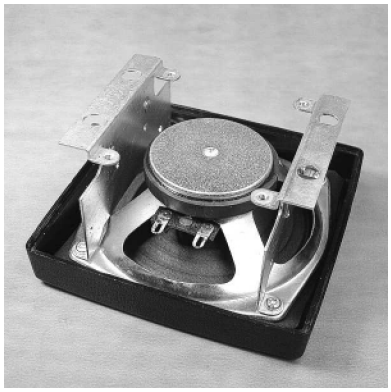
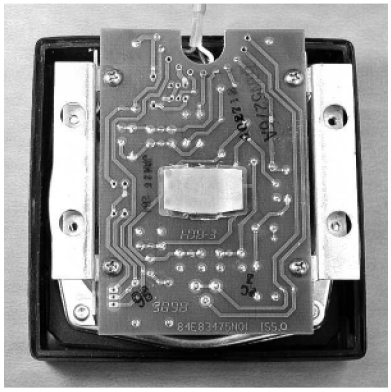
IMPORTANT NOTICE

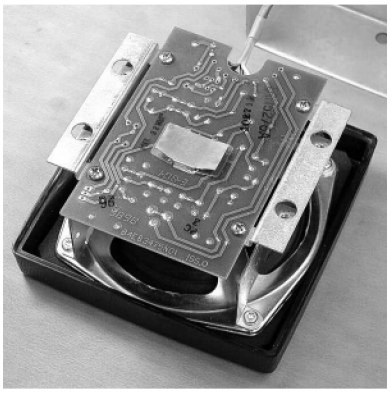
If your Motorola Amplified Speaker bracket and PC board do *not* look like the examples shown below, there is a significant chance that the PC board described in the following pages will NOT fit into the speaker case properly. In that case, contact me, NØSS, for a possible alternate PC board design which might fit. I do have a design for a slightly newer version of the same amplified speaker.

Speaker ID Nomenclature Information:

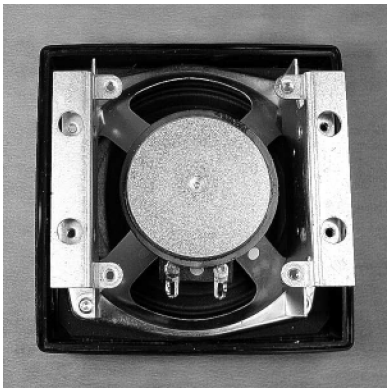
Etched into Foil side of board: 84E83475N01
Stamped (in black) on solder side of board: TRN5276A
Stamped (in black) on back of speaker case: TLN2435A

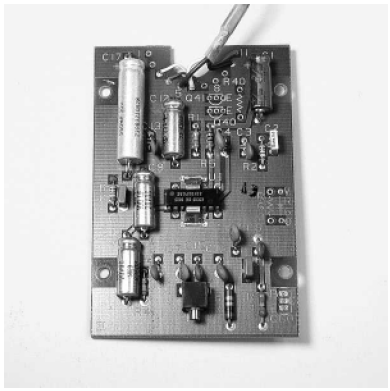


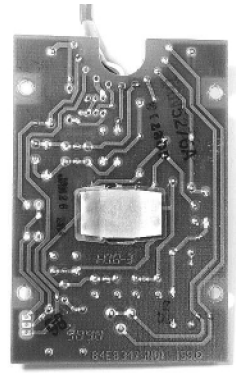




Note the design of the PC board support frame. The PC board fits INSIDE the frame, supported by the two inner tabs.



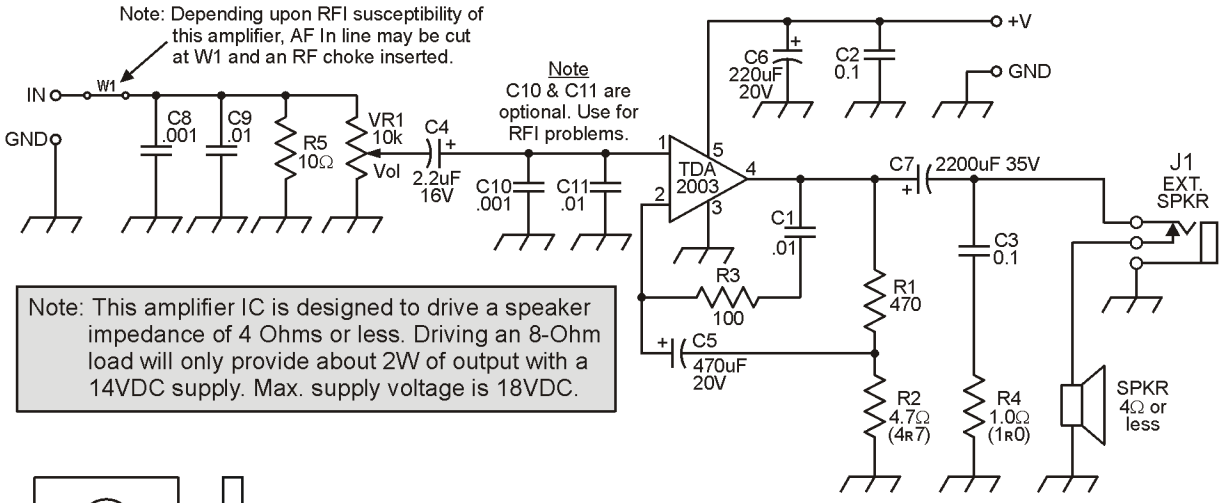




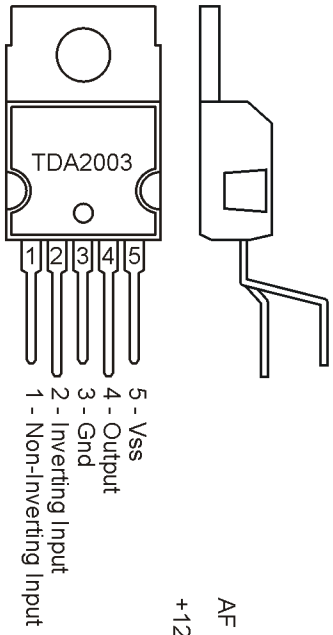
TDA2003 5W AF Amp

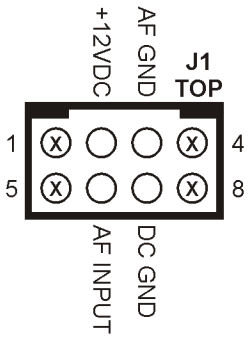
This PC board was specifically designed to fit into an 'older-style' Motorola Amplified Speaker Enclosure. See previous page for further reference info.

by: Tom Hammond, NØSS, 02/10/2004

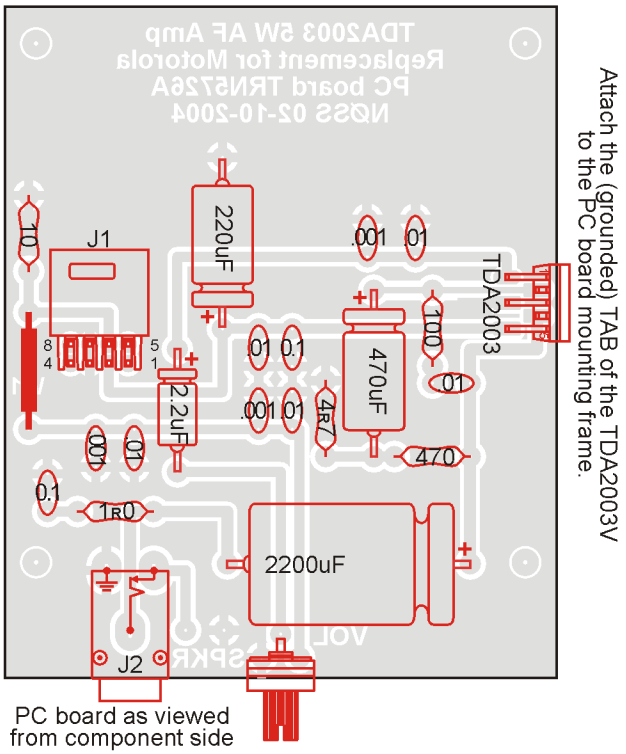


Note: This amplifier IC is designed to drive a speaker impedance of 4 Ohms or less. Driving an 8-Ohm load will only provide about 2W of output with a 14VDC supply. Max. supply voltage is 18VDC.





Note: Because the decimal point is so difficult to see on the parts placement diagram, the 1.0Ω and the 4.7Ω resistors are labeled "1R0" and "4R7" .



Attach the (grounded) TAB of the TDA2003V to the PC board mounting frame.

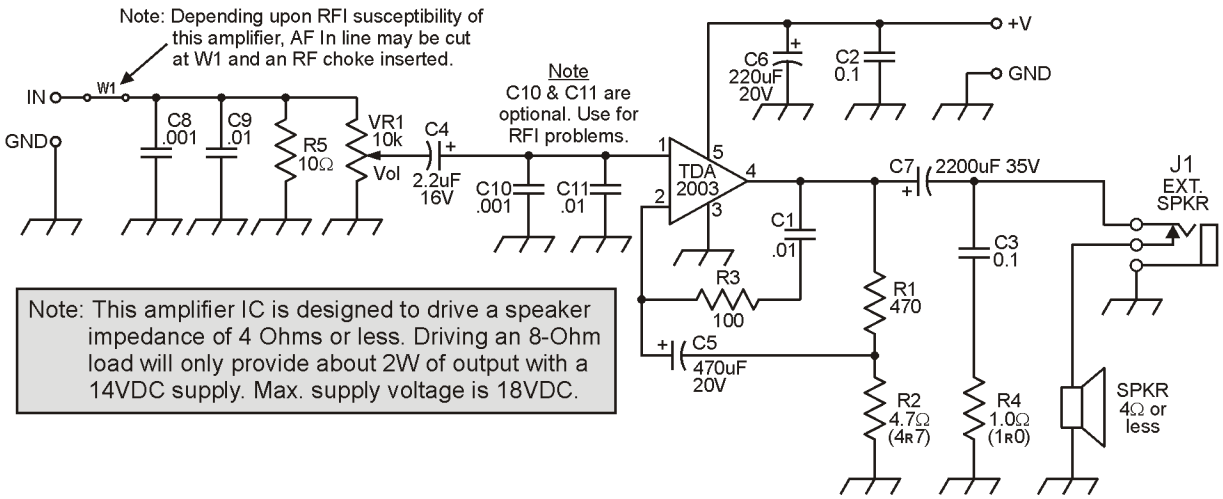
PC Board cut size: 3-1/2" H x 2-7/8" W

VERY IMPORTANT ASSEMBLY NOTE

Install the TDA2003 IC LAST. When installing the TDA2003V IC, insert it into the holes in the PC board, but **DO NOT SOLDER**. Then install the PC board onto the frame of the speaker and attach the tab of the TDA2003V to the frame (which will be used as the heatsink). Once both the PC board *and* the IC are installed, solder the IC to the PC board.

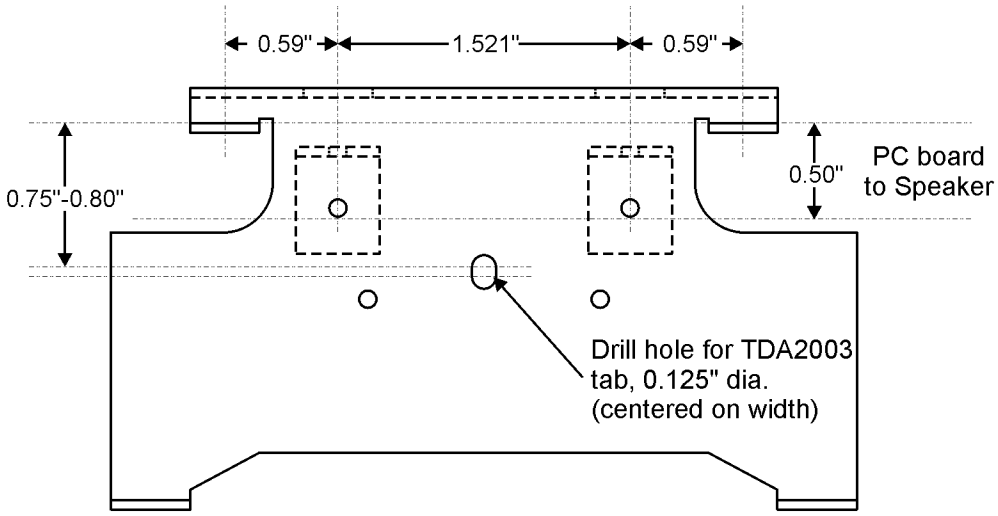
TDA2003 5W AF Amp

Parts List



Part #	Component Description	Mouser Electronics Part #
C1, C2	.001 uF 50V Xicon Ceramic Disk Cap 0.2" lead spacing	140-50Z5-102M
C3, C4, C5	.01 uF 50V Xicon Ceramic Disk Cap 0.2" lead spacing	140-50Z5-103M
C6, C7	0.1 uF 50V AVX Radial Monolithic Cap 0.2" lead spacing	581-SR215C104K
C8	2.2uF 10VDC Xicon Axial Lead Electrolytic Cap	140-XAL10V2.2
C9	220uF 25VDC Xicon Axial Lead Electrolytic Cap	140-XAL25V220
C10	470uF 10VDC Xicon Axial Lead Electrolytic Cap	140-XAL10V470
C11	2,200uF 25VDC Xicon Axial Lead Electrolytic Cap	140-XAL25V2200
R1	1.0Ω (1R0) 1/4W Xicon 5% carbon film resistor	291-1.0
R2	4.7Ω (4R7) 1/4W Xicon 5% carbon film resistor	291-4.7
R3	10Ω 1/4W 5% Xicon 5% carbon film resistor	291-10
R4	100Ω 1/4W 5% Xicon 5% carbon film resistor	291-100
R5	470Ω 1/4W 5% Xicon 5% carbon film resistor	291-470
J1	AMPMODU Dual Row 8-pin (2 X 4) rt. angle PCB-mount header	571-102617-2
J2	DGS 3.5mm Mono Phone Jack w/N-C switch PCB-mount	16PJ528
	Mating components for (J1) header listed above:	
P1	AMPMODU Double Row Housing w/detent latching	571-876314
	AMPMODU MOD. IV Recept. Contacts for above (min. of 8 req.)	571-877567
U1	STMicroelectronics TDA2003V Audio Amplifier IC	511-TDA2003V
VR1	Tyco 10K Single Turn Cermet Trimmer Long (Horiz.) Shaft	323-409V-10K
VR1	Tyco 10K Single Turn Cermet Trimmer Long (Vert.) Shaft	323-409H-10K

This is a scale drawing of the PC board support brackets in the Motorola Amplified Speaker. It was used to design this PC board wherein the bracket is used as the heat-sink for the TDA2003 AF Amplifier IC.

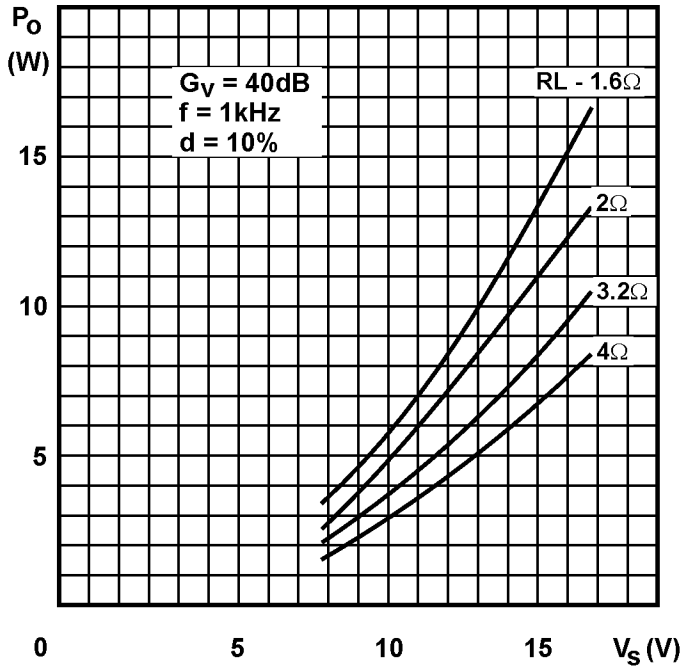


Factory Specification Performance Data

source: http://www.st.com/stonline/books/pdf/docs/1449.pdf

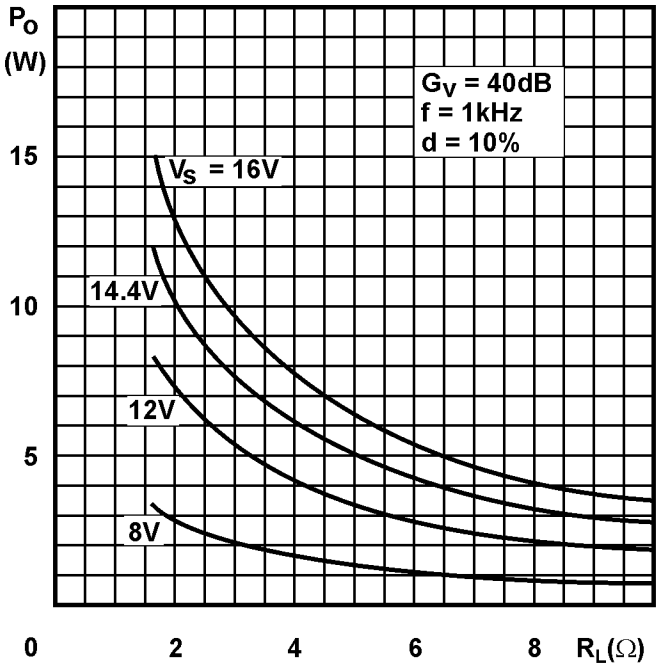
TDA2003

Output power vs. supply voltage



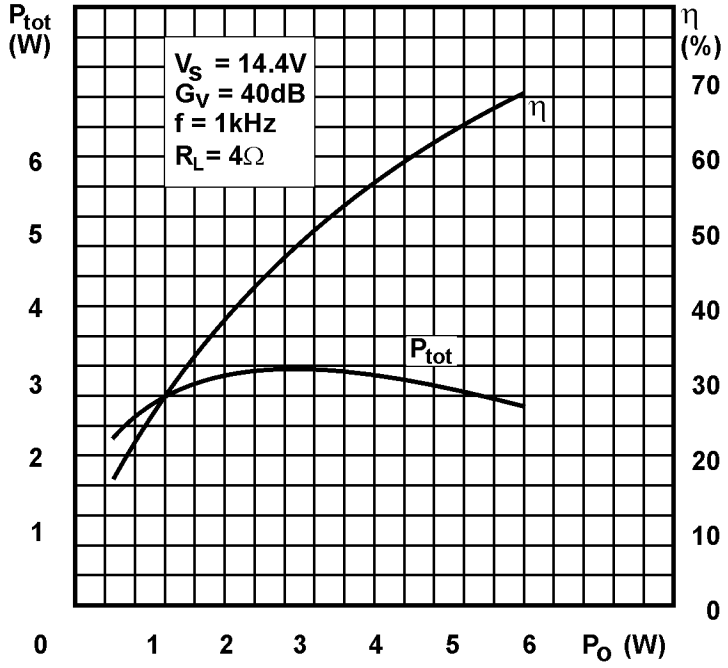
TDA2003

Output power vs. load resistance



TDA2003

Power dissipation and efficiency vs. output power (R_L = 4Ω)



TDA2003

Power dissipation and efficiency vs. output power (R_L = 2Ω)