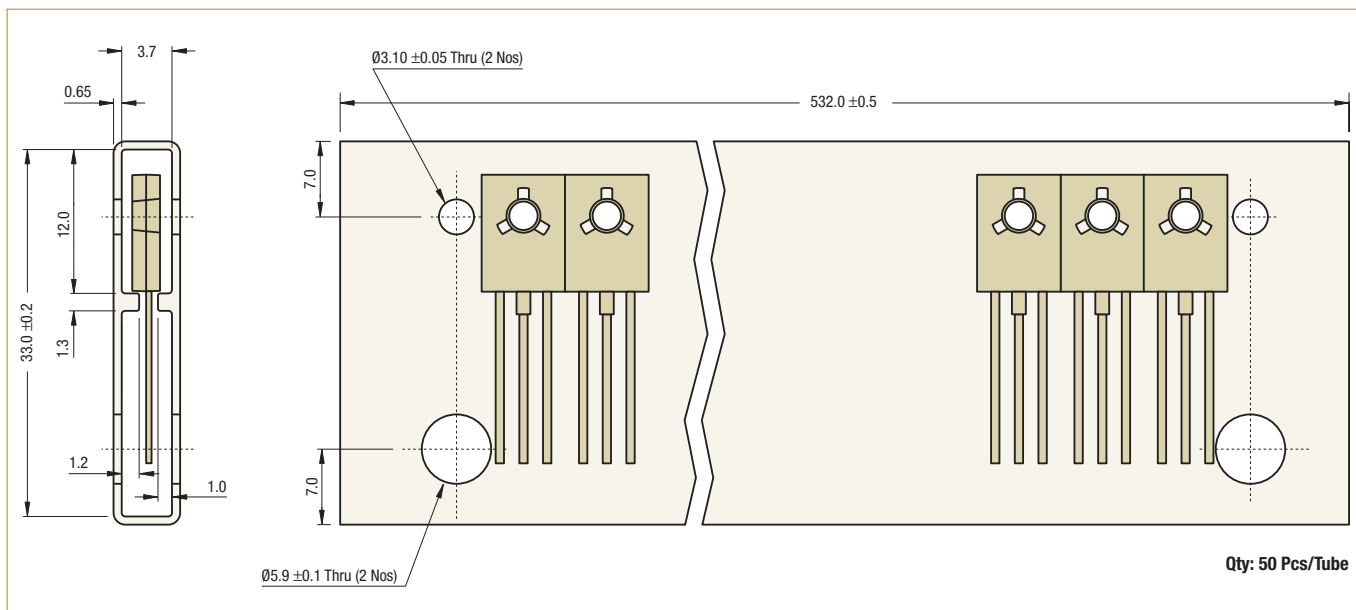
DIM	Min	Max
A	7.12	8.38
B	10.16	11.43
C	2.29	3.04
D	0.64	0.88
E	2.040	2.285
F	0.39	0.63

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

**TO-126 Series Packaging Tube**



Qty: 50 Pcs/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	Qty	Size L x W x H (cm)	Gross Weight (Kg)	Qty	Size L x W x H (cm)	Gross Weight (Kg)
TO-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).

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