

UTC TDA8496

LINEAR INTEGRATED CIRCUIT

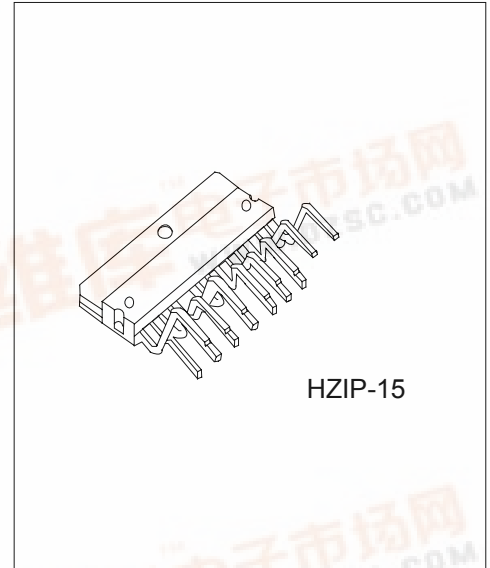
5W+5W AMPLIFIER WITH DC VOLUME CONTROL

DESCRIPTION

The UTC **TDA8496** is a stereo 5+5W class AB power amplifier with mute and dc volume control, assembled in the HZIP-15 package. It is designed for high quality sound, LCD TV or LCD Monitor applications.

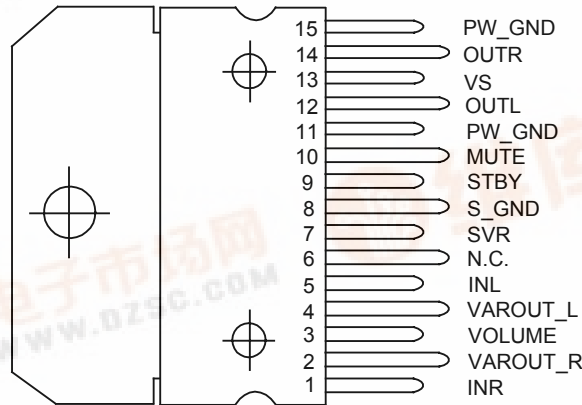
FEATURES

- * 5+5W OUTPUT POWER @ $V_{CC} = 22V$; $R_L = 8\Omega$
- * LOW TURN-ON TURN-OFF POP NOISE
- * LOW EXTERNAL COMPONENTS
- * SHORT CIRCUIT & THERMAL OVERLOAD PROTECTION
- * LINEAR VOLUME CONTROL BY DC VOLTAGE
- * SOFT CLIPPING
- * INTERNALLY FIXED GAIN
- * ST-BY AND MUTE FUNCTIONS



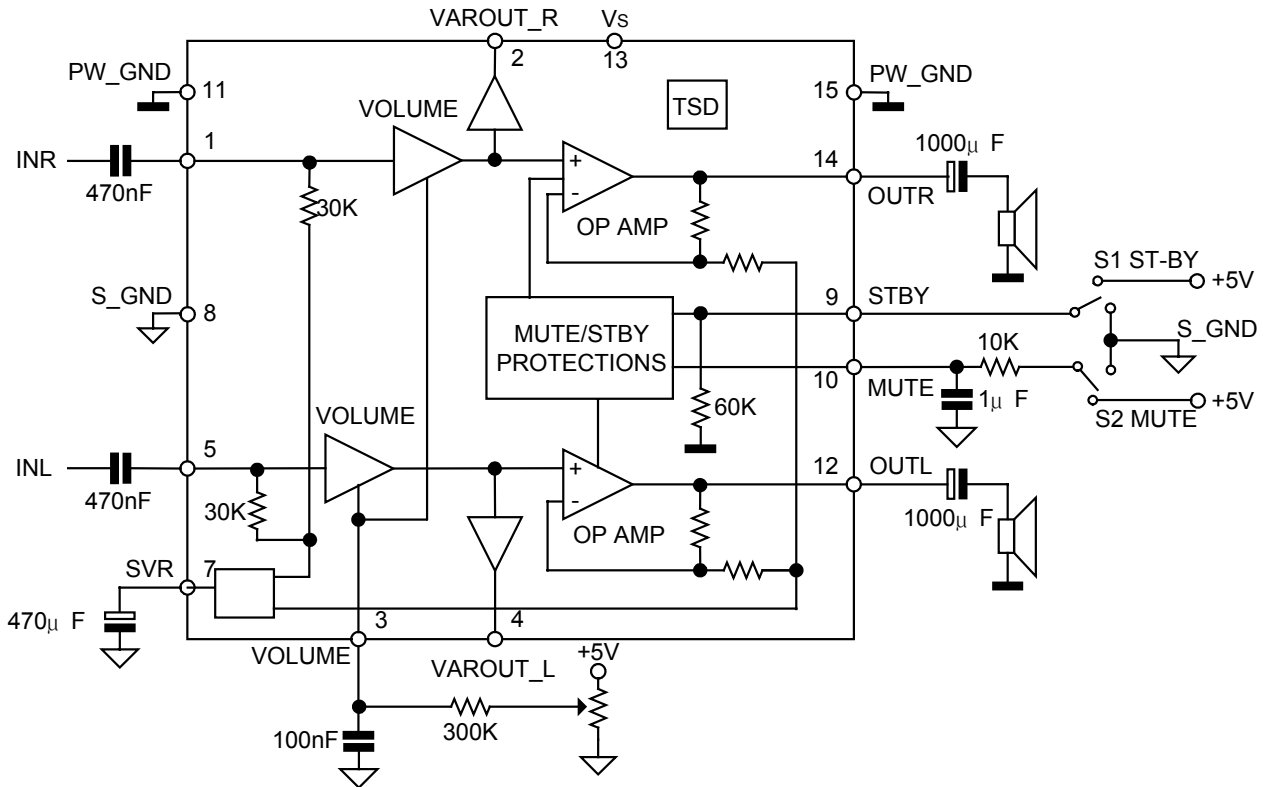
*Pb-free plating product number: TDA8496L

PIN CONFIGURATION



(Top View)

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
DC Supply voltage	V_s	35	V
Maximum Input Voltage	V_{IN}	8	V_{PP}
Volume Control DC Voltage	V_3	7	V
Total Power Dissipation ($T_a = 80^\circ\text{C}$)	P_{tot}	15	W
Ambient Operating Temperature	T_{amb}	0 ~ 70	$^\circ\text{C}$
Junction Temperature	T_j	-40 ~ 150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 ~ 150	$^\circ\text{C}$

THERMAL DATA

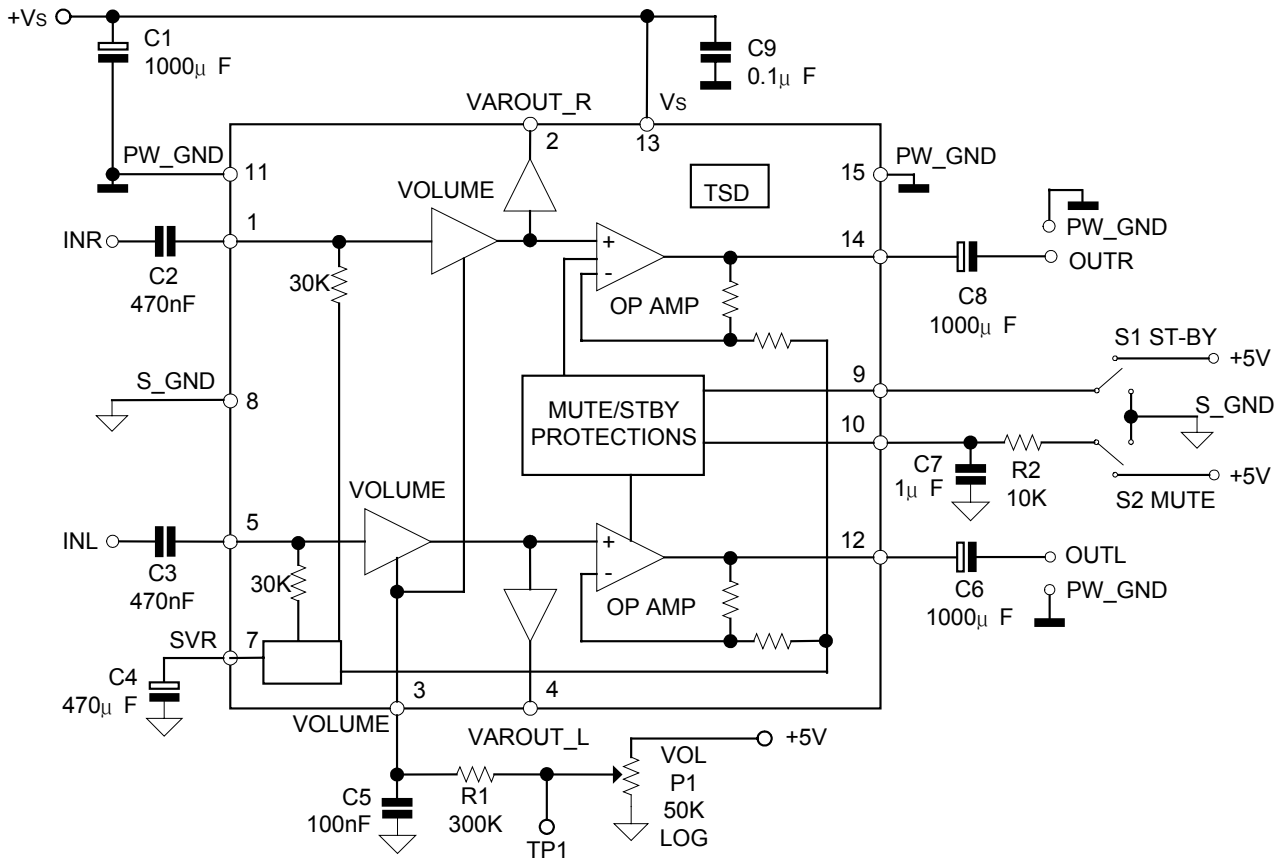
PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance junction-case	θ_{JC}	Typ. = 4, Max. = 4.6	$^\circ\text{C}/\text{W}$
Thermal Resistance junction-ambient Max.	θ_{JA}	35	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS

(Refer to the test circuit $V_S = 22V$, $R_L = 8\Omega$, $R_g = 50\Omega$, $T_a=25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	V_S		10		32	V
Total Quiescent Current	I_q			25	50	mA
Output DC Offset Referred to SVR Potential	DCV_{OS}	No Input Signal		200		mV
Quiescent Output Voltage	V_O			11		V
Output Power	P_O	THD = 10%, $R_L = 8\Omega$ THD = 1%, $R_L = 8\Omega$	5	5.5 4		W
		THD = 10%, $R_L = 4\Omega$, $V_S = 12V$ THD = 1%, $R_L = 4\Omega$, $V_S = 12V$		2.1 1.0		W
Total Harmonic Distortion	THD	$G_V = 30dB$, $P_O = 1W$, $f = 1KHz$			0.4	%
Output Peak Current	I_{peak}	(internally limited)	1.0	1.3		A
Input Signal	V_{IN}				2.8	Vrms
Closed Loop Gain	G_V	$V_{OI_Ctrl} > 4.5V$	28.5	30	31.5	dB
Monitor Out Gain	G_{VLine}	$V_{OI_Ctrl} > 4.5V$, $Z_{load} > 30K\Omega$	-1.5	0	1.5	dB
Attenuation at Minimum Volume	$A_{Min} V_{OL}$	$V_{OI_Ctrl} < 0.5V$	80			dB
	BW			0.6		MHz
Total Output Noise	eN	$f = 20Hz \sim 22KHz$ (PLAY, max volume)		500	800	μV
		$f = 20Hz \sim 22KHz$ PLAY, max attenuation		100	250	μV
		$f = 20Hz \sim 22KHz$ MUTE		60	150	μV
Slew Rate	SR		5	8		V/ μs
Input Resistance	R_i		22.5	30		K Ω
Variable Output Resistance	R_{Var_Out}			30	100	Ω
Variable Output Load	$R_{L_Var_Out}$		2			K Ω
Supply Voltage Rejection	SVR	$f = 1KHz$, max volume $C_{SVR} = 470mF$, $V_{RIP} = 1Vrms$	35	39		dB
		$f = 1KHz$, max attenuation $C_{SVR} = 470mF$, $V_{RIP} = 1Vrms$	55	65		dB
Thermal Muting	T_M			150		$^\circ C$
Thermal Shut-down	T_S			160		$^\circ C$
MUTE STAND-BY & INPUT SELECTION FUNCTIONS						
Stand-by ON Threshold	V_{ST-ON}		3.5			V
Stand-by OFF Threshold	V_{ST-OFF}				1.5	V
Mute ON threshold	V_{MUTEON}		3.5			V
Mute OFF threshold	$V_{MUTEOFF}$				1.5	V
Mute Attenuation	A_{MUTE}		50	65		dB
Quiescent Current @ Stand-by	I_{qST-BY}			0.6	1	mA
Stand-by bias current	$I_{stbyBIAS}$	Stand by ON: $V_{ST-BY} = 5V$, $V_{mute} = 5V$		80		μA
		Play or Mute	-20	-5		μA
Mute Bias Current	$I_{muteBIAS}$	Mute		1	5	μA
		Play		0.2	2	μA

Figure 1: APPLICATION CIRCUIT

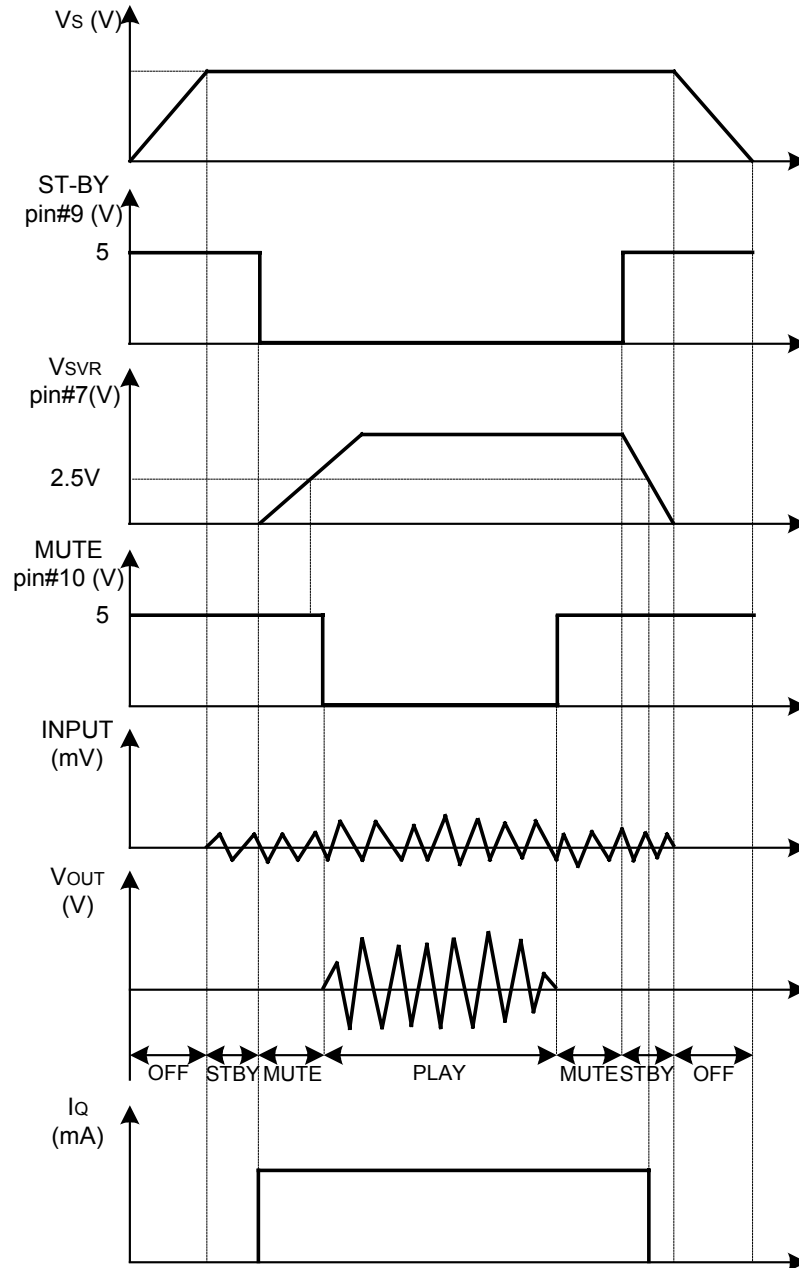


MUTE STAND-BY TRUTH TABLE

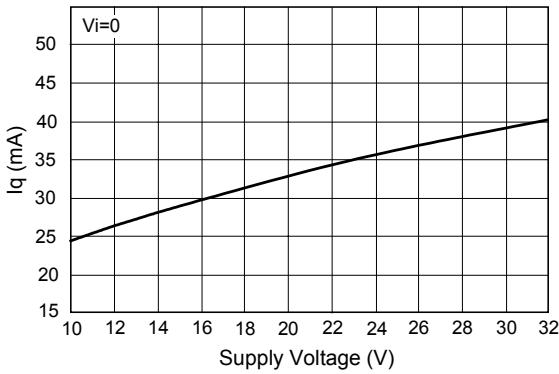
MUTE	St-BY	OPERATING CONDITION
H	H	STAND-BY
L	H	STAND-BY
H	L	MUTE
L	L	PLAY

Turn ON/OFF Sequences

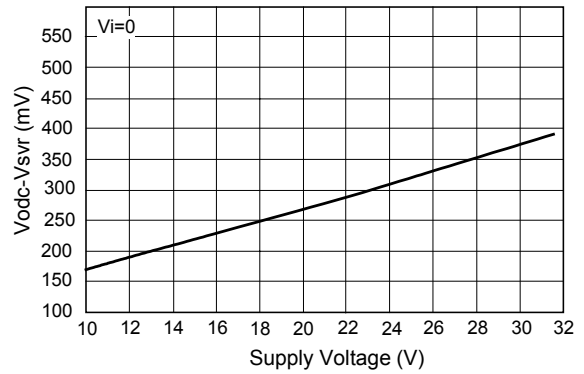
USING ONLY THE MUTE FUNCTION



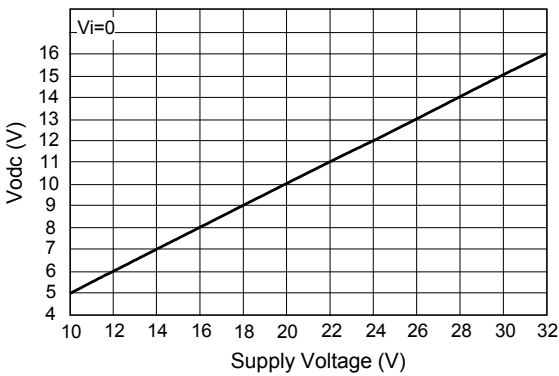
Quiescent Current vs. Supply Voltage



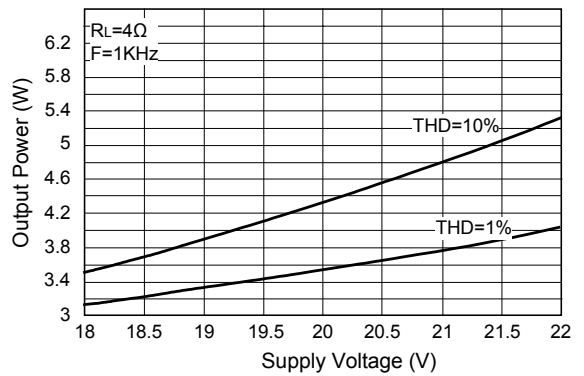
Output DC Offset vs. Supply Voltage



Output Dc Offset vs. Supply Voltage



Output Power vs Supply Voltage



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