



PNP BD676-BD678-BD680-BD682
NPN BD675-BD677-BD679-BD681

SILICON DARLINGTON POWER TRANSISTORS

The BD676-BD678-BD680-BD682 are PNP eptaxial-base transistors in monolithic Darlington circuit for audio and video applications. They are mounted in Jedec TO-126 plastic package. NPN complements are BD675-BD677-BD679-BD681 .

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
$-V_{CEO}$	Collector-Emitter Voltage	BD676	45	V
		BD678	60	
		BD680	80	
		BD682	100	
$-V_{CBO}$	Collector-Base Voltage	BD676	45	V
		BD678	60	
		BD680	80	
		BD682	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	Watts
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 mouting base	3.12	K/W
R_{thJ-a}	Thermal Resistance, Junction to ambient in free air	100	K/W

PNP BD676-BD678-BD680-BD682

NPN BD675-BD677-BD679-BD681

ELECTRICAL CHARACTERISTICS

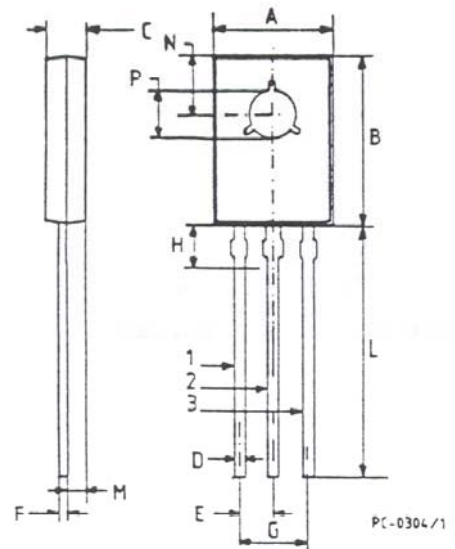
TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	M x	Unit	
$-I_{CBO}$	Collector cut-off current	$I_E=0, -V_{CB}=-V_{CBOMAX}=45\text{ V}$ BD676	-	-	0,2	mA	
		$I_E=0, -V_{CB}=-V_{CBOMAX}=60\text{ V}$ BD678	-	-	0,2		
		$I_E=0, -V_{CB}=-V_{CBOMAX}=80\text{ V}$ BD680	-	-	0,2		
		$I_E=0, -V_{CB}=-V_{CBOMAX}=100\text{ V}$ BD682	-	-	0,2		
		$I_E=0, -V_{CB}=-\frac{1}{2}V_{CBOMAX}=45\text{V}, T_J=150^\circ\text{C}$ BD676	-	-	1		
		$I_E=0, -V_{CB}=-\frac{1}{2}V_{CBOMAX}=60\text{V}, T_J=150^\circ\text{C}$ BD678	-	-	1		
		$I_E=0, -V_{CB}=-\frac{1}{2}V_{CBOMAX}=80\text{V}, T_J=150^\circ\text{C}$ BD680	-	-	1		
		$I_E=0, -V_{CB}=-\frac{1}{2}V_{CBOMAX}=100\text{V}, T_J=150^\circ\text{C}$ BD682	-	-	1		
$-I_{CEO}$	Collector cut-off current	$I_B=0, -V_{CE}=-\frac{1}{2}V_{CEOMAX}=60\text{ V}$	BD676	-	-	0,2	mA
			BD678	-	-	0,2	
			BD680	-	-	0,2	
			BD682	-	-	0,2	
$-I_{EBO}$	Emitter cut-off current	$I_C=0, -V_{EB}=5\text{ V}$	-	-	5	mA	
$-V_{CE(SAT)}$	Collector-Emitter saturation Voltage	$-I_C=1.5\text{ A}, -I_B=6\text{ mA}$	-	-	2,5	V	
h_{FE}	DC Current Gain	$-V_{CE}=3\text{ V}, -I_C=500\text{ mA}$	-	2200	-		
		$-V_{CE}=3\text{ V}, -I_C=1,5\text{ A}$	750	-	-		
		$-V_{CE}=3\text{ V}, -I_C=4\text{ A}$	-	650	-		
$-V_{BE}$	Base-Emitter Voltage(1&2)	$-V_{CE}=3\text{ V}, -I_C=1,5\text{ A}$	-	-	2,5	V	
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	
t_{on}	Turn-on time	$-I_{con}=1,5\text{A}, -I_{bon}=I_{boff}=6\text{mA},$	-	0,3	1,5	μs	
t_{off}	Turn-off time		-	1,5	5		

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

MECHANICAL DATA CASE TO-126

	DIMENSIONS			
	mm		inches	
	min	max	min	max
A	7.4	7.8	0.295	0.307
B	10.5	10.8	0.413	0.425
C	2.4	2.7	0.094	0.106
D	0.7	0.9	0.027	0.035
E	2.2 typ.		0.087 typ.	
F	0.49	0.75	0.019	0.029
G	4.4 typ.		0.173 typ.	
H	2.54 typ.		0.100 typ.	
L	15.7 typ.		0.618 typ.	
M	1.2 typ.		0.047 typ.	
N	3.8 typ.		0.149 typ.	
P	3.0	3.2	0.118	0.126



Pin 1 :	Emitter
Pin 2 :	Collector
Case :	Base