勝 特 力 材 料 886-3-5753170 胜特力电子(上海) 86-21-34970699 胜特力电子(深圳) 86-755-83298787 Http://www.100y.com.tw

TDA7265

25 +25W STEREO AMPLIFIER WITH MUTE & ST-BY

- WIDE SUPPLY VOLTAGE RANGE (UP TO ±25V ABS MAX.)
- SPLIT SUPPLY
- HIGH OUTPUT POWER 25 + 25W @ THD =10%, $R_L = 8\Omega$, $V_S = \pm 20V$
- NO POP AT TURN-ON/OFF
- MUTE (POP FREE)
- STAND-BY FEATURE (LOW Iq)
- SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION

DESCRIPTION

The TDA7265 is class AB dual Audio power amplifier assembled in the Multiwatt package, specially designed for high quality sound application as Hi-Fi music centers and stereo TV sets.

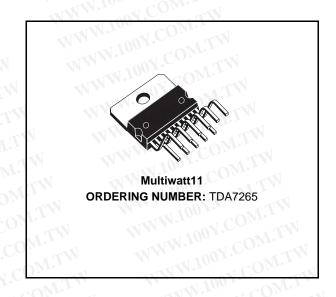
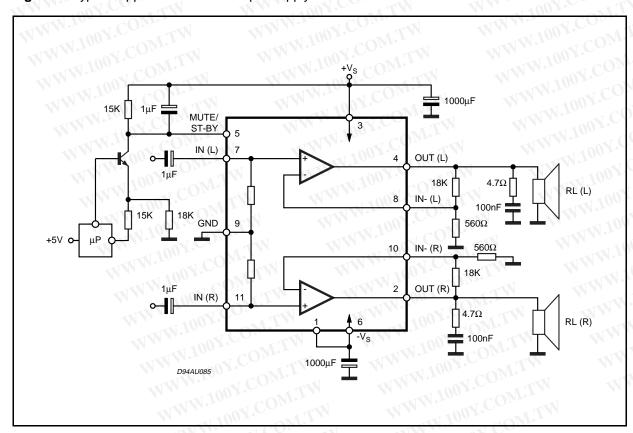


Figure 1: Typical Application Circuit in Split Supply

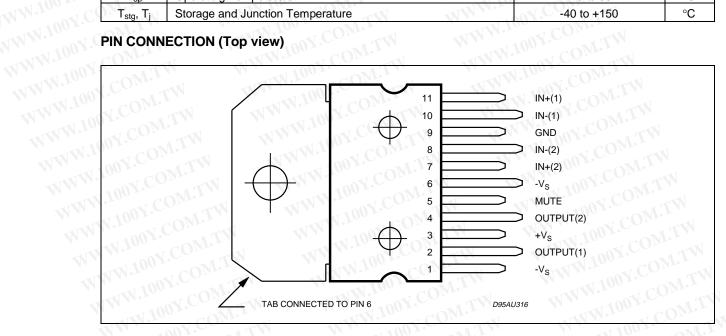


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ABSOLUTE MAXIMUM RATINGS

Symbo	Parameter	Value	Unit
Vs	DC Supply Voltage	±25	V
lo	Output Peak Current (internally limited)	4.5	А
P _{tot}	Power Dissipation T _{case} = 70°C	30	W
Top	Operating Temperature	-20 to 85	°C
T_{stq}, T_{i}	Storage and Junction Temperature	-40 to +150	°C

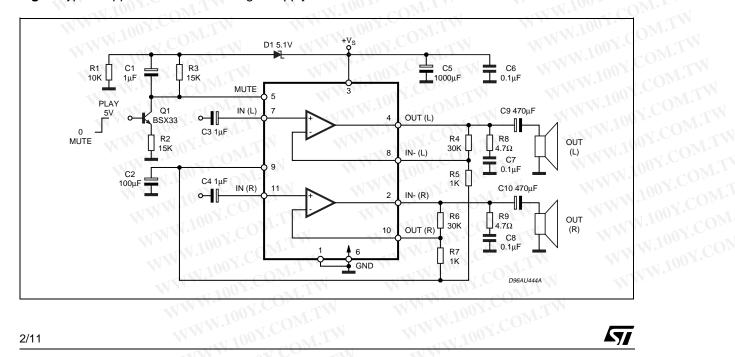
PIN CONNECTION (Top view)



THERMAL DATA

Symbol	Description	W	Value	Unit
R _{th j-case}	Thermal Resistance Junction-case	Max	2	°C/W

Fig 2: Typical Application Circuit in Single Supply



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ELECTRICAL CHARACTERISTICS (Refer to the test circuit, $V_S = \pm 20V$; $R_L = 8\Omega$; $R_S = 50\Omega$; $G_V = 30$ dB; f = 1KHz; $T_{amb} = 25$ °C, unless otherwise specified.)

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Unit
Vs	Supply Range	TWW.IOO	<u>+</u> 5	- XXI	<u>+</u> 25	V
lq	Total Quiescent Current	M. M. 100 x	Mon	80	130	mA
Vos	Input Offset Voltage	LM MM. 100.	-20	TW	+20	mV
l _b	Non Inverting Input Bias Current	EW WWW.E	V.CO	500		nA
Po	Music Output Power (*)	THD = 10%; $R_L = 8Ω$; $V_S = \pm 22.5V$	OY.CC	32	Ĭ.	W
OP _o	Output Power	$THD = 10\%$ $R_L = 8\Omega;$ $V_S \pm 16V; R_L = 4\Omega$	20	25 25	N	W W
I COM.	LM MMM.100X.	$THD = 1\%$ $R_L = 8\Omega;$ $V_S \pm 16V; R_L = 4\Omega$	W.100 Y	20 20	TW	W W
THD	Total Harmonic Distortion	$R_L = 8\Omega$; $P_O = 1W$; $f = 1KHz$	W.100	0.01	M.r.	%
	MITW WWW.100	$R_L = 8\Omega$; $P_O = 0.1$ to 15W; f = 100Hz to 15KHz	WW.10	001.C	0.7	% N
	MAM.	$R_L = 4\Omega$; $P_O = 1W$; $f = 1KHz$	1	0.02	7.1	%
	OW.TW WWW.	$R_L = 4\Omega$; $V_S \pm 16V$; $P_O = 0.1$ to 12W; f = 100Hz to 15KHz	WWW	100Y	$\mathbb{C}G_{p_p}$	%
Ст	Cross Talk	f = 1KHz f = 10KHz	WW	70 60	N.CO	dB dB
SR	Slew Rate	N.T. CONT.	W	10	VY.CC	V/μs
G _{OL} 10	Open Loop Voltage Gain	IN:100 COM.		80	- 1 C	dB
e _N	Total Input Noise	A Curve f = 20Hz to 22KHz		3 4	8	μV μV
R_i	Input Resistance	MW.100 COM.	15	20	100	ΚΩ
SVR	Supply Voltage Rejection (each channel)	fr = 100Hz Vr = 0.5V	Į.	60	A:100,	dB
Tj	Thermal Shut-down Junction Temperature	WWW.100Y.COM.1	W	145	W.10°	√°C
JUTE FUN	CTION [ref: +Vs]	MMM. TON. COM		W	M MA.	ONY.C
VT _{MUTE}	Mute / Play Threshold	M.In. COM.	-7	-6	-5	V
A _M	Mute Attenuation	W. 21 1001.	60	70	INTE	dB
TAND-BY	FUNCTION [ref: +Vs]	MM. 100X.Co.	WIL	-	MAA	1100
VT _{ST-BY}	Stand-by / Mute Threshold	MMN. CO	-3.5	-2.5	-1.5	V
A _{ST-BY}	Stand-by Attenuation	WW.100	M.	110	WIN	dB
I _{q ST-BY}	Quiescent Current @ Stand-by	W 1 100 1.0	MIT	3		mA

Note:

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() FULL POWER up to. $V_S = \pm 22.5V$ with $R_L = 8\Omega$ and $V_S = \pm 16V$ with $R_L = 4\Omega$ MUSIC POWER is the maximal power which the amplifier is capable of producing across the rated load resistance (regardless of non linearity)

1 sec after the application of a sinusoidal input signal of frequency 1KHz. WWW.100Y.COM.T WWW.100Y.COM.T

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Figure 3: Quiescent Current vs. Supply Voltage

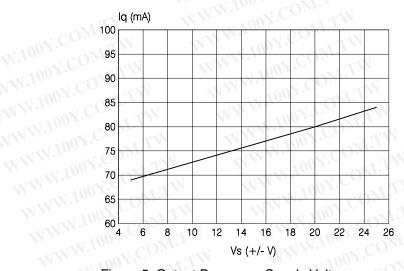


Figure 5: Output Power vs. Supply Voltage

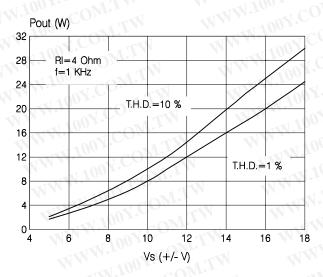
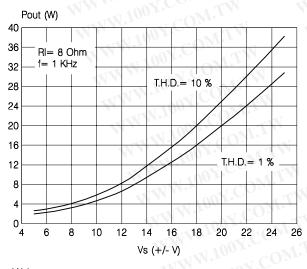


Figure 7: Output Power vs. Supply Voltage



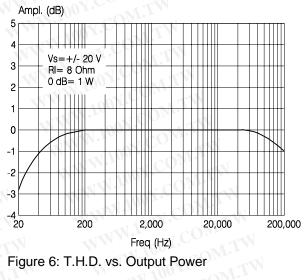
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Figure 4: Frequency Response

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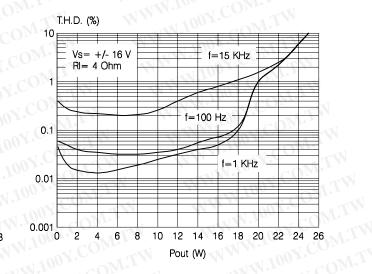
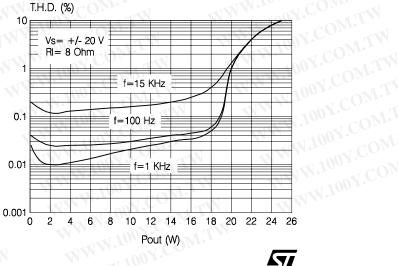


Figure 8: T.H.D. vs. Output Power



[7]

Figure 9: Quiescent Current vs. Pin # 5 Voltage

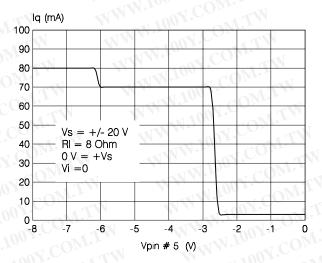


Figure 11: SVR vs. Frequency

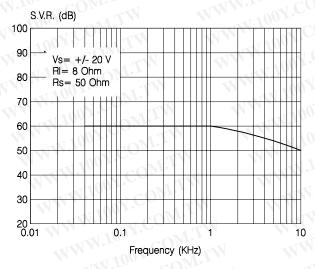
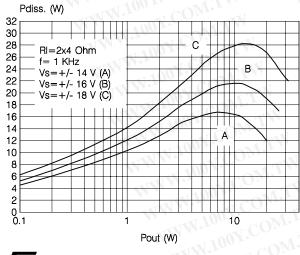


Figure 13: Power Dissipaton vs. Output Power



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Figure 10: Attenuation vs. Pin # 5 Voltage

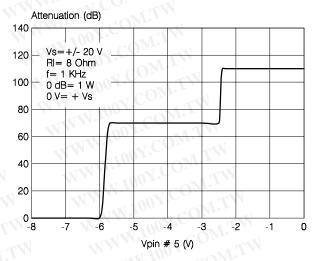


Figure 12: Crosstalk vs. Frequency

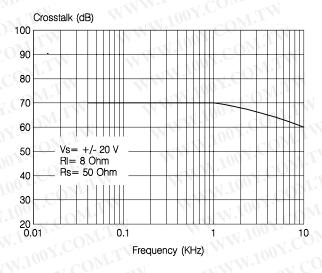
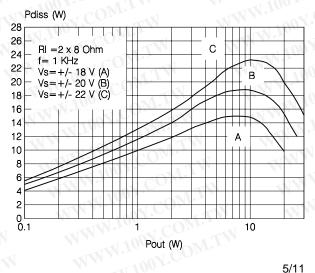


Figure 14: Power Dissipaton vs. Output Power

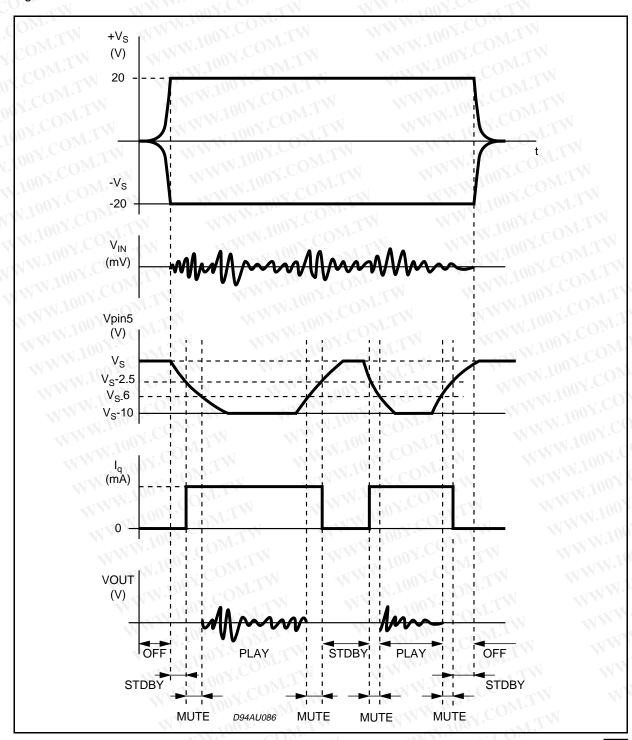


MUTE STAND-BY FUNCTION

The pin 5 (MUTE/STAND-BY) controls the amplifier status by two different thresholds, referred to +Vs.

- When V_{pin5} higher than = +Vs 2.5V the amplifier is in Stand-by mode and the final stage generators are off
- when V_{pin5} is between +Vs 2.5V and +Vs
 6V the final stage current generators are switched on and the amplifier is in mute mode
- when $V_{\text{pin}5}$ is lower than +Vs 6V the amplifier is play mode.

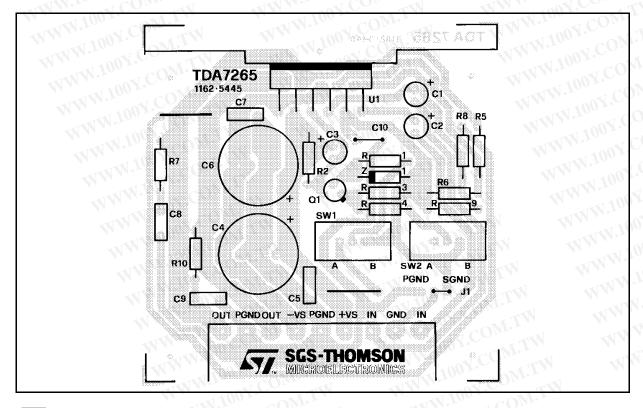
Figure 15



R2 MUTE/ ST-BY Q1 IN (L) OUT (L) C1 ST-BY DZ R5 RL(L) IN- (L) 8 R4 R3 R6 SW2 10 IN- (R) R8 C2 2 OUT (R) IN (R) RL(R) D94ALI087B

Figure 16: Test and Application Circuit (Stereo Configuration)

Figure 17: PC Board and Components Layout of the figure 15 (1:1 scale)



APPLICATIONS SUGGESTION

(Demo Board Schematic)

The recommended values of the external compo-

nents are those shown are the demo board schematic different values can be used: the following table can help the designer.

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COMPONENTS	RECOMMENDED VALUE	PURPOSE	LARGER THAN RECOMMENDED VALUE	SMALLER THAN RECOMMENDED VALUE
R1	10ΚΩ	Mute Circuit	Increase of Dz Biasing Current	M.TW
R2	15ΚΩ	Mute Circuit	V _{pin} # 5 Shifted Downward	V _{pin} # 5 Shifted Upward
R3	18ΚΩ	Mute Circuit	V _{pin} # 5 Shifted Upward	V _{pin} # 5 Shifted Downward
R4	15ΚΩ	Mute Circuit	V _{pin} # 5 Shifted Upward	V _{pin} # 5 Shifted Downward
R5, R8	18ΚΩ	Closed Loop Gain	Increase of Gain	I.COM.
R6, R9	560Ω	Setting (*)	Decrease of Gain	N.COM. TW
R7, R10	4.7Ω	Frequency Stability	Danger of Oscillations	Danger of Oscillations
C1, C2	TW 1μF WY	Input DC Decoupling	TW WWW.	Higher Low Frequency Cutoff
C3 CO	1μF	St-By/Mute Time Constant	Larger On/Off Time	Smaller On/Off Time
C4, C6	1000μF	Supply Voltage Bypass	ON.TW WW	Danger of Oscillations
C5, C7	0.1μF	Supply Voltage Bypass	COM.TW W	Danger of Oscillations
C8, C9	0.1μF	Frequency Stability	COMITY	W.100Y.
Dz	5.1V	Mute Circuit	Y.COM.TW	WW.100Y.COM
Q110	BC107	Mute Circuit	OY. COM.TN	WW.1001.50

^(*) Closed loop gain has to be => 25dB WWW.100Y.COM.TW

MUTE, STAND-BY TRUTH TABLE

SW1	SW2	W.
В	A	STAND-BY
В	B	STAND-BY
Α	A 100	MUTE
А	B 100	PLAY
	MAN'100 MAN'100	ON.COM.TW

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BRIDGE APPLICATION

Another application suggestion concerns the BRIDGE configuration, where the two power amplifiers are connected as shown by the schematic diagram of figure. 18.

This application shows, however, some operative limits due to dissipation and current capability of the output stage. For this reason, we reccomend to use the TDA7265 in bridge with the supply voltage equal/lower than $\pm 16 \text{V}$ when the load is 8Ω ; with higher loads (i.e. 16Ω), the amplifier can work correctly in the whole supply voltage range.

The detected characteristics of T.H.D. vs Pout and Frequency Response are shown in fig.19 and fig.20.

With R1=8 Ω , Vs=+/-16V the maximum output power obtainable is 50W at T.D.H.=10%.

The quiescent current remains unchanged with respect to the stereo configuration (~80mA as typical at Vs=+/-16V).

typical at Vs=+/-16V). The last point to take into consideration concerns the short-circuit protection. As for the stereo application, the TDA7265 is fully protected against any kind of short-circuit (between Out/Gnd, Out/+Vs and Out/-Vs).

Figure 18: Bridge Application Circuit

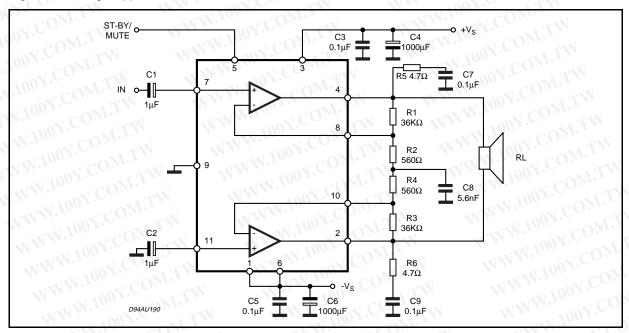


Figure 19: Distortion vs. Output Power

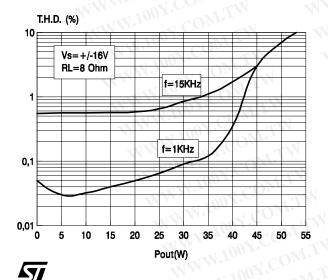
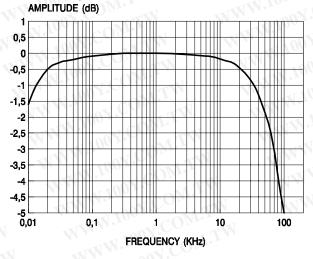


Figure 20: Frequency Response of the Bridge Applications

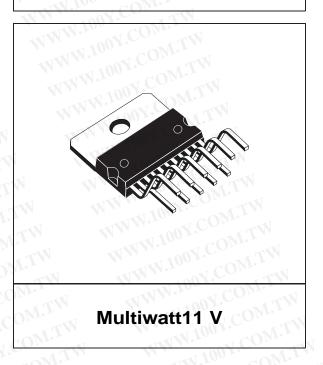


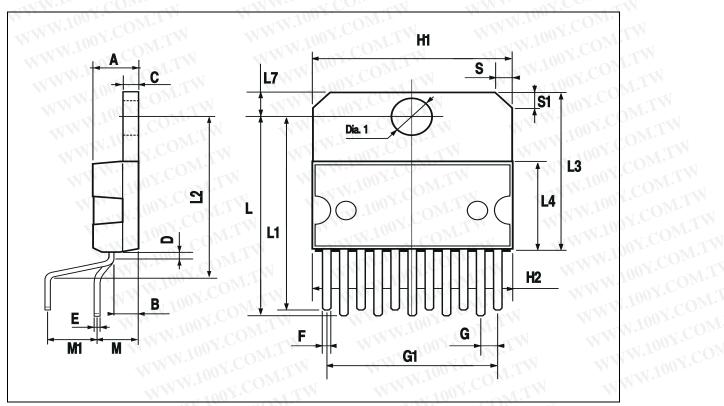
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IDA/	203			·Mo	1	
DIM.	mm 100			inch		
DIIVI.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
Α		WW	5	V.C.		0.197
В			2.65	~ ₹ 7 C	O_{Mr} ,	0.104
C			1.6	00 7.	Mor	0.063
D		1	M. a.	100 Y	0.039	TW
E	0.49	*	0.55	0.019	COA	0.022
F	0.88		0.95	0.035	-, CO	0.037
G	1.45	1.7	1.95	0.057	0.067	0.077
G1	16.75	17	17.25	0.659	0.669	0.679
H1	19.6	,	-41	0.772	~ * ! !	OM.
H2	M.I.		20.2	-TXV.	00 7.	0.795
YL	21.9	22.2	22.5	0.862	0.874	0.886
L1C	21.7	22.1	22.5	0.854	0.87	0.886
L2	17.4	- T	18.1	0.685	1.700	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	1	2.9	0.104	Mir	0.114
M	4.25	4.55	4.85	0.167	0.179	0.191
M1	4.73	5.08	5.43	0.186	0.200	0.214
S	1.9	Diag.	2.6	0.075	MAN	0.102
S1	1.9	·Mo	2.6	0.075	-TXNX	0.102
Dia1	3.65		3.85	0.144	14 .	0.152

OUTLINE AND MECHANICAL DATA

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