

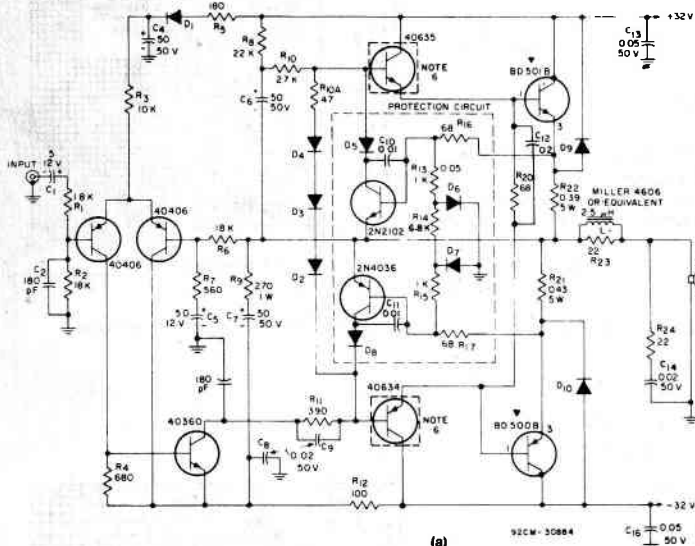
## BD500, BD501 Series

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

CHARAC- TERISTICS	TEST CONDITIONS	LIMITS▲						UNITS
		BD500* BD501		BD500A* BD501A		BD500B* BD501B		
		Min.	Max.	Min.	Max.	Min.	Max.	
$I_{CER}$ $R_{BE} = 100 \Omega$	$V_{CE} = 45 V$ $V_{CE} = 55V$ $V_{CE} = 75 V$	—	1	—	—	—	—	mA
$I_{EBO}$	$V_{EB} = 5 V$	—	1	—	1	—	1	mA
$V_{CEO}$	$I_C = 0.1 A$	50	—	60	—	80	—	V
$V_{CER}$	$I_C = 0.1 A$ ; $R_{BE} = 100 \Omega$	55	—	65	—	85	—	V
$f_T$	$I_C = 0.5 A$ ; $V_{CE} = 4 V$	5	—	5	—	5	—	MHz
$h_{FE}$	$I_C = 5 A$ ; $V_{CE} = 4 V$ $I_C = 3.5 A$ ; $V_{CE} = 4 V$	15	90	15	90	—	—	—
		—	—	—	—	20	120	
$V_{CE(sat)}$	$I_C = 5 A$ ; $I_B = 0.5 A$ $I_C = 3.5 A$ ; $I_B = 0.35A$	—	1.2	—	1.2	—	—	V
		—	—	—	—	—	1	
$V_{BE}$	$I_C = 5 A$ ; $V_{CE} = 4 V$ $I_C = 3.5 A$ ; $V_{CE} = 4 V$	—	1.8	—	1.8	—	—	V
		—	—	—	—	—	1.5	
$I_{S/b}$	$V_{CE} = 20 V$ ; $t = 0.55 s$ $V_{CE} = 25 V$ ; $t = 0.55 s$ $V_{CE} = 30 V$ ; $t = 0.55 s$	3.75	—	—	—	—	—	A
		—	—	—	—	2.5	—	

<sup>▲</sup>For characteristics curves and test conditions, refer to published data for prototypes (File 678): 2N6487 (BD501, BD501A); 2N6488 (BD501B); 2N6490 (BD500, BD500A); 2N6491 (BD500B).

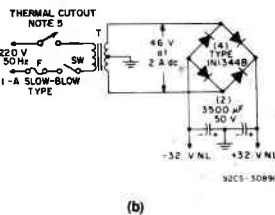
\*For p-n-p devices, voltage and current values are negative.



NOTES (for Fig. 5):

1. D1-D10—D1201A.
2. Resistors are 1/2-watt,  $\pm 10\%$ , unless otherwise specified; values are in ohms.
3. Non-inductive resistors.
4. Capacitances are in  $\mu F$  unless otherwise specified.
5. 55°C thermal cutout attached to heat sink of output devices.
6. TO-39 case devices with heat radiator attached.
7. Provide heat sink of approx. 1.2°C/W per output device with a contact thermal resistance of 1.3°C/W max. and  $T_A = 40^\circ C$  max.

(a)



(b)

Fig. 5 - 40-watt amplifier circuit featuring full-complementary-symmetry output using load line limiting: (a) basic amplifier circuit, (b) power-supply circuit.

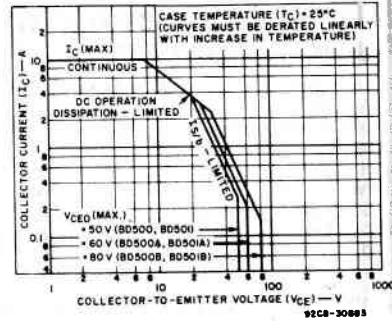


Fig. 4 - Maximum operating areas for all types.

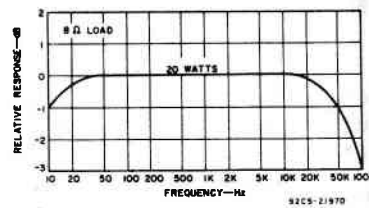


Fig. 6 - Typical frequency response.

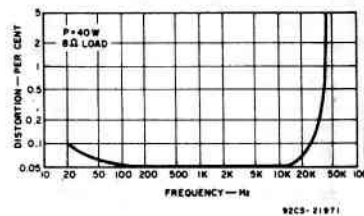


Fig. 7 - Typical total harmonic distortion as a function of frequency.

transistors for 70-  
antary-Symmetry

BD500A, and BD500B are  
transistors especially suitable  
for audio-amplifier circuits,  
and may be used as either driver

together with a variety of  
input devices,  
for biasing, current sources,  
(for overload protection),  
may be used to develop

INGS, Absolute-Maximum Val

1/32 in. (0.8 mm) from surface  
3X.

CHARACTERISTICS, A

TEST CONDITIONS

$V_{CE} = 110 V$

$V_{CE} = 175 V$

$V_{CE} = 250 V$

$V_{CE} = 95 V$

$V_{CE} = 150 V$

$V_{CE} = 200 V$

$V_{EB} = 5 V$

$I_C = 2 A$

$I_C = 2 A$ ,  $R_{BE} =$

$I_C = 2 A$ ,  $V_{CE} =$

$I_C = 2 A$ ,  $V_{CE} =$

$I_C = 2 A$ ,  $V_{CE} =$

$I_C = 2 A$ ,  $V_{CE} =$

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$I_C = 2 A$ ,  $V_{CE} =$