



# BD533 BD535 BD537 BD534 BD536 BD538

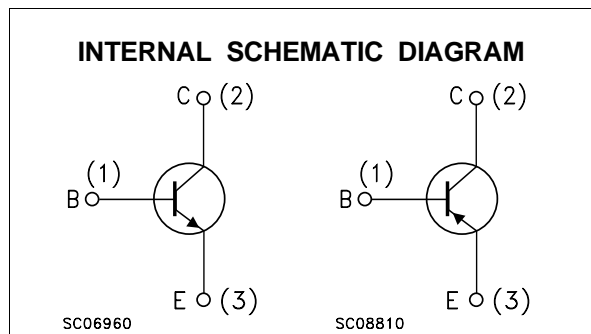
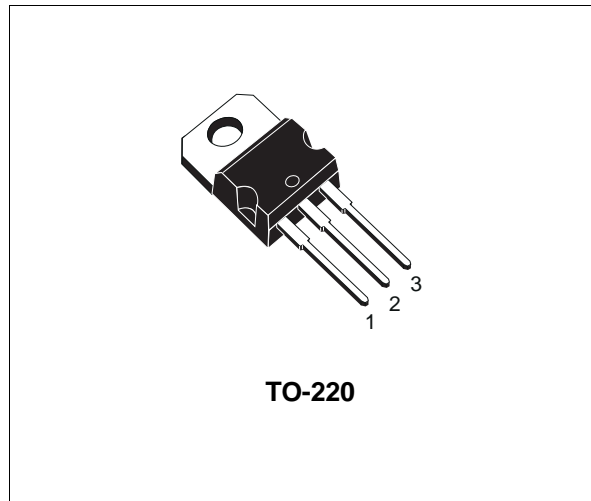
## COMPLEMENTARY SILICON POWER TRANSISTORS

- BD534, BD535, BD536, BD537 AND BD538 ARE STMicroelectronics PREFERRED SALESTYPES

### DESCRIPTION

The BD533, BD535, and BD537 are silicon Epitaxial-Base NPN power transistors in Jedec TO-220 plastic package, intended for use in medium power linear and switching applications.

The complementary PNP types are BD534, BD536, and BD538 respectively.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit	
		NPN	BD533	BD535		BD537
		PNP	BD534	BD536	BD538	
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )		45	60	80	V
$V_{CES}$	Collector-Emitter Voltage ( $V_{BE} = 0$ )		45	60	80	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )		45	60	80	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )		5			V
$I_C, I_E$	Collector and Emitter Current		8			A
$I_B$	Base Current		1			A
$P_{tot}$	Total Dissipation at $T_c \leq 25^\circ\text{C}$		50			W
$T_{stg}$	Storage Temperature		-65 to 150			$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature		150			$^\circ\text{C}$

For PNP types voltage and current values are negative.

**BD533 BD534 BD535 DB536 BD537 BD538**

**THERMAL DATA**

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	2.5	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	70	°C/W

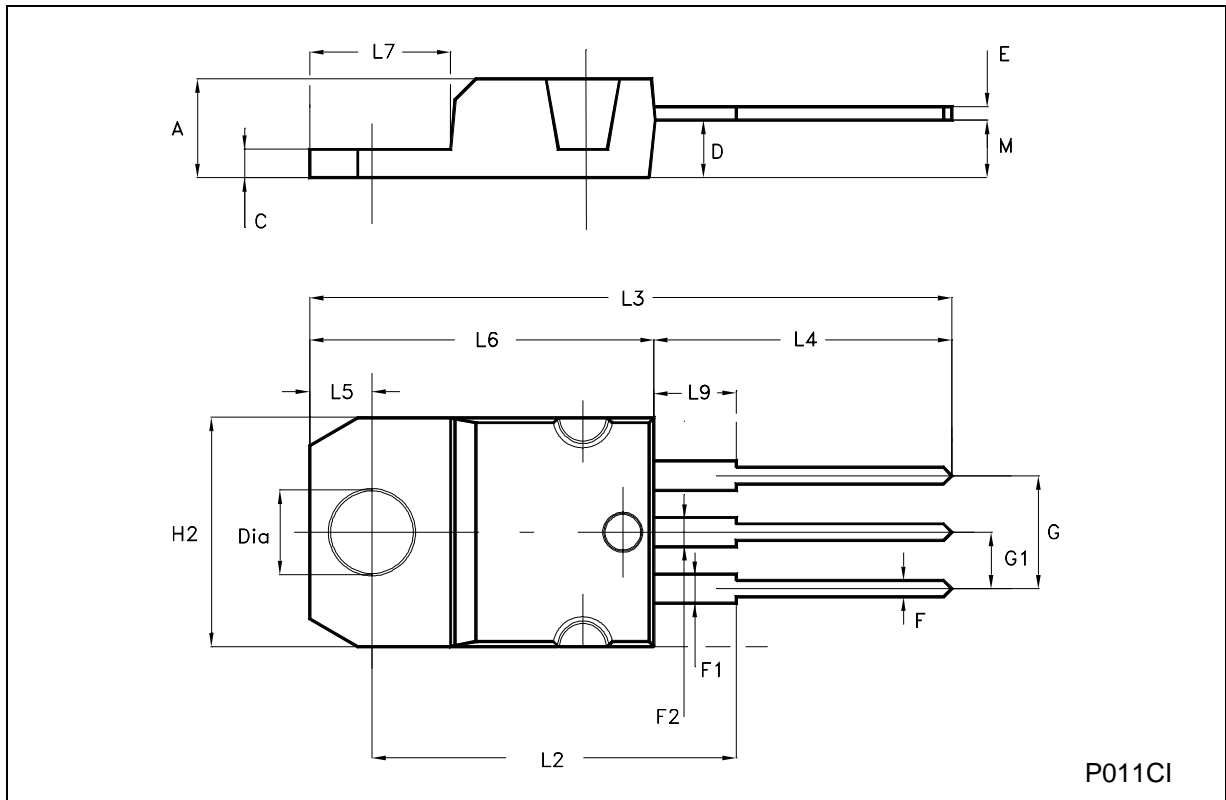
**ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	for <b>BD533/534</b> V <sub>CB</sub> = 45 V for <b>BD535/536</b> V <sub>CB</sub> = 60 V for <b>BD537/538</b> V <sub>CB</sub> = 80 V			100 100 100	μA μA μA
I <sub>CES</sub>	Collector Cut-off Current (V <sub>BE</sub> = 0)	for <b>BD533/534</b> V <sub>CE</sub> = 45 V for <b>BD535/536</b> V <sub>CE</sub> = 60 V for <b>BD537/538</b> V <sub>CE</sub> = 80 V			100 100 100	μA μA μA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			1	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 100 mA	for <b>BD533/534</b> 45 for <b>BD535/536</b> 60 for <b>BD537/538</b> 80			V V V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 2 A I <sub>C</sub> = 6 A	I <sub>B</sub> = 0.2 A I <sub>B</sub> = 0.6 A	0.8	0.8	V V
V <sub>BE*</sub>	Base-Emitter Voltage	I <sub>C</sub> = 2 A	V <sub>CE</sub> = 2 V		1.5	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 10 mA  I <sub>C</sub> = 500 mA I <sub>C</sub> = 2 A	V <sub>CE</sub> = 5 V for <b>BD533/534</b> for <b>BD535/536</b> for <b>BD537/538</b> V <sub>CE</sub> = 2 V V <sub>CE</sub> = 2 V for <b>BD533/534</b> for <b>BD535/536</b> for <b>BD537/538</b>	20 20 15 40 25 25 15		
f <sub>T</sub>	Transition frequency	I <sub>C</sub> = 500 mA	V <sub>CE</sub> = 1 V	3	12	MHz

\* 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		0.052
D	2.40		2.72	0.094		0.107
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		0.202
G1	2.40		2.70	0.094		0.106
H2	10.00		10.40	0.394		0.409
L2		16.40			0.645	
L4	13.00		14.00	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.20		6.60	0.244		0.260
L9	3.50		3.93	0.137		0.154
M		2.60			0.102	
DIA.	3.75		3.85	0.147		0.151



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