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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 intented 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 BDX46 BDX47	60 80 90	V
$-V_{CER}$	Collector-EmitterVoltage		BDX45 BDX46 BDX47	45 60 80	V
$-V_{EBO}$	Emitter-Base Voltage		BDX45 BDX46 BDX47	5	V
$-I_C$	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	

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

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

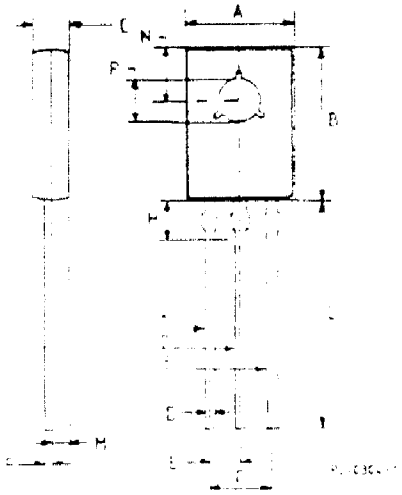
Symbol	Ratings	Test Condition(s)		Min	Typ	Mx	Unit
$-I_{CES}$	Collector cut-off current	V_{BE} = 0 ; $-V_{CE}$ = 45V	BDX45	-	-	10	µA
		V_{BE} = 0 ; $-V_{CE}$ = 60V	BDX46	-	-	10	
		V_{BE} = 0 ; $-V_{CE}$ = 80V	BDX47	-	-	10	
$-I_{EBO}$	Emitter cut-off current	I_C =0 ; V_{EB} = 4V	BDX45	-	-	10	µA
			BDX46	-	-	10	
			BDX47	-	-	10	
$-V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$-I_C$=500 mA, $-I_B$=0.5 mA	BDX45	-	-	1.3	V
			BDX46	-	-	1.3	
			BDX47	-	-	1.3	
		$-I_C$=1.0 A, $-I_B$=1.0 mA	BDX46	-	-	1.6	
		$-I_C$=1.0 A, $-I_B$=4.0 mA	BDX45	-	-	1.6	
			BDX47	-	-	1.6	
		$-I_C$=500 mA, $-I_B$=0.5 mA Tj=150 °C	BDX45	-	-	1.3	
			BDX46	-	-	1.3	
			BDX47	-	-	1.3	
		$-I_C$=1.0 A, $-I_B$=1.0 mA Tj=150 °C	BDX46	-	-	1.8	
		$-I_C$=1.0 A, $-I_B$=4.0 mA Tj=150 °C	BDX45	-	-	1.6	
			BDX47	-	-	1.6	
$-V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	$-I_C$=500 mA, $-I_B$=0.5 mA	BDX45	-	-	1.9	V
			BDX46	-	-	1.9	
			BDX47	-	-	1.9	
		$-I_C$=1.0 A, $-I_B$=1.0 mA	BDX46	-	-	2.2	
		$-I_C$=1.0 A, $-I_B$=4.0 mA	BDX45	-	-	2.2	
			BDX47	-	-	2.2	
h_{FE}	DC Current Gain	$-V_{CE}$=10.0 V, $-I_C$=150 mA	BDX45	1000	-	-	-
			BDX46	1000	-	-	
			BDX47	1000	-	-	
		$-V_{CE}$=10.0 V, $-I_C$=500 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 V, $-I_C$=500 mA , f=35MHz	**BDX45**	-	10	-	-
			BDX46	-	10	-	
			BDX47	-	10	-	
t_{on}	Turn-on time	$-I_C$=500 mA, $-I_{Bon}$= I_{Boff}=0.5 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 A, $-I_{Bon}$= I_{Boff}=1.0 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