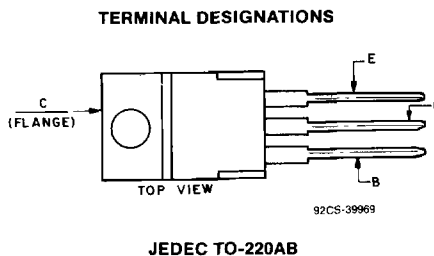


# Silicon Transistors for Full-Complementary-Symmetry Audio Amplifiers



The BD500-Series and BD501B types are p-n-p and n-p-n epitaxial-base silicon transistors, respectively, especially suitable for audio-output applications.

The BD500-Series and BD501B types are supplied in a JEDEC TO-220AB (RCA VERSAWATT) plastic package.

**2**  
**POWER TRANSISTORS**

**MAXIMUM RATINGS, Absolute-Maximum Values:**

	<b>BD500*</b>	<b>BD501B BD500B*</b>	<b>N-P-N P-N-P</b>
$V_{CBO}$ .....	60	90	V
$V_{CEO}$ .....	50	80	V
$V_{CER}(R_{BE} = 100 \Omega)$ .....	55	85	V
$V_{EBO}$ .....			V
$I_C$ .....	_____	5	A
$I_B$ .....	_____	10	A
$P_T$ .....	_____	4	
At $T_C \leq 25^\circ C$ .....	_____	75	W
At $T_C > 25^\circ C$ .....	_____	See Figs. 1 and 2	
$T_{stg}, T_J$ .....	_____	-65 to 150	$^\circ C$
$T_L$ .....	_____	230	$^\circ C$
At distances $\geq 1/32$ in. (0.8 mm) from case for 10 s max. ....			

\*For p-n-p devices, voltage and current values are negative.

# BD500, BD500B, BD501B

## ELECTRICAL CHARACTERISTICS, At Case Temperature ( $T_C$ ) = 25°C

CHARACTERISTIC	TEST CONDITIONS	LIMITS <sup>▲</sup>				UNITS
		BD500 <sup>●</sup>		BD500B <sup>●</sup> BD5001B		
		Min.	Max.	Min.	Max.	
$I_{CER}$ $R_{BE} = 100 \Omega$	$V_{CE} = 45 V$ $V_{CE} = 75 V$	—	1	—	—	mA
$I_{EBO}$	$V_{EB} = 5 V$	—	1	—	1	mA
$V_{CEO}$	$I_C = 0.1 A$	50	—	80	—	V
$V_{CER}$	$I_C = 0.1 A; R_{BE} = 100 \Omega$	55	—	85	—	V
$f_T$	$I_C = 1 A; V_{CE} = 4 V$	5	—	5	—	MHz
$h_{FE}$	$I_C = 5 A; V_{CE} = 4 V$ $I_C = 3.5 A; V_{CE} = 4 V$	15 —	90 —	— 20	— 120	—
$V_{CE(sat)}$	$I_C = 5 A; I_B = 0.5 A$ $I_C = 3.5 A; I_B = 0.35 A$	— —	1.2 —	— —	— 1	V
$V_{BE}$	$I_C = 5 A; V_{CE} = 4 V$ $I_C = 3.5 A; V_{CE} = 4 V$	— —	1.8 —	— —	— 1.5	V
$I_{S/D}$	$V_{CE} = 20 V; t = 0.5 s$ $V_{CE} = 30 V; t = 0.5 s$	3.75 —	— —	— 2.5	— —	A

▲For characteristics curves and test conditions, refer to published data for prototypes 2N6488 (BD501B); 2N6490 (BD500); 2N6491 (BD500B).

●For p-n-p devices, voltage and current values are negative.

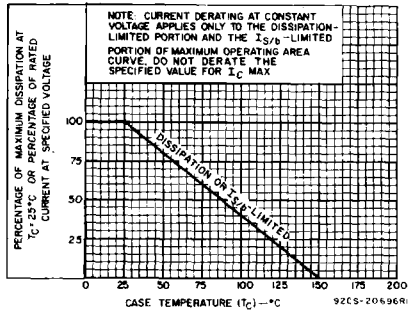


Fig. 1 — Derating curve for all types.

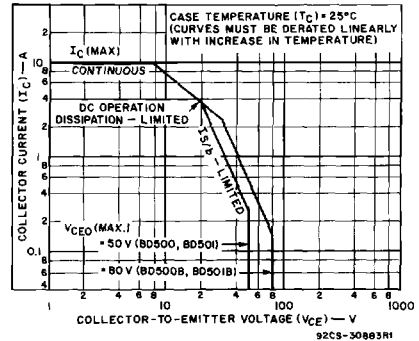


Fig. 2 — Maximum operating areas for all types.

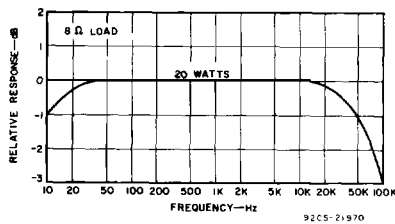


Fig. 3 — Typical frequency response.

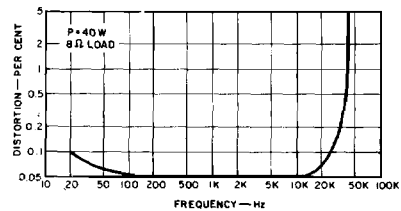


Fig. 4 — Typical total harmonic distortion as a function of frequency.