



NPN BD675 - BD677 - BD679 - BD681
NPN BD675A - BD677A - BD679A - BD681A

SILICON DARLINGTON POWER TRANSISTORS

The BD675/A-BD677/A-BD679/A-BD681/A are NPN transistors mounted in Jedec TO-126 plastic package.

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

PNP complements are BD676/A - BD678/A - BD680/A - BD682/A

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V_{CEO}	Collector-Emitter Voltage	BD675/A	45	V
		BD677/A	60	
		BD679/A	80	
		BD681/A	100	
V_{CBO}	Collector-Base Voltage	BD675/A	45	V
		BD677/A	60	
		BD679/A	80	
		BD681/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

NPN BD675 - BD677 - BD679 - BD681 NPN BD675A - BD677A - BD679A - BD681A

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} = 60 V	BD675/A	-	-	0,2	mA
		I _E =0 , V _{CB} = 80 V	BD677/A	-	-	0,2	
		I _E =0 , V _{CB} = 100 V	BD679/A	-	-	0,2	
		I _E =0 , V _{CB} = 120 V	BD681/A	-	-	0,2	
		I _E =0 ,V _{CB} = 30V, T _j = 150°C	BD675/A	-	-	2	
		I _E =0 ,V _{CB} = 40V, T _j = 150°C	BD677/A	-	-	2	
		I _E =0 ,V _{CB} = 50V, T _j = 150°C	BD679/A	-	-	2	
		I _E =0 ,V _{CB} = 60V, T _j = 150°C	BD681/A	-	-	2	
I _{CEO}	Collector cut-off current	I _B =0 , V _{CE} = ½V _{CEOMAX}	BD675/A	-	-	0,5	mA
		I _B =0 , V _{CE} = ½V _{CEOMAX}	BD677/A	-	-	0,5	
		I _B =0 , V _{CE} = ½V _{CEOMAX}	BD679/A	-	-	0,5	
		I _B =0 , V _{CE} = ½V _{CEOMAX}	BD681/A	-	-	0,5	
I _{EBO}	Emitter cut-offcurrent	I _C =0, -V _{EB} =5 V		-	-	5	mA
V _{CEO(SUS)}	Collector-Emitter sustaning Voltage	I _B =0 , I _C =50 mA	BD675/A	45	-	-	V
			BD677/A	60	-	-	
			BD679/A	80	-	-	
			BD681/A	100	-	-	
V _{CE(SAT)}	Collector-Emitter saturation Voltage	BD675, BD677, BD679, BD681 I _C =1.5 A,I _B =30 mA		-	-	2,5	V
		BD675A, BD677A, BD679A, BD681A I _C =2 A,I _B =40 mA		-	-	2.8	
h _{FE}	DC Current Gain	BD675, BD677, BD679, BD681 V _{CE} =3 V, I _C =500 mA		-	2200	-	
		BD675, BD677, BD679, BD681 V _{CE} =3 V, I _C =1,5 A		750	-	-	
		BD675, BD677, BD679, BD681 V _{CE} =3 V, I _C =4 A		-	1500	-	
		BD675A, BD677A, BD679A, BD681A V _{CE} =3 V, I _C =2 A		750	-	-	
V _{BE}	Base-Emitter Voltage(1&2)	BD675, BD677, BD679, BD681 V _{CE} =3 V, I _C =1,5 A		-	-	2,5	V
		BD675A, BD677A, BD679A, BD681A 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

NPN BD675 - BD677 - BD679 - BD681 NPN BD675A - BD677A - BD679A - BD681A

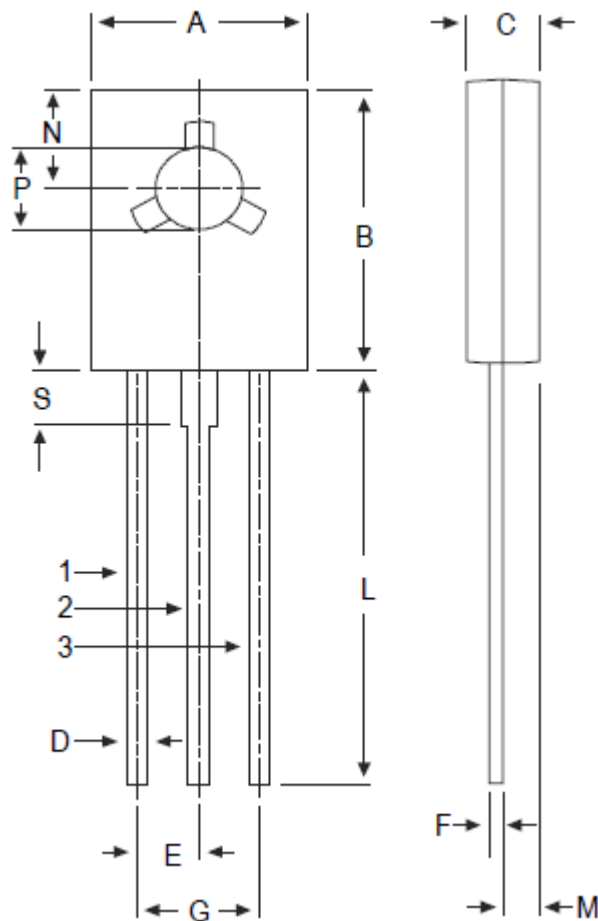
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
t_{on}	Turn-on time	$-I_{con} = 1,5A, -I_{bon} = I_{boff} = 6mA,$	-	0,3	1.5	μs
t_{off}	Turn-off time		-	1,5	5	

1. Measured under pulse conditions : $t_p < 300\mu s, \square < 2\%$.
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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