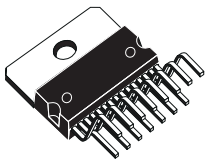
TDA7365

2 x 6W CAR RADIO AMPLIFIER PLUS SOLID STATE SWITCH

- OUTPUT POWER 2x6W/4Ω @14.4V, 1KHz, 10%
- SOLID STATE POWER SWITCH INCLUDED (1A @ V_{DROP} = 0.8V Typ.)
- MINIMUM EXTERNAL COMPONENT COUNT
  - INTERNALLY FIXED GAIN (40dB)
  - NO BOOTSTRAP CAPACITORS
  - NO EXTERNAL COMPENSATION
- ST-BY FUNCTION (CMOS COMPATIBLE)
- MUTE FUNCTION (CMOS COMPATIBLE)
- NO AUDIBLE POP DURING MUTE/ST-BY OPERATIONS
- LOW SUPPLY SELF MUTING

PROTECTIONS

- AC AUDIO OUTPUTS SHORT CIRCUIT TO GND
- DC AUDIO OUTPUTS SHORT CIRCUIT TO GND AND TO V_S AT POWER ON
- SWITCH OUTPUT INTERNAL CURRENT LIMITATION
- OVERRATING CHIP TEMPERATURE WITH SOFT THERMAL LIMITER
- LOAD DUMP
- FORTUITOUS OPEN GND



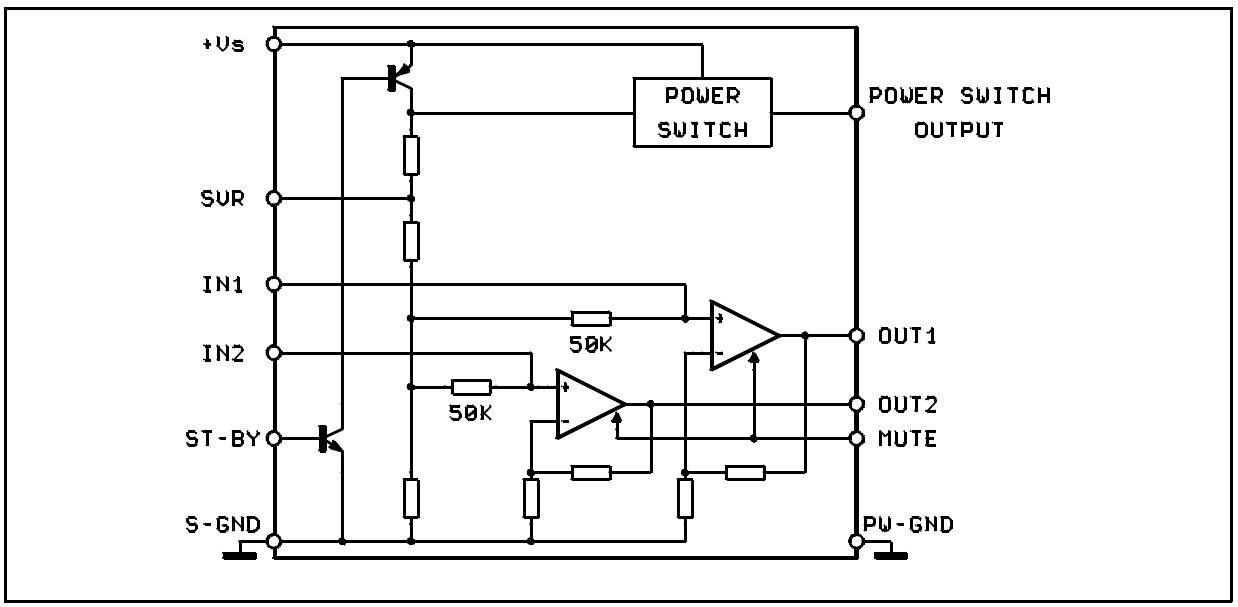
MULTIWATT15
ORDERING NUMBER: TDA7365

- REVERSE BATTERY
- ESD

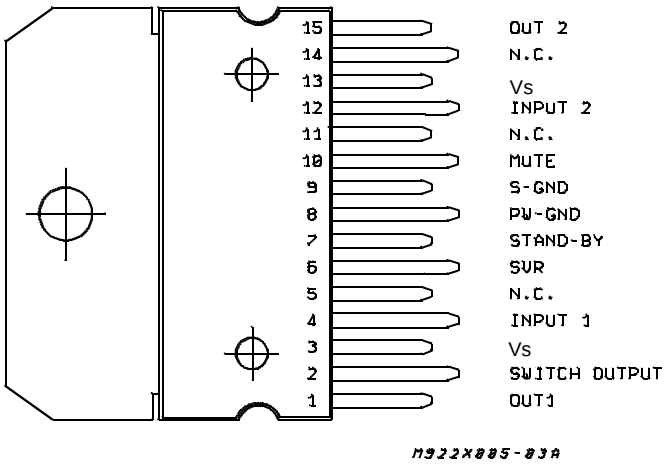
DESCRIPTION

The TDA7365 is a new technology Dual Audio Amplifier in Multiwatt15 package especially designed for stereo car radio applications.
Thanks to the fully complementary output configuration the TDA7365 delivers a rail to rail voltage swing with no need of boostrap capacitors
It includes a solid state switch, enabled by a ST-BY function common to the audio section, suitable for supplying both the signal processing part of the car radio set and the lamps. As a results the power-on operation is simplified, thereby saving cost and space in the whole power section.

BLOCK DIAGRAM



PIN CONNECTION (Top view)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	DC Supply Voltage	28	V
V_{OP}	Operating Supply Voltage	18	V
V_{PEAK}	Peak Supply Voltage (t = 50ms)	40	V
I_O	Audio Channels Output Peak Current (not rep. t = 100µs)	4	A
I_O	Audio Channels Output Peak Current (rep. f > 10Hz)	3	A
I_O	Switch Output Peak Current	(internally limited) 1.5	A
P_{tot}	Power Dissipation (T_{case} = 85°C)	32	W
T_{stg}, T_j	Storage and Junction Temperature	-40 to 150	°C

THERMAL DATA

Symbol	Description		Value	Unit
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	2	°C/W

ELECTRICAL CHARACTERISTICS (Refer to the test circuit; V_S = 14.4V; R_L = 4Ω, T_{amb} = 25°C, f = 1kHz, unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_S	Supply Range		8		18	V
I_d	Total Quiescent Drain Current	Power Switch Unloaded		80		mA
P_O	Output Power	R_L = 4Ω; THD = 10% each channel	5.5	6		W
		R_L = 2Ω; THD = 10% each channel		9		W
d	Distortion	P_O = 0.1 to 3W		0.08	0.3	%
CT	Cross Talk	f = 1kHz; R_g = 0 f = 10kHz; R_g = 0	50	55 50		dB dB
R_{IN}	Input Impedance		40	50		KΩ
G_V	Voltage Gain		39	40	41	dB
G_V	Voltage Gain Match.				1	dB
E_{IN}	Input Noise Voltage (*)	Rg = 0		1.2	5	µV
SVR	Supply Voltage Rejection	R_g = 0 ; f = 100Hz; V_r = 0.5V_{rms}	45	50		dB
ASB	Stand-by Attenuation		60	90		dB
I_{SB}	ST-BY Current Consumption				100	µA
$V_{SB\ IN}$	ST-BY IN Threshold Voltage				1.5	V
$V_{SB\ OUT}$	ST-BY OUT Threshold Voltage		3.5			V
$V_{M\ IN}$	MUTE IN Threshold Voltage				1.5	V
$V_{M\ OUT}$	MUTE OUT Threshold Voltage		3.5			V

POWER SWITCH CHARACTERISTICS

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
I_{Op}	Continuous Output Current			1.2		A
V_{DROP}	Dropout Voltage	Io = 1A			1.4	V

(*) 22Hz to 22KHz
(**) A weighted

TEST AND APPLICATION CIRCUIT

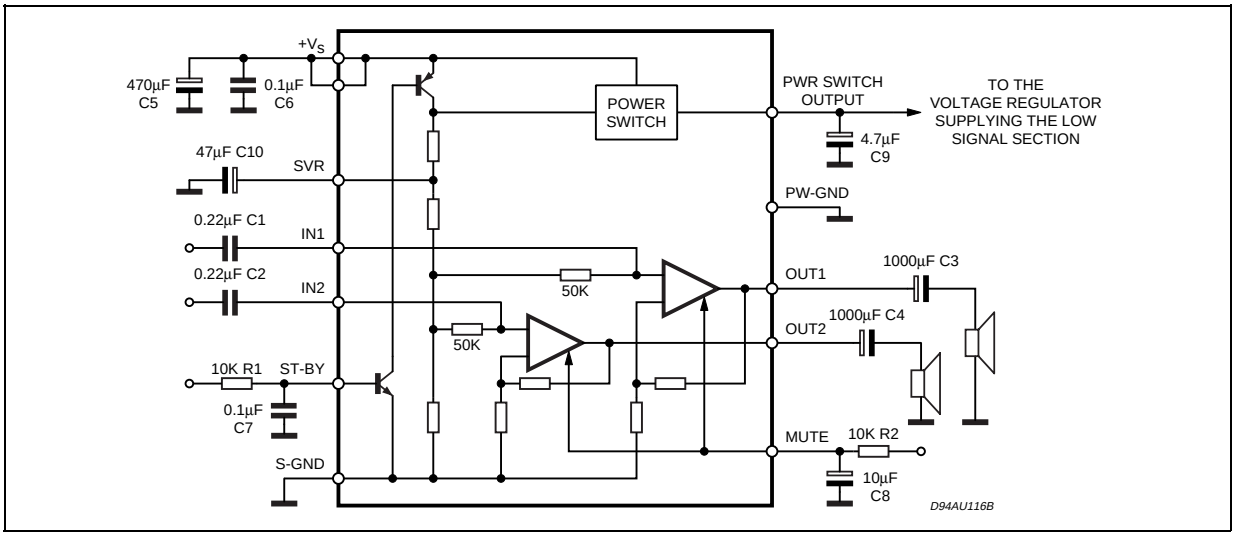


Figure 1: P.C.Board and component layout of the Test and Application Circuit 1:1 scale.

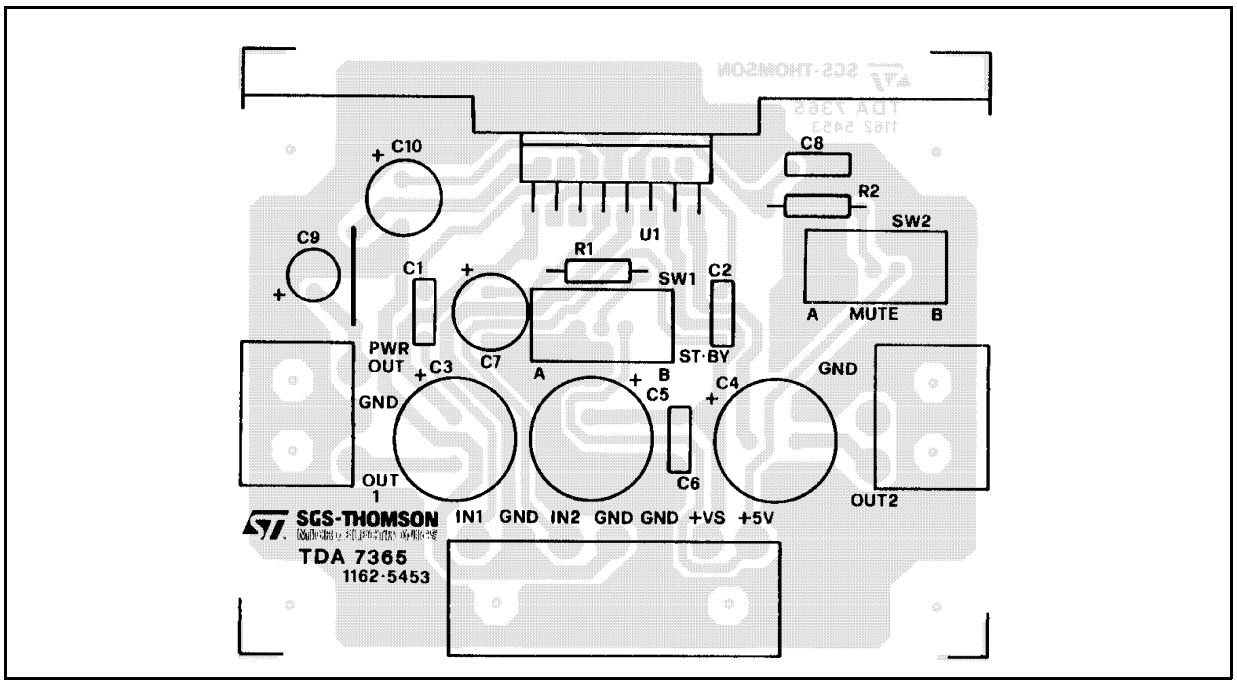


Figure 2: Quiescent Drain Current vs. Supply Voltage

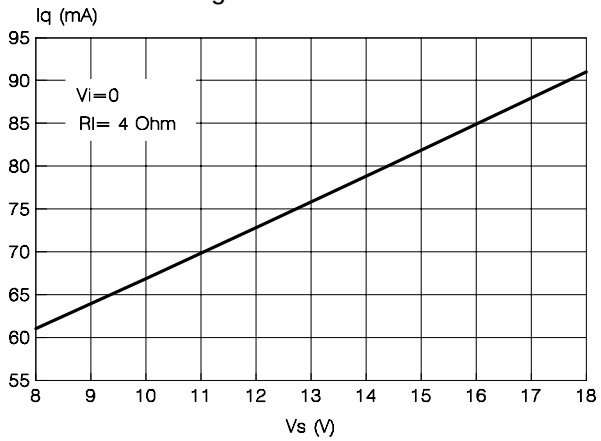


Figure 3: Output Power vs. Supply Voltage

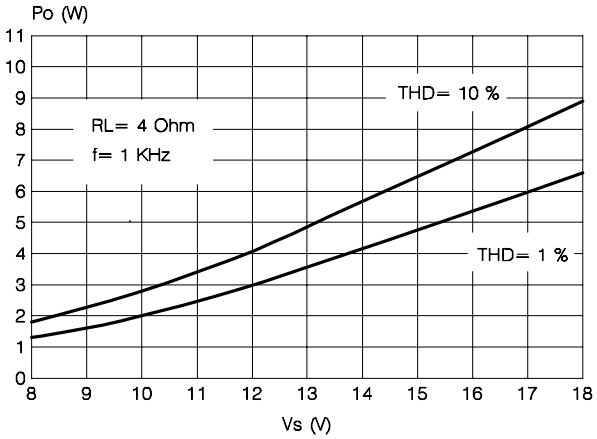


Figure 4: Output Power vs. Supply Voltage

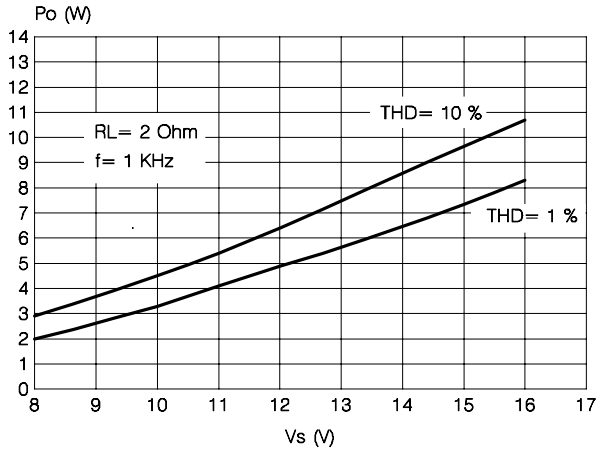
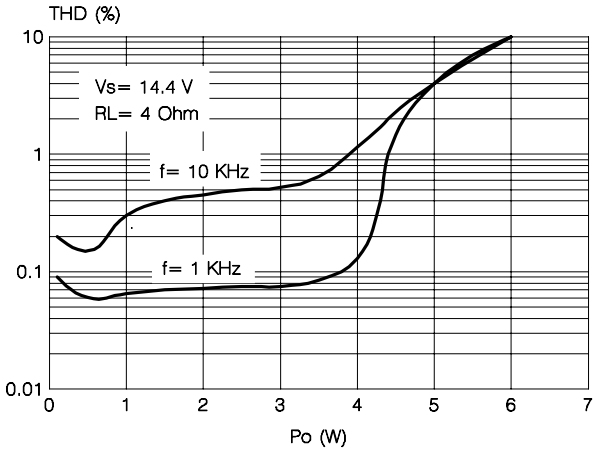


Figure 5: Distortion vs. Output Power



Fiigure 6: Distortion vs. Frequency

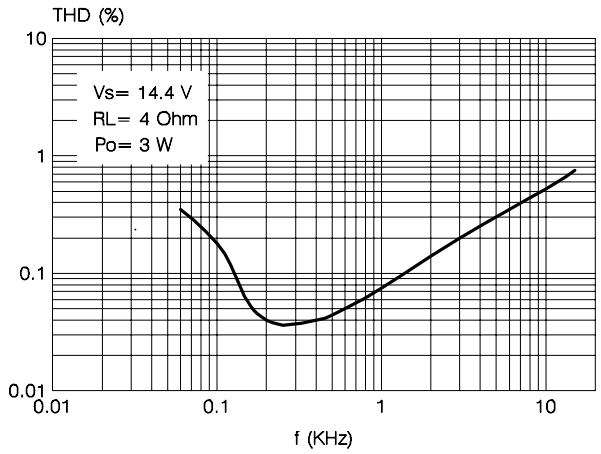
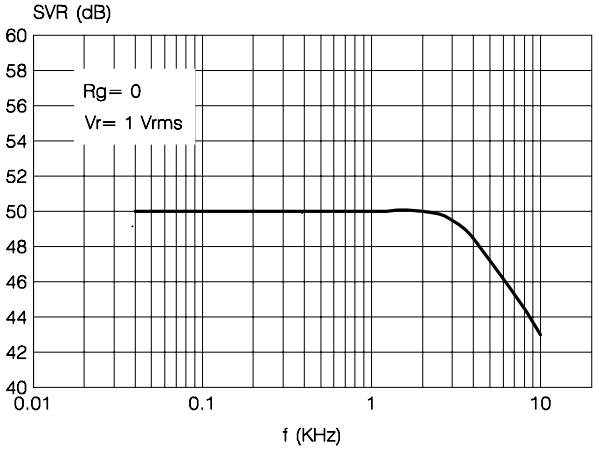


Figure 7: Supply Voltage Rejection



Fiigure 8: Cross-Talk vs. Frequency

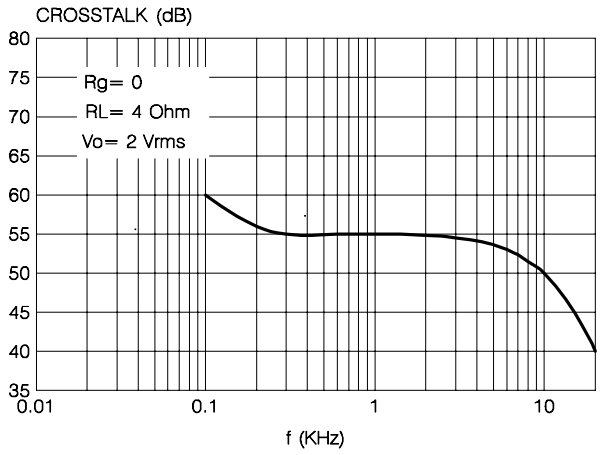


Figure 9: Switch Drop-out vs. Switch Current

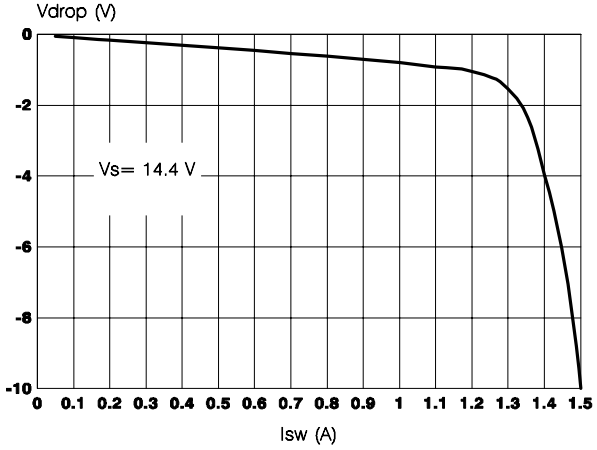


Figure 10: Total Power Dissipation and Efficiency vs. Output Power

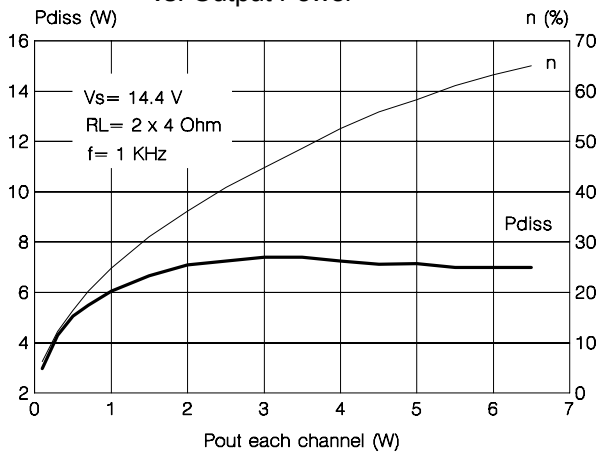
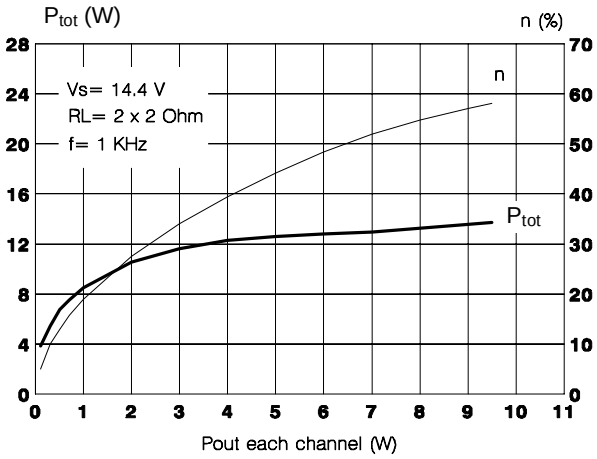
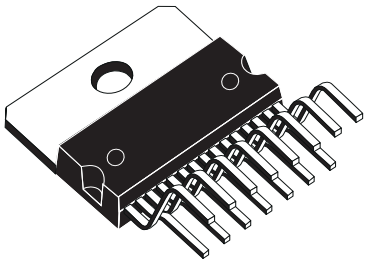


Figure 11: Total Power Dissipation and Efficiency



DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			5			0.197
B			2.65			0.104
C			1.6			0.063
D		1			0.039	
E	0.49		0.55	0.019		0.022
F	0.66		0.75	0.026		0.030
G	1.02	1.27	1.52	0.040	0.050	0.060
G1	17.53	17.78	18.03	0.690	0.700	0.710
H1	19.6			0.772		
H2			20.2			0.795
L	21.9	22.2	22.5	0.862	0.874	0.886
L1	21.7	22.1	22.5	0.854	0.870	0.886
L2	17.65		18.1	0.695		0.713
L3	17.25	17.5	17.75	0.679	0.689	0.699
L4	10.3	10.7	10.9	0.406	0.421	0.429
L7	2.65		2.9	0.104		0.114
M	4.25	4.55	4.85	0.167	0.179	0.191
M1	4.63	5.08	5.53	0.182	0.200	0.218
S	1.9		2.6	0.075		0.102
S1	1.9		2.6	0.075		0.102
Dia1	3.65		3.85	0.144		0.152

OUTLINE AND MECHANICAL DATA



Multiwatt15 V