



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

SILICON DARLINGTON POWER TRANSISTORS

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

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
V_{CEO}	Collector-Emitter Voltage	BD675	60	V
		BD677	80	
		BD679	100	
		BD681	120	
V_{CBO}	Collector-Base Voltage	BD675	60	V
		BD677	80	
		BD679	100	
		BD681	120	
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	@ $T_{mb} = 25^\circ C$	40	Watts
T_J	Junction Temperature		150	$^\circ C$
T_{Stg}	Storage Temperature		-65 to +150	$^\circ C$

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

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

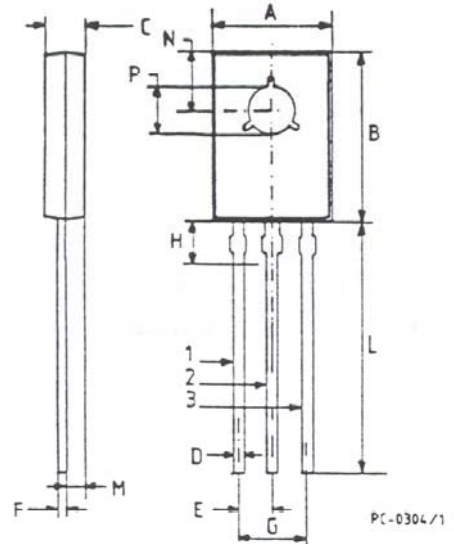
Symbol	Ratings	Test Condition(s)	Min	Typ	M x	Unit	
I_{CBO}	Collector cut-off current	$I_E=0, V_{CB}=V_{CBOMAX}=60\text{ V}$	BD675	-	-	0,2	mA
		$I_E=0, V_{CB}=V_{CBOMAX}=80\text{ V}$	BD677	-	-	0,2	
		$I_E=0, V_{CB}=V_{CBOMAX}=100\text{ V}$	BD679	-	-	0,2	
		$I_E=0, V_{CB}=V_{CBOMAX}=120\text{ V}$	BD681	-	-	0,2	
		$I_E=0, V_{CB}=\frac{1}{2}V_{CBOMAX}=30\text{ V}, T_j=150^\circ\text{C}$	BD675	-	-	1	
		$I_E=0, V_{CB}=\frac{1}{2}V_{CBOMAX}=40\text{ V}, T_j=150^\circ\text{C}$	BD677	-	-	1	
		$I_E=0, V_{CB}=\frac{1}{2}V_{CBOMAX}=50\text{ V}, T_j=150^\circ\text{C}$	BD679	-	-	1	
		$I_E=0, V_{CB}=\frac{1}{2}V_{CBOMAX}=60\text{ V}, T_j=150^\circ\text{C}$	BD681	-	-	1	
I_{CEO}	Collector cut-off current	$I_B=0, V_{CE}=\frac{1}{2}V_{CEOMAX}=30\text{ V}$	BD675	-	-	0,2	mA
		$I_B=0, V_{CE}=\frac{1}{2}V_{CEOMAX}=40\text{ V}$	BD677	-	-	0,2	
		$I_B=0, V_{CE}=\frac{1}{2}V_{CEOMAX}=50\text{ V}$	BD679	-	-	0,2	
		$I_B=0, V_{CE}=\frac{1}{2}V_{CEOMAX}=60\text{ V}$	BD681	-	-	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	$I_C=1.5\text{ A}, -I_B=6\text{ Ma}$ (BD675 ; $I_C=2\text{ A}$)	-	-	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	-	-		
		$V_{CE}=3\text{ V}, I_C=4\text{ A}$	-	1500	-		
V_{BE}	Base-Emitter Voltage(1&2)	$V_{CE}=3\text{ V}, I_C=1,5\text{ A}$ (BD675 ; $I_C=2\text{ A}$)	-	-	2,5	V	
h_{fe}	Small signal current gain	$V_{CE}=3\text{ V}, I_C=1,5\text{ A}, f=1\text{ MHz}$ (BD675 ; $I_C=2\text{ A}$)	10	-	-		
f_{hfe}	Ut-off frequency	$V_{CE}=3\text{ V}, I_C=1,5\text{ A}$ (BD675 ; $I_C=2\text{ A}$)	-	60	-	kHz	
V_F	Diode forward voltage	$I_F=1,5\text{ A}$ (BD675 ; $I_F=2\text{ A}$)	-	1,5	-	V	
$I_{(SB)}$	Second-breakdown collector current	$-V_{CE}=50\text{ V}, t_p=20\text{ms}$, non rep., 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.

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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

