

PNP BDX45 – BDX46 – BDX47
NPN BDX42 – BDX43– BDX44

**SILICON PLANAR DARLINGTON
 TRANSISTORS**

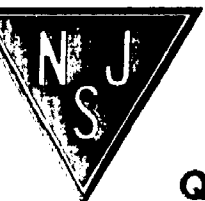
The BDX45, BDX46 and BDX47 are silicon PNP planar Darlington transistors and are mounted in Jedec TO-126 plastic package. They are intended for use in industrial switching applications.

The complementary NPN types are the BDX42, BDX43 and BDX44 respectively.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit
- V _{CBO}	Collector-Base Voltage	BDX45	60
		BDX46	80
		BDX47	90
- V _{CER}	Collector-Emitter Voltage	BDX45	45
		BDX46	60
		BDX47	80
- V _{EBO}	Emitter-Base Voltage	BDX45	5
		BDX46	
		BDX47	

- I _C	Collector Current	- I _C	BDX45 BDX46 BDX47	1	A
		- I _{CM}	BDX45 BDX46 BDX47	2	
- I _B	Base Current		BDX45 BDX46 BDX47	0.1	A
P _T	Power Dissipation	@ T _C = 25°	BDX45 BDX46 BDX47	1.25	Watts
T _J	Junction Temperature		BDX45 BDX46 BDX47	150	°C
T _S	Storage Temperature		BDX45 BDX46 BDX47	-65 to +150	



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Quality Semi-Conductors

PNP BDX45 – BDX46 – BDX47
NPN BDX42 – BDX43– BDX44

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit	
R_{thJ-a}	Thermal Resistance, Junction to Ambient	BDX45	100	K/W
		BDX46		
		BDX47		
R_{thJ-mb}	Thermal Resistance, Junction to Mounting base	BDX45	10	
		BDX46		
		BDX47		

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
- I_{CES}	Collector cut-off current	$V_{BE} = 0 ; -V_{CE} = 45V$	BDX45	-	-	10	μA
		$V_{BE} = 0 ; -V_{CE} = 60V$	BDX46	-	-	10	
		$V_{BE} = 0 ; -V_{CE} = 80V$	BDX47	-	-	10	
- I_{EBO}	Emitter cut-off current	$I_C = 0 ; V_{EB} = 4V$	BDX45	-	-	10	μA
			BDX46	-	-	10	
			BDX47	-	-	10	

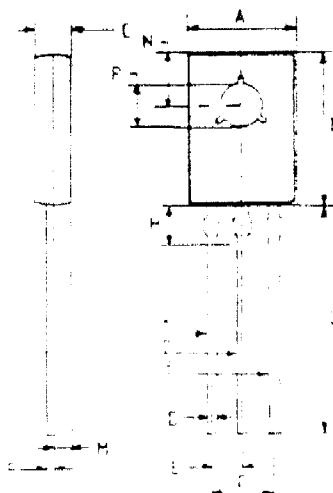
- $V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$-I_C=500 \text{ mA}, -I_B=0.5 \text{ mA}$	BDX45	-	-	1.3	V			
			BDX46	-	-	1.3				
			BDX47	-	-	1.3				
		$-I_C=1.0 \text{ A}, -I_B=1.0 \text{ mA}$	BDX46	-	-	1.6				
			BDX45	-	-	1.6				
		$-I_C=1.0 \text{ A}, -I_B=4.0 \text{ mA}$	BDX47	-	-	1.6				
			BDX45	-	-	1.3				
		$T_j=150 \text{ }^\circ\text{C}$	BDX46	-	-	1.3				
			BDX47	-	-	1.3				
			BDX46	-	-	1.8				
		- $V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	$-I_C=500 \text{ mA}, -I_B=0.5 \text{ mA}$	BDX45	-		-	1.9	V
					BDX46	-		-	1.9	
BDX47	-				-	1.9				
$-I_C=1.0 \text{ A}, -I_B=1.0 \text{ mA}$	BDX46			-	-	2.2				
	BDX45			-	-	2.2				
$-I_C=1.0 \text{ A}, -I_B=4.0 \text{ mA}$	BDX47			-	-	2.2				
h_{FE}	DC Current Gain	$-V_{CE}=10.0 \text{ V}, -I_C=150 \text{ mA}$	BDX45	1000	-	-	-			
			BDX46	1000	-	-				
			BDX47	1000	-	-				
		$-V_{CE}=10.0 \text{ V}, -I_C=500 \text{ mA}$	BDX45	2000	-	-				
			BDX46	2000	-	-				
		BDX47	2000	-	-					

PNP BDX45 – BDX46 – BDX47
NPN BDX42 – BDX43– BDX44

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
h_{fe}	Small Signal Current Gain	$-V_{CE}=5.0\text{ V}$, $-I_C=500\text{ mA}$, $f=35\text{ MHz}$	BDX45	-	10	-	-
			BDX46	-	10	-	
			BDX47	-	10	-	
t_{on}	Turn-on time	$-I_C=500\text{ mA}$, $-I_{B(on)}=I_{B(off)}=0.5\text{ mA}$	BDX45	-	400	-	ns
			BDX46	-	400	-	
			BDX47	-	400	-	
t_{off}	Turn-off time		BDX45	-	1500	-	
			BDX46	-	1500	-	
			BDX47	-	1500	-	
t_{on}	Turn-on time	$-I_C=1\text{ A}$, $-I_{B(on)}=I_{B(off)}=1.0\text{ mA}$	BDX45	-	400	-	ns
			BDX46	-	400	-	
			BDX47	-	400	-	
t_{off}	Turn-off time		BDX45	-	1500	-	
			BDX46	-	1500	-	
			BDX47	-	1500	-	

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