



EPITAXIAL-BASE NPN/PNP

MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS

The BD 533, BD 535 and BD 537 are silicon epitaxial-base NPN power transistors in Jedec TO-220 plastic package, intended for use in medium power linear and switching applications.

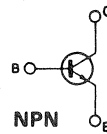
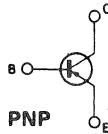
The complementary PNP types are the BD 534, BD 536 and BD 538 respectively.

ABSOLUTE MAXIMUM RATINGS

		NPN PNP*	BD533 BD534	BD535 BD536	BD537 BD538
V_{CBO}	Collector-base voltage ($I_E = 0$)		45V	60V	80V
V_{CES}	Collector-emitter voltage ($V_{BE} = 0$)		45V	60V	80V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)		45V	60V	80V
V_{EBO}	Emitter-base voltage ($I_C = 0$)			5V	
I_C, I_E	Collector and emitter current			8A	
I_B	Base current			1A	
P_{tot}	Total power dissipation at $T_{case} \leq 25^\circ C$			50W	
T_{stg}	Storage temperature			-65 to 150°C	
T_j	Junction temperature			150°C	

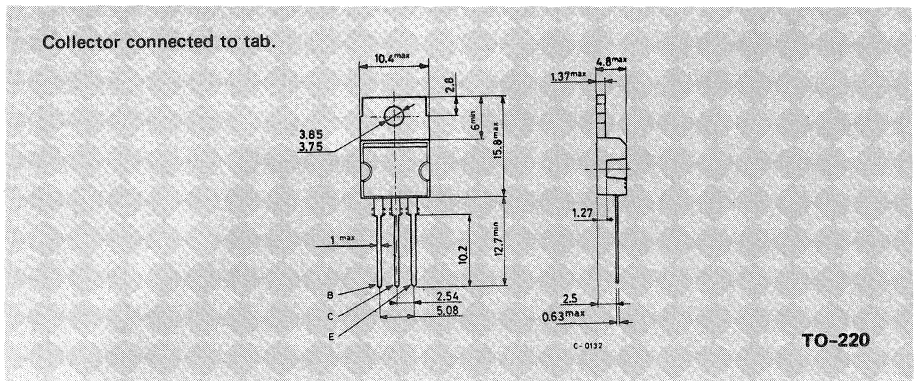
* For PNP types voltage and current values are negative

INTERNAL SCHEMATIC DIAGRAMS



MECHANICAL DATA

Dimensions in mm





BD533 BD534
BD535 BD536
BD537 BD538

THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	2.5	°C/W
$R_{th\ j-amb}$	Thermal resistance junction-ambient	max	70	°C/W

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current ($I_E = 0$)	for BD533/34 for BD535/36 for BD537/38	$V_{CB} = 45V$ $V_{CB} = 60V$ $V_{CB} = 80V$	100 100 100	μA μA μA
I_{CES}	Collector cutoff current ($V_{BE} = 0$)	for BD533/34 for BD535/36 for BD537/38	$V_{CE} = 45V$ $V_{CE} = 60V$ $V_{CE} = 80V$	100 100 100	μA μA μA
I_{EBO}	Emitter cutoff current ($I_C = 0$)	$V_{EB} = 5V$		1	mA
$V_{CEO(sus)}^*$	Collector-emitter sustaining voltage ($I_B = 0$)	$I_C = 100mA$ for BD533/34 for BD535/36 for BD537/38		45 60 80	V V V
$V_{CE(sat)}^*$	Collector-emitter saturation voltage	$I_C = 2A$ $I_C = 6A$	$I_B = 0.2A$ $I_B = 0.6A$	0.8 0.8	V V
V_{BE}^*	Base-emitter voltage	$I_C = 2A$	$V_{CE} = 2V$	1.5	V
h_{FE}^*	DC current gain	$I_C = 10mA$ $I_C = 500mA$ $I_C = 2A$	$V_{CE} = 5V$ for BD533/34 for BD535/36 for BD537/38 $V_{CE} = 2V$ $V_{CE} = 2V$ for BD533/34 for BD535/36 for BD537/38	20 20 15 40 25 25 15	— — — — — — —
f_T	Transition frequency	$I_C = 500mA$	$V_{CE} = 1V$	3 12	MHz
h_{FE} groups**:	J K	$I_C = 2A$ $I_C = 3A$ $I_C = 2A$ $I_C = 3A$	$V_{CE} = 2V$ $V_{CE} = 2V$ $V_{CE} = 2V$ $V_{CE} = 2V$	30 15 40 20	75 — 100 —

* Pulsed: pulse duration = 300 μs , duty cycle = 1.5%

** Only on request

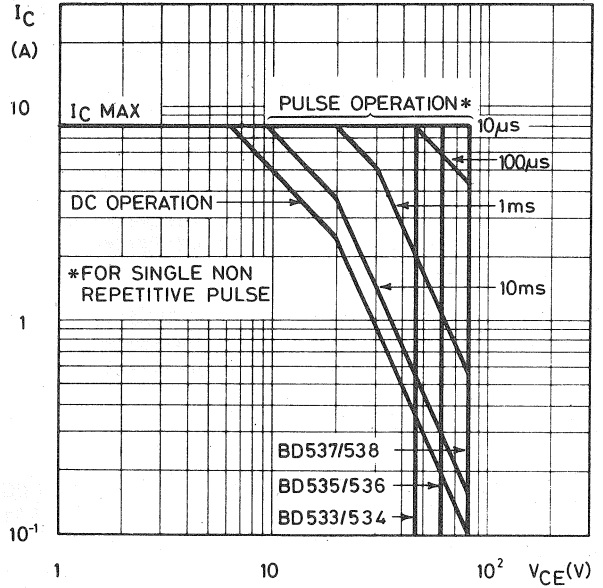
For PNP types voltage and current values are negative



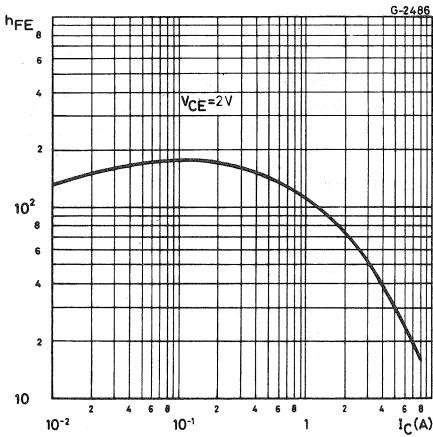
BD533 BD534
BD535 BD536
BD537 BD538

Safe operating areas

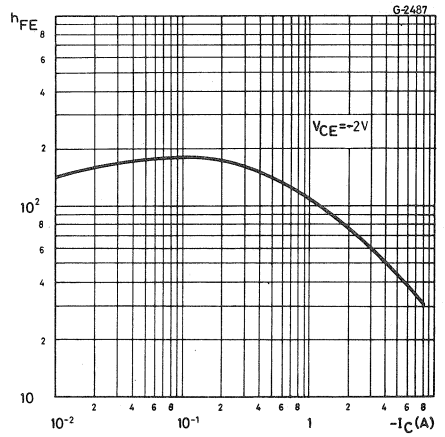
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DC current gain (NPN types)



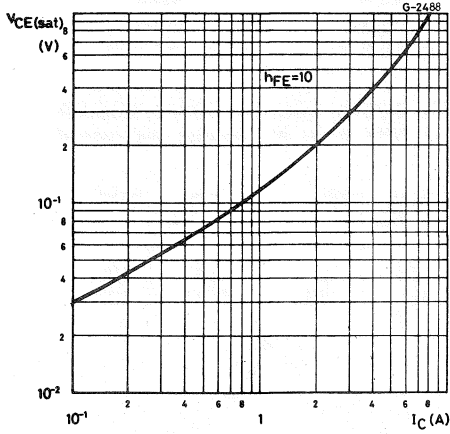
DC current gain (PNP types)



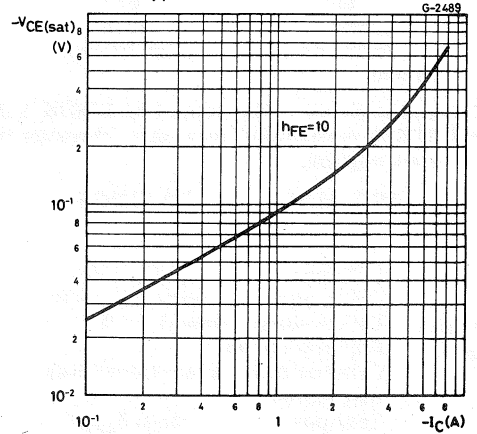


BD533 BD534
BD535 BD536
BD537 BD538

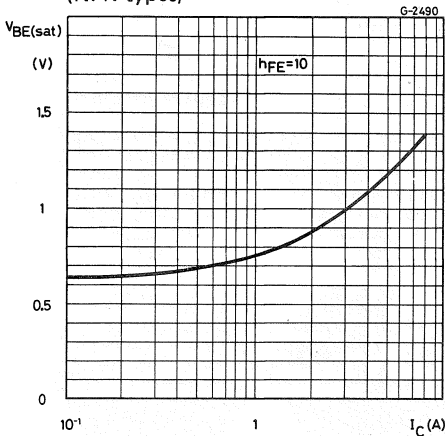
Collector-emitter saturation voltage
(NPN types)



Collector-emitter saturation voltage
(PNP types)



Base-emitter saturation voltage
(NPN types)



Base-emitter saturation voltage
(PNP types)

