



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
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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 V	BD676/A	-	-	0,2	mA
		I _E =0 , -V _{CB} = - 60 V	BD678/A	-	-	0,2	
		I _E =0 , -V _{CB} = - 80 V	BD680/A	-	-	0,2	
		I _E =0 , -V _{CB} = - 100 V	BD682/A	-	-	0,2	
		I _E =0 , -V _{CB} = - 45V, T _j = 150°C	BD676/A	-	-	2	
		I _E =0 , -V _{CB} = - 60V, T _j = 150°C	BD678/A	-	-	2	
		I _E =0 , -V _{CB} = - 80V, T _j = 150°C	BD680/A	-	-	2	
		I _E =0 , -V _{CB} = - 100V T _j = 150°C	BD682/A	-	-	2	
-I_{CEO}	Collector cut-off current	I _B =0 , -V _{CE} = -½V _{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 V	-	-	5	mA	
-V_{CEO(SUS)}	Collector-Emitter sustaining Voltage	I _B =0 , -I _C =50 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 A, -I _B =30 mA	-	-	2,5	V	
		BD676A, BD678A, BD680A, BD682A -I _C =2 A, -I _B =40 mA	-	-	2.8		
h_{FE}	DC Current Gain	BD676, BD678, BD680, BD682 -V _{CE} =3 V, -I _C =500 mA	-	2200	-		
		BD676, BD678, BD680, BD682 -V _{CE} =3 V, -I _C =1,5 A	750	-	-		
		BD676, BD678, BD680, BD682 -V _{CE} =3 V, -I _C =4 A	-	650	-		
		BD676A, BD678A, BD680A, BD682A -V _{CE} =3 V, -I _C =2 A	750	-	-		
-V_{BE}	Base-Emitter Voltage(1&2)	BD676, BD678, BD680, BD682 -V _{CE} =3 V, -I _C =1,5 A	-	-	2,5	V	
		BD676A, BD678A, BD680A, BD682A -V _{CE} =3 V, -I _C =2 A	-	-	2.5		
h_{fe}	Small signal current gain	-V _{CE} =3 V, -I _C =1,5 A, f= 1 MHz	10	-	-		
f_{hfe}	Ut-off frequency	-V _{CE} =3 V, -I _C =1,5 A	-	60	-	kHz	
V_F	Diode forward voltage	I _F =1,5 A	-	1,5	-	V	
-I_(SB)	Second-breakdown collector current	-V _{CE} =50 V, t _p = 20ms,non rep., without heatsink	0,8	-	-	A	

**PNP BD676 - BD678 - BD680 - BD682
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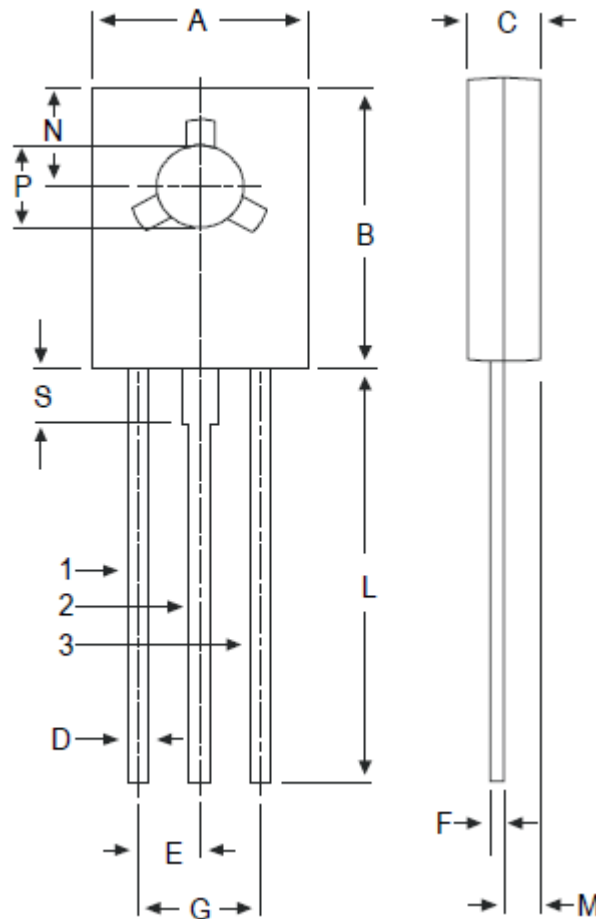
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
t_{on}	Turn-on time	$-I_{con} = 1,5A, -I_{bon} = I_{boff} = 6mA,$	-	0,3	1.5	μs
t_{off}	Turn-off time		-	1,5	5	

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



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