



**PNP BD676 - BD678 - BD680 - BD682**  
**PNP BD676A - BD678A - BD680A - BD682A**

**SILICON DARLINGTON POWER TRANSISTORS**

The BD676/A-BD678/A-BD680/A-BD682/A are PNP transistors mounted in Jedec TO-126 plastic package.

They are epitaxial-base transistors in monolithic Darlington circuit for audio and video applications.

NPN complements are BD675/A-BD677/A-BD679/A-BD681/A

Compliance to RoHS.

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Ratings	Value	Unit	
$-V_{CEO}$	Collector-Emitter Voltage	BD676/A	45	V
		BD678/A	60	
		BD680/A	80	
		BD682/A	100	
$-V_{CBO}$	Collector-Base Voltage	BD676/A	45	V
		BD678/A	60	
		BD680/A	80	
		BD682/A	100	
$-V_{EBO}$	Emitter-Base Voltage	5	V	
$-I_C$	Collector Current	$-I_C$	4	A
		$-I_{CM}$	6	
$-I_B$	Base current (peak value)	$-I_{BM}$	0.1	A
$P_T$	Total power Dissipation @ $T_{mb} = 25^\circ\text{C}$	40	W	
$T_J$	Junction Temperature	150	$^\circ\text{C}$	
$T_{Stg}$	Storage Temperature	-65 to +150	$^\circ\text{C}$	

**THERMAL CHARACTERISTICS**

Symbol	Ratings	Value	Unit
$R_{thJ-mb}$	Thermal Resistance, Junction to mounting base	3.12	K/W
$R_{thJ-a}$	Thermal Resistance, Junction to ambient in free air	100	K/W

**PNP BD676 - BD678 - BD680 - BD682  
PNP BD676A - BD678A - BD680A - BD682A**
**ELECTRICAL CHARACTERISTICS**

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$-I_{CBO}$	Collector cut-off current	$I_E=0, -V_{CB}=-45\text{ V}$	BD676/A	-	-	0,2	mA
		$I_E=0, -V_{CB}=-60\text{ V}$	BD678/A	-	-	0,2	
		$I_E=0, -V_{CB}=-80\text{ V}$	BD680/A	-	-	0,2	
		$I_E=0, -V_{CB}=-100\text{ V}$	BD682/A	-	-	0,2	
		$I_E=0, -V_{CB}=-45\text{V}, T_j=150^\circ\text{C}$	BD676/A	-	-	2	
		$I_E=0, -V_{CB}=-60\text{V}, T_j=150^\circ\text{C}$	BD678/A	-	-	2	
		$I_E=0, -V_{CB}=-80\text{V}, T_j=150^\circ\text{C}$	BD680/A	-	-	2	
		$I_E=0, -V_{CB}=-100\text{V}, T_j=150^\circ\text{C}$	BD682/A	-	-	2	
$-I_{CEO}$	Collector cut-off current	$I_B=0, -V_{CE}=-\frac{1}{2}V_{CEOMAX}$	BD676/A	-	-	0,5	mA
			BD678/A	-	-	0,5	
			BD680/A	-	-	0,5	
			BD682/A	-	-	0,5	
$-I_{EBO}$	Emitter cut-off current	$I_C=0, -V_{EB}=5\text{ V}$	-	-	5	mA	
$-V_{CEO(SUS)}$	Collector-Emitter sustaining Voltage	$I_B=0, -I_C=50\text{ mA}$	BD676/A	45	V	-	V
			BD678/A	60		-	
			BD680/A	80		-	
			BD682/A	100		-	
$-V_{CE(SAT)}$	Collector-Emitter saturation Voltage	BD676, BD678, BD680, BD682 $-I_C=1.5\text{ A}, -I_B=30\text{ mA}$	-	-	2,5	V	
		BD676A, BD678A, BD680A, BD682A $-I_C=2\text{ A}, -I_B=40\text{ mA}$	-	-	2.8		
$h_{FE}$	DC Current Gain	BD676, BD678, BD680, BD682 $-V_{CE}=3\text{ V}, -I_C=500\text{ mA}$	-	2200	-		
		BD676, BD678, BD680, BD682 $-V_{CE}=3\text{ V}, -I_C=1,5\text{ A}$	750	-	-		
		BD676, BD678, BD680, BD682 $-V_{CE}=3\text{ V}, -I_C=4\text{ A}$	-	650	-		
		BD676A, BD678A, BD680A, BD682A $-V_{CE}=3\text{ V}, -I_C=2\text{ A}$	750	-	-		
$-V_{BE}$	Base-Emitter Voltage(1&2)	BD676, BD678, BD680, BD682 $-V_{CE}=3\text{ V}, -I_C=1,5\text{ A}$	-	-	2,5	V	
		BD676A, BD678A, BD680A, BD682A $-V_{CE}=3\text{ V}, -I_C=2\text{ A}$	-	-	2.5		
$h_{fe}$	Small signal current gain	$-V_{CE}=3\text{ V}, -I_C=1,5\text{ A}, f=1\text{ MHz}$	10	-	-		
$f_{hfe}$	Ut-off frequency	$-V_{CE}=3\text{ V}, -I_C=1,5\text{ A}$	-	60	-	kHz	
$V_F$	Diode forward voltage	$I_F=1,5\text{ A}$	-	1,5	-	V	
$-I_{(SB)}$	Second-breakdown collector current	$-V_{CE}=50\text{ V}, t_p=20\text{ms}, \text{non rep.}, \text{without heatsink}$	0,8	-	-	A	

**PNP BD676 - BD678 - BD680 - BD682  
PNP BD676A - BD678A - BD680A - BD682A**

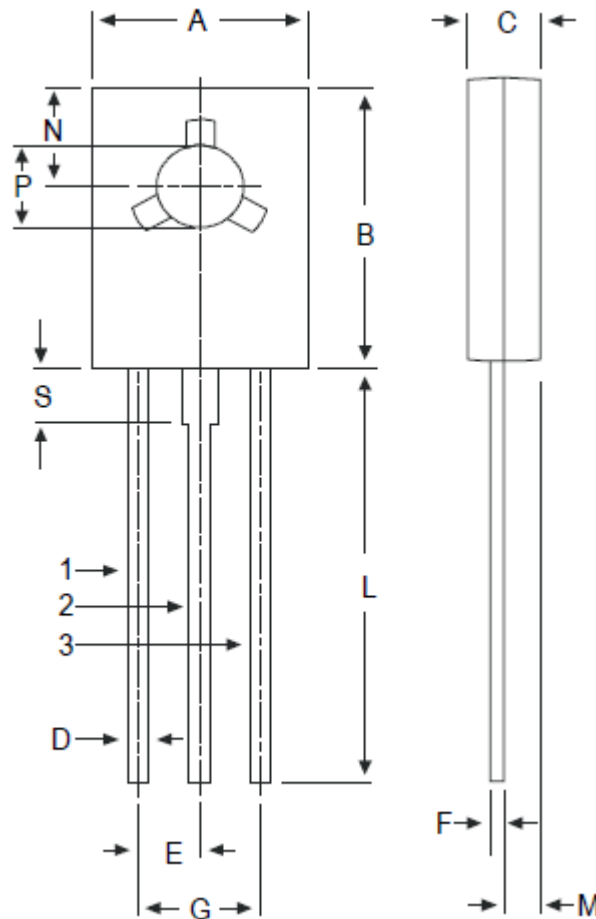
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$t_{on}$	Turn-on time	$-I_{con} = 1,5A, -I_{bon} = I_{boff} = 6mA,$	-	0,3	1.5	$\mu s$
$t_{off}$	Turn-off time		-	1,5	5	

1. Measured under pulse conditions :  $t_p < 300\mu s, \delta < 2\%$ .
2.  $V_{BE}$  decreases by about 3,6 mV/K with increasing temperature.

**MECHANICAL DATA CASE TO-126**

	DIMENSIONS	
	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	4.4 typ.	
L	15.7 typ.	
M	1.27 typ.	
N	3.75 typ.	
P	3.0	3.2
S	2.54 typ.	

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



Revised August 2012

Information furnished is believed to be accurate and reliable. However, Comset Semiconductors assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. Data are subject to change without notice. Comset Semiconductors makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Comset Semiconductors assume any liability arising out of the application or use of any product and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Comset Semiconductors' products are not authorized for use as critical components in life support devices or systems.