PNP BD684 – BD684A

SILICON DARLINGTON POWER TRANSISTORS

The BD684 and BD684A 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 BD683 and BD683A.
Compliance to RoHS

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V_{CEO}	Collector-Emitter Voltage		-120	V
V_{CBO}	Collector-Base Voltage		-120	V
V_{EBO}	Emitter-Base Voltage		-5	V
I_C	Collector Current	I_C	-4	A
		I_{CM}	-6	
I_{BM}	Base current peak value		-0.1	A
P_T	Total power Dissipation	@ T_{mb} = 25°C	40	W
T_J	*Junction Temperature*		150	°C
T_{Stg}	Storage Temperature		-65 to +150	°C

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ\text{-}mb}$	Thermal Resistance, Junction to mouting base	3.12	K/W
$R_{thJ\text{-}a}$	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	Max	Unit
I_{CBO}	Collector cut-off current	I_E=0, V_{CB}= -120 V		-	-	-0,2	mA
		I_E=0, V_{CB}= -120V, T_j= 150°C		-	-	-2	
I_{CEO}	Collector cut-off current	I_B=0,V_{CE}= -1/2V_{CEOMAX}		-	-	-0,5	mA
I_{EBO}	Emitter cut-offcurrent	I_C=0, V_{EB}=-5 V		-	-	-5	mA
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	I_C=-1.5 A I_B=-30 mA	BD683	-	-	-2,5	V
		I_C=-2 A, I_B=-40 mA	BD683A	-	-	-2,8	
h_{FE}	DC Current Gain (*)	V_{CE}=-3 V, I_C=-1.5 A	BD683	750	-	-	-
		V_{CE}=-3 V, I_C=-2 A	BD683A				
V_{BE}	Base-Emitter Voltage (*)	V_{CE}=-3 V, I_C=-1.5 A	BD683	-	-	-2,5	V
		V_{CE}=-3 V, I_C=-2 A	BD683A				
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
t_{on}	Turn-on time	I_{con}= -1.5A, I_{bon}= -I_{boff}= -6mA		-	0,8	2	µs
t_{off}	Turn-off time	V_{CC}=-30V		-	4,5	8	

(*) Measured under pulse conditions :t_P <300µs, δ <2%.

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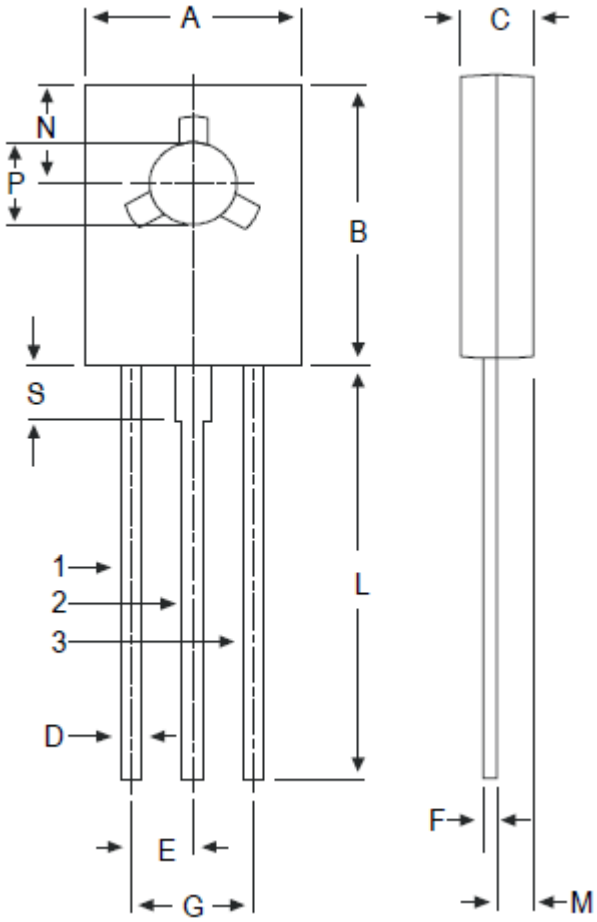
MECHANICAL DATA CASE TO-126

	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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