SGS-THOMSON MICROELECTRONICS

TDA7350

BRIDGE-STEREO AMPLIFIER FOR CAR RADIO

ADVANCE DATA

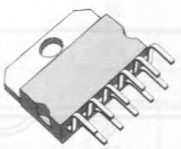
- VERY FEW EXTERNAL COMPONENTS
- NO BOUCHEROT CELLS
- NO BOOTSTRAP CAPACITORS
- HIGH OUTPUT POWER
- NO SWITCH ON/OFF NOISE
- VERY LOW STAND-BY CURRENT (100μA)
- FIXED GAIN
- PROGRAMMABLE TURN-ON DELAY

The TDA7350 is a new technology class AB Audio Power Amplifier in the Multiwatt® package designed for car radio applications. Thanks to the fully complementary PNP/NPN output configuration the high power performance of the TDA7350 are obtained without bootstrap capacitors.

A delayed turn-on mute circuit eliminates audible on/off noise, and a novel short circuit protection system prevents spurious intervention with highly inductive loads.

Protections :

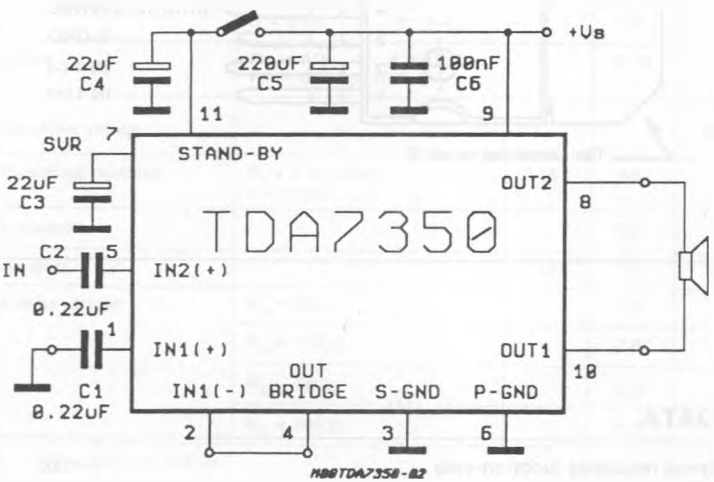
- OUTPUT AC-DC SHORT CIRCUIT TO GROUND AND TO SUPPLY VOLTAGE
- VERY INDUCTIVE LOADS
- OVERRATING CHIP TEMPERATURE
- LOAD DUMP VOLTAGE
- FORTUITOUS OPEN GROUND



Multiwatt-11

ORDERING NUMBER: TDA7350

APPLICATION CIRCUIT

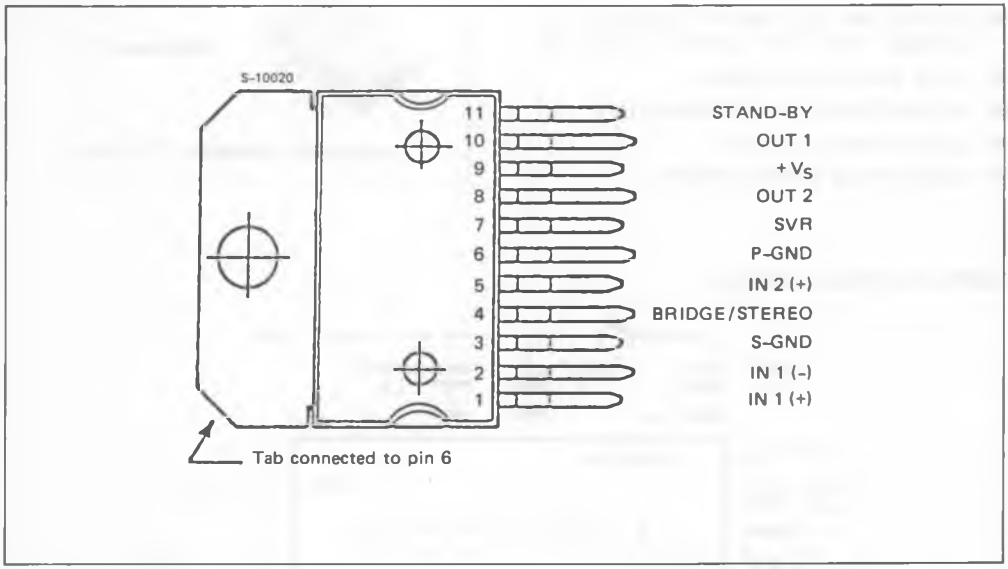


ABSOLUTE MAXIMUM RATINGS

V_S	Operating supply voltage	18	V
V_S	DC supply voltage	28	V
V_S	Peak supply voltage (for t = 50ms)	40	V
I_O	I_{OUT} peak (non rep. t = 100μs)	5	A
I_O	I_{OUT} peak (rep. freq. > 10Hz)	4	A
P_{tot}	Power dissipation at T_{case} = 80°C	40	W
T_{stg}, T_j	Storage and junction temperature	-40 to 150	°C

CONNECTION DIAGRAM

(Top view)



THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	1.8	°C/W

ELECTRICAL CHARACTERISTICS (Refer to the test circuits, T_{amb} = 25°C, V_S = 14.4V, f = 1KHz, unless otherwise specified)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
V_S	Supply voltage		8		18	V
I_d	Total quiescent drain current	stereo configuration			120	mA
A_{SB}	Stand-by attenuation		60	80		dB
I_{SB}	Stand-by current				100	μA
STEREO						
P_o	Output power (each channel)	d = 10% R_L = 1.6Ω R_L = 2Ω R_L = 3.2Ω R_L = 4Ω	7	12 11 8 6.5		W
d	Distortion	0.1 to 4W R_L = 3.2Ω			0.5	%
SVR	Supply voltage rejection	R_s = 0 to 10KΩ f = 100Hz	45	50		dB
CT	Crosstalk	f = 1KHz f = 10KHz	45	55 50		dB
R_I	Input resistance		30	50		KΩ
G_v	Voltage gain		27	29	31	dB
G_v	Voltage gain match				1	dB
E_{IN}	Input noise voltage	R_g = 50Ω (*)		1.5		μV
		R_g = 10KΩ (*)		2.0		μV
		R_g = 50Ω (**)		2.0		μV
		R_g = 10KΩ (**)		2.7		μV
BRIDGE						
P_o	Output power	d = 10% R_L = 4Ω R_L = 3.2Ω	16	20 22		W
		d = 0.5% R_L = 4Ω		18		W
d	Distortion	R_L = 4Ω f = 1KHz P_o = 0.1W to 10W		0.15	1	%
V_{OS}	Output offset voltage				250	mV
SVR	Supply voltage rejection	R_s = 0 to 10KΩ f = 100Hz	45	50		dB
R_I	Input resistance			50		KΩ
G_v	Voltage gain		33	35	37	dB
E_{IN}	Input noise voltage	R_g = 50Ω (*)		2.0		μV
		R_g = 10KΩ (*)		2.5		μV
		R_g = 50Ω (**)		2.7		μV
		R_g = 10KΩ (**)		3.2		μV

(*) Curve A; (**) 22Hz to 22KHz

Fig. 1 - STEREO test and application circuit

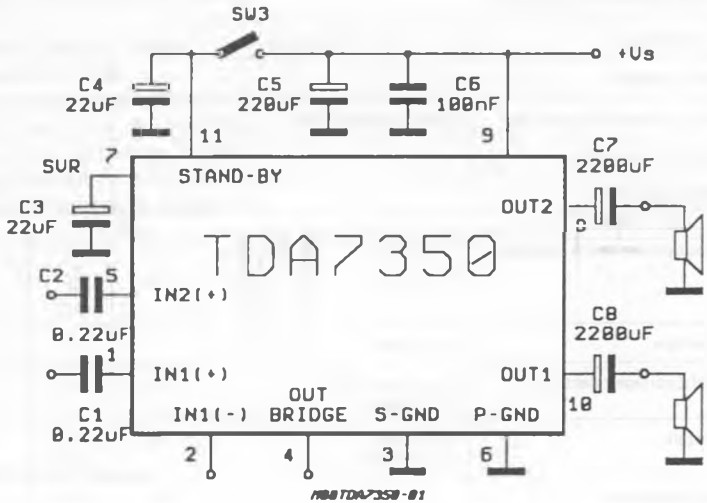


Fig. 2 - P.C. and layout (STEREO) of the fig. 1 (1:1 scale)

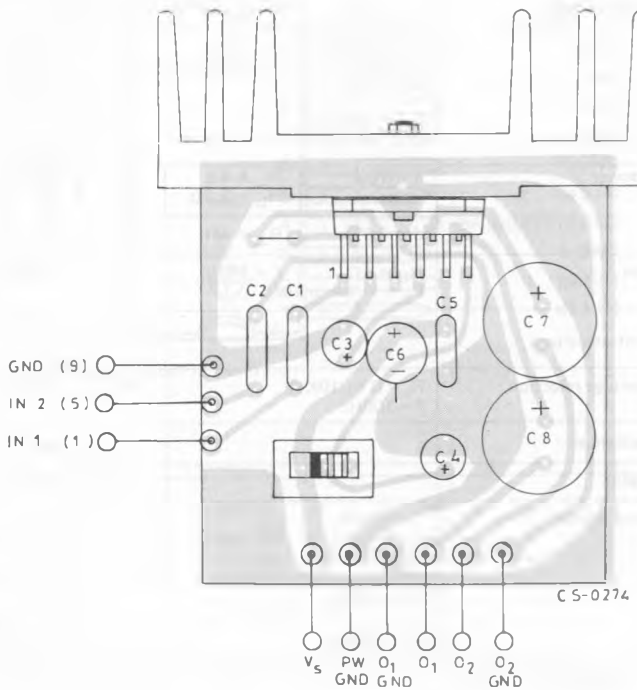


Fig. 3 - BRIDGE test and application circuit

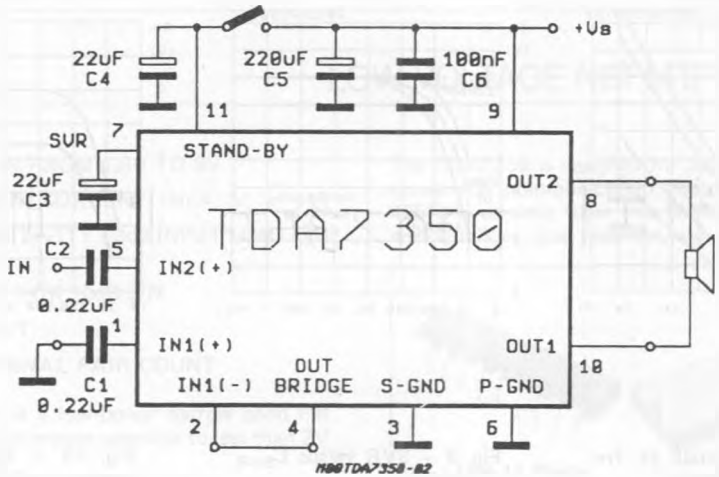


Fig. 4 - P.C. and layout (BRIDGE) of the fig. 3 (1:1 scale)

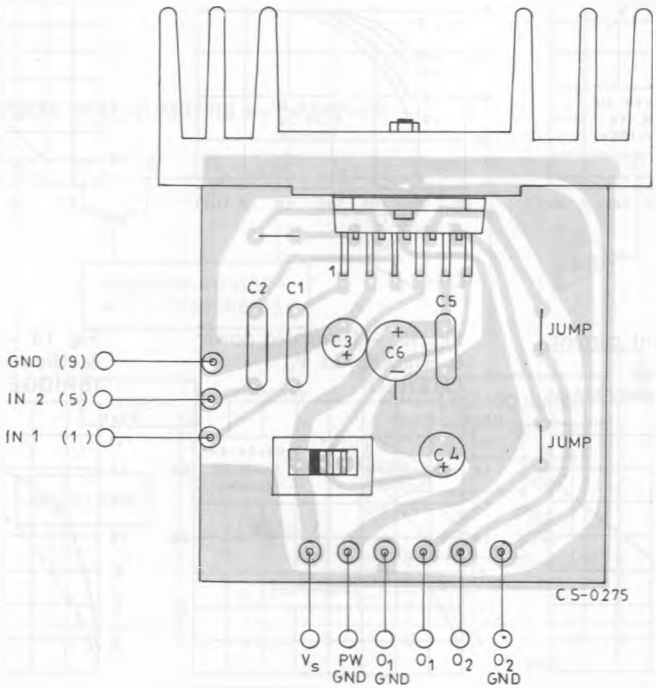


Fig. 5 - Output power versus V_S (STEREO)

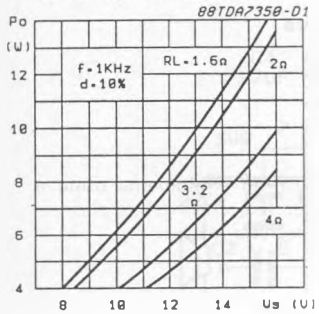


Fig. 6 - P_{OUT} versus frequency (STEREO)

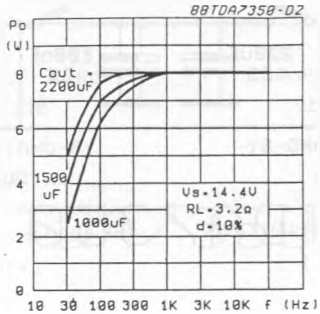


Fig. 7 - P_{OUT} versus frequency (STEREO)

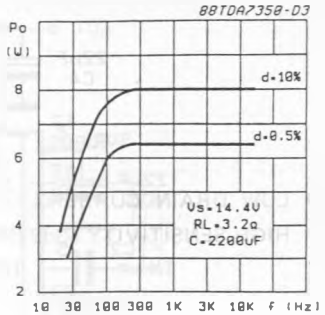


Fig. 8 - Crosstalk vs. frequency (STEREO)

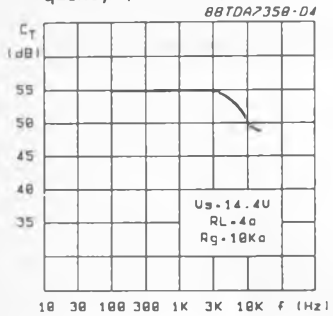


Fig. 9 - SVR versus C_{SVR} (STEREO)

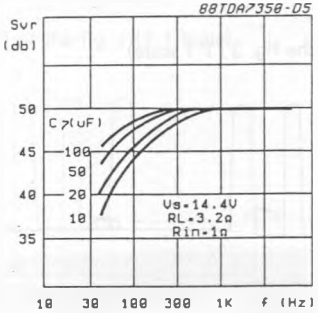


Fig. 10 - Output power versus V_S (BRIDGE)

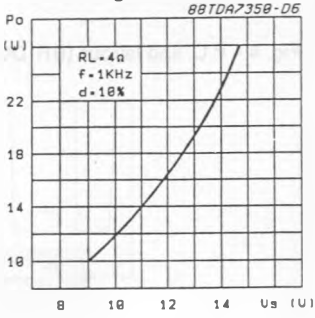


Fig. 11 - Quiescent current versus V_S

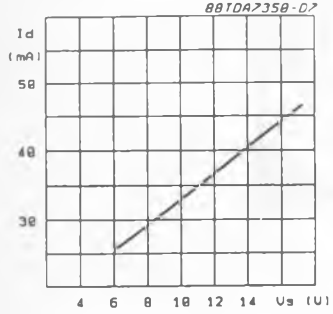


Fig. 12 - Dissipated power & efficiency vs. P_O (STEREO)

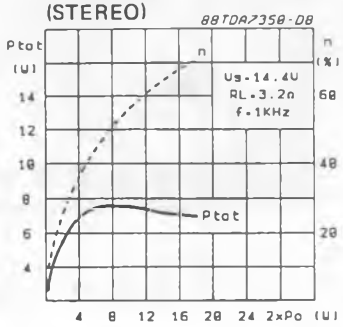


Fig. 13 - Dissipated power & efficiency vs. P_O (BRIDGE)