

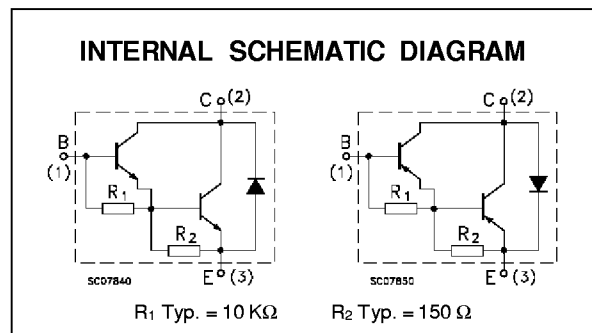
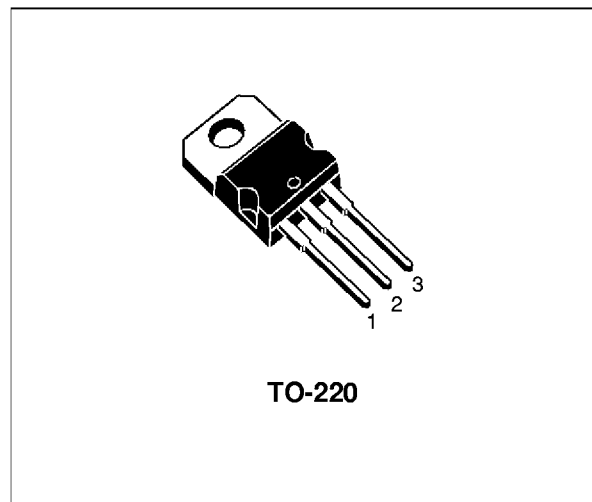
**COMPLEMENTARY SILICON POWER
DARLINGTON TRANSISTORS**

- DBX33B, BDX33C, BDX34B AND BDX34C ARE SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

The BDX33B, BDX33B and BDX33C are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in Jedec TO-220 plastic package. They are intended for use in power linear and switching applications.

The complementary PNP types are the BDX34A, BDX34B and BDX34C respectively.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit	
		NPN	BDX33A	BDX33B		BDX33C
		PNP	BDX34A	BDX34B	BDX34C	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)		60	80	100	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)		60	80	100	V
I_C	Collector Current			10		A
I_{CM}	Collector Peak Current			15		A
I_B	Base Current			0.25		A
P_{tot}	Total Dissipation at $T_c \leq 25^\circ C$			70		W
T_{stg}	Storage Temperature			-65 to 150		$^\circ C$
T_j	Max. Operating Junction Temperature			150		$^\circ C$

For PNP types voltage and current values are negative.

BDX33A/33B/33C/34A/34B/34C

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	1.78	°C/W
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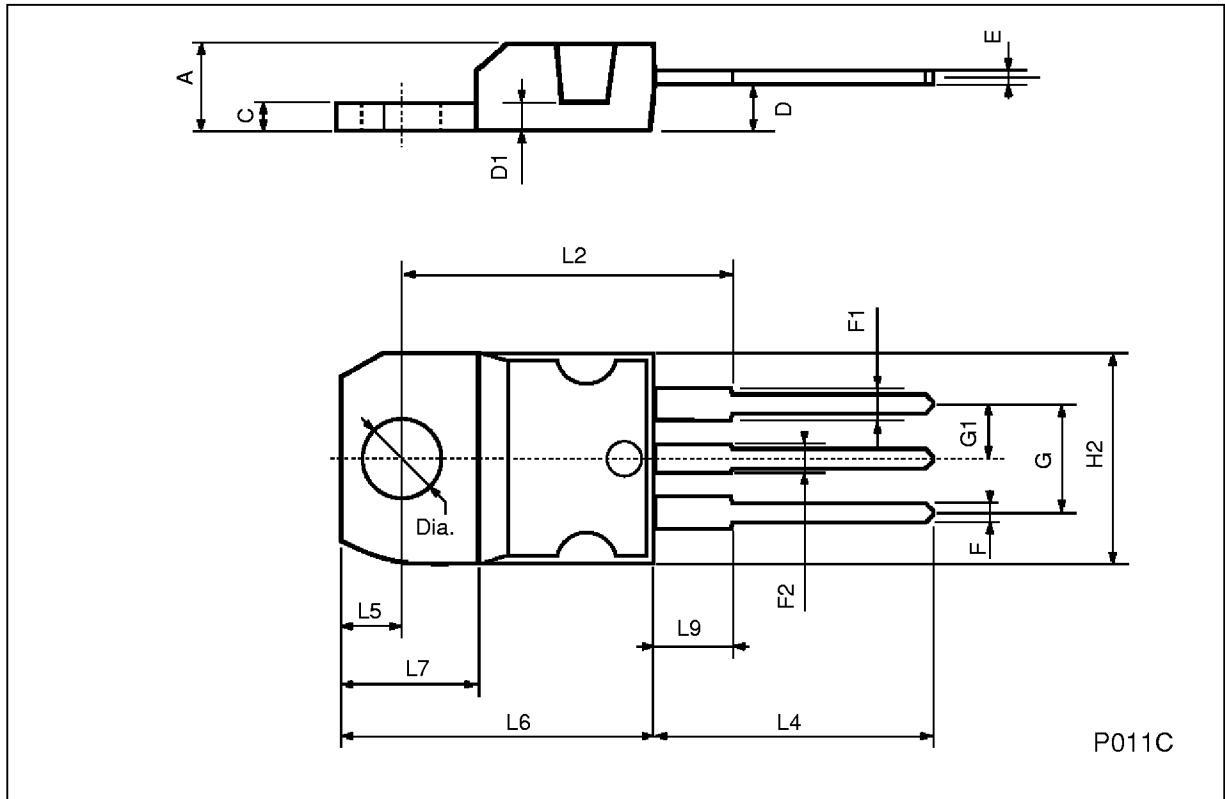
ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	for BDX33A/34A $V_{CB} = 60\text{ V}$ for BDX33B/34B $V_{CB} = 80\text{ V}$ for BDX33C/34C $V_{CB} = 100\text{ V}$ $T_{case} = 100\text{ °C}$ for BDX33A/34A $V_{CB} = 60\text{ V}$ for BDX33B/34B $V_{CB} = 80\text{ V}$ for BDX33C/34C $V_{CB} = 100\text{ V}$			0.2 0.2 0.2 5 5 5	mA mA mA mA mA mA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	for BDX33A/34A $V_{CB} = 30\text{ V}$ for BDX33B/34B $V_{CB} = 40\text{ V}$ for BDX33C/34C $V_{CB} = 50\text{ V}$ $T_{case} = 100\text{ °C}$ for BDX33A/34A $V_{CB} = 30\text{ V}$ for BDX33B/34B $V_{CB} = 40\text{ V}$ for BDX33C/34C $V_{CB} = 50\text{ V}$			0.5 0.5 0.5 10 10 10	mA mA mA mA mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			5	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 100\text{ mA}$ for BDX33A/34A for BDX33B/34B for BDX33C/34C	60 80 100			V V V
$V_{CER(sus)*}$	Collector-emitter Sustaining Voltage ($I_B=0$ $R_{BE} = 100\ \Omega$)	$I_C = 100\text{ mA}$ for BDX33A/34A for BDX33B/34B for BDX33C/34C	60 80 100			V V V
$V_{CEV(sus)*}$	Collector-emitter Sustaining Voltage ($I_B=0$ $V_{BE}=-1.5\text{ V}$)	$I_C = 100\text{ mA}$ for BDX33A/34A for BDX33B/34B for BDX33C/34C	60 80 100			V V V
$V_{CE(sat)*}$	Collector-emitter Saturation Voltage	for BDX33A/34A $I_C = 4\text{ A}$ $I_B = 8\text{ mA}$ for BDX33B/33C/34B/34C $I_C = 3\text{ A}$ $I_B = 6\text{ mA}$			2.5 2.5	V V
V_{BE*}	Base-emitter Voltage	for BDX33A/34A $I_C = 4\text{ A}$ $V_{CE} = 3\text{ V}$ for BDX33B/33C/34B/34C $I_C = 3\text{ A}$ $V_{CE} = 3\text{ V}$			2.5 2.5	V V
h_{FE*}	DC Current Gain	for BDX33A/34A $I_C = 4\text{ A}$ $V_{CE} = 3\text{ V}$ for BDX33B/33C/34B/34C $I_C = 3\text{ A}$ $V_{CE} = 3\text{ V}$	750 750			V V
V_F*	Parallel-Diode Forward Voltage	$I_F = 8\text{ A}$			4	V
h_{fe}	Small Signal Current Gain	$I_C = 1\text{ A}$ $V_{CE} = 5\text{ V}$ $f = 1\text{ MHz}$	100			

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %
For PNP types voltage and current values are negative.

TO-220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



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