



## TDA7388

Preliminary

LINEAR INTEGRATED CIRCUIT

### 4 X 41W QUAD BRIDGE CAR RADIO AMPLIFIER

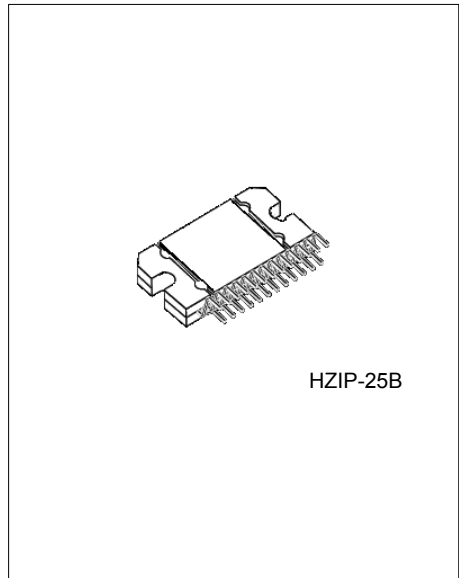
#### DESCRIPTION

The UTC **TDA7388** is a class AB Audio Power Amplifier. It allows a rail to rail output voltage swing with no need of bootstrap capacitors for the fully complementary PNP/NPN output configuration.

The UTC **TDA7388** is suitable for high end car radio applications.

#### FEATURES

- \* High Output Power@  $V_{CC}=14.4V$ ,  $f=1kHz$ ,  $R_L=4 \Omega$ :
  - 4 x 41W Max.
  - 4 x 25W @THD=10%
- \* Rail to rail output voltage swing
- \* Low THD &  $e_{No}$



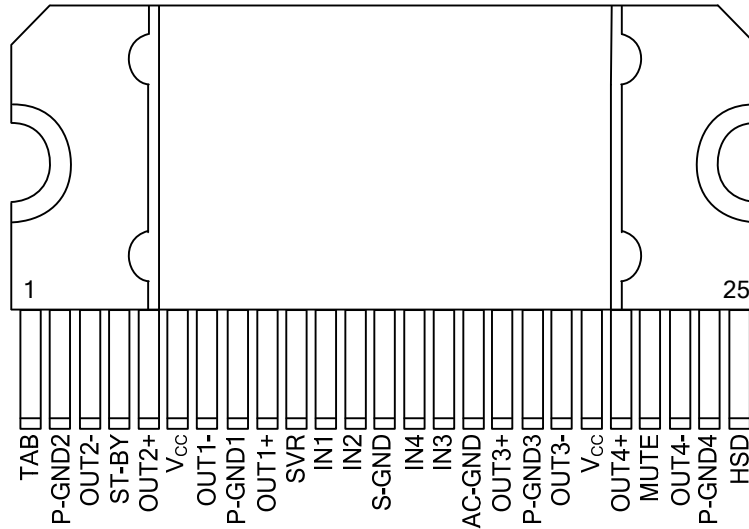
#### ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
TDA7388L-J25-B-T	TDA7388G-J25-B-T	HZIP-25B	Tube

Note: xx: Output Voltage, refer to Marking Information.

<p>TDA7388L-J25-B-T</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p>	<p>(1) T: Tube (2) J25-B: HZIP-25B (3) Halogen Free, L: Lead Free</p>
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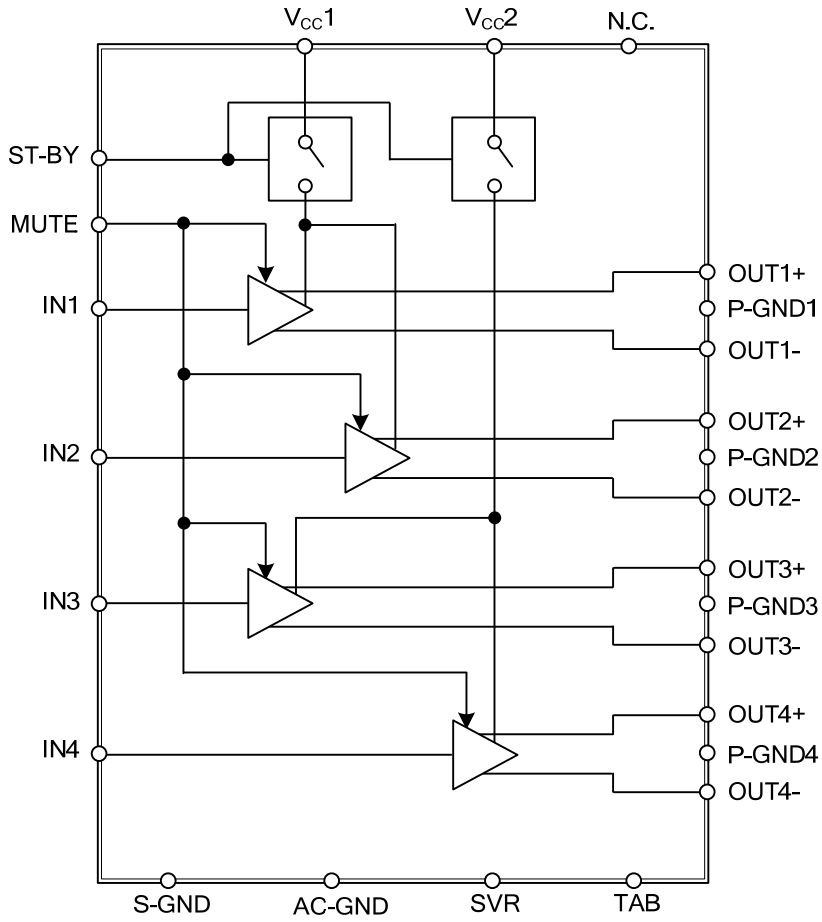
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	TAB	Connect to GND
2	P-GND2	Power GND of Channel 2
3	OUT2-	Inverting Output of Channel 2
4	ST-BY	Stand-by
5	OUT2+	Non-Inverting Output of Channel 2
6	V <sub>cc</sub>	Supply Voltage
7	OUT1-	Inverting Output of Channel 1
8	P-GND1	Power GND of Channel 1
9	OUT1+	Non-Inverting Output of Channel 1
10	SVR	Supply Voltage Rejection
11	IN1	Input of Channel 1
12	IN2	Input of Channel 2
13	S-GND	Signal GND
14	IN4	Input of Channel 4
15	IN3	Input of Channel 3
16	AC-GND	AC GND
17	OUT3+	Non-Inverting Output of Channel 3
18	P-GND3	Power GND of Channel 3
19	OUT3-	Inverting Output of Channel 3
20	V <sub>cc</sub>	Supply Voltage
21	OUT4+	Non-Inverting Output of Channel 4
22	MUTE	Mute
23	OUT4-	Inverting Output of Channel 4
24	P-GND4	Power GND of Channel 4
25	HSD	No Connection

■ BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT	
Operating Supply Voltage	$V_{CC}$	18	V	
DC Supply Voltage	$V_{CC(DC)}$	28	V	
Peak Supply Voltage (t = 50ms)	$V_{CC(PK)}$	50	V	
Output Peak Current	Repetitive (Duty Cycle 10% at f = 10Hz)	$I_o$	4.5	A
	Non Repetitive (t = 100 $\mu$ s)		5.5	A
Power Dissipation ( $T_C=70^\circ\text{C}$ )	$P_D$	80	W	
Junction Temperature	$T_J$	150	$^\circ\text{C}$	
Storage Temperature	$T_{STG}$	-55 ~ 150	$^\circ\text{C}$	

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.  
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ THERMAL DATA

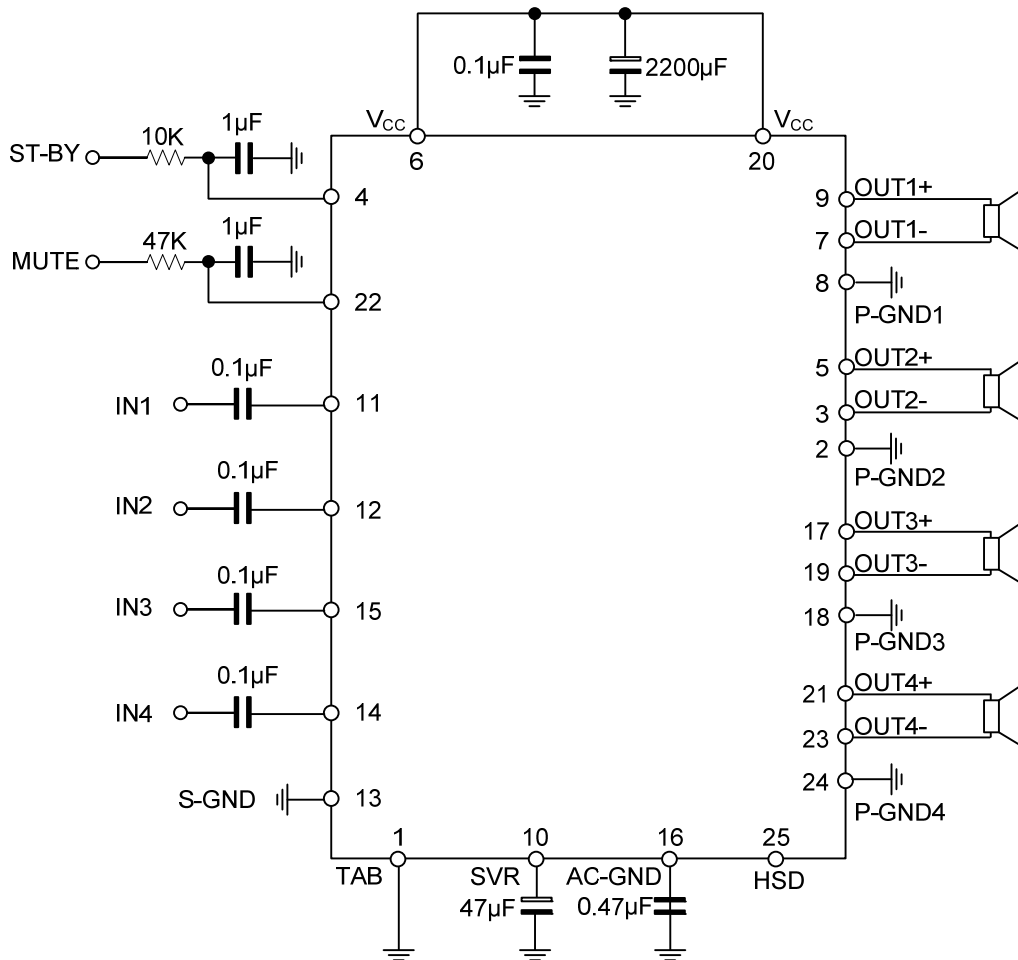
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	$\theta_{JC}$	1	$^\circ\text{C/W}$

### ■ ELECTRICAL CHARACTERISTICS ( $V_S=14.4\text{V}$ , $f=1\text{KHz}$ , $R_G=600\Omega$ , $R_L=4\Omega$ , $T_A=25^\circ\text{C}$ , Refer to the Test and application diagram, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Current	$I_{Q1}$	$R_L=\infty$	120	190	350	mA
Output Offset Voltage	$V_{OS}$	Play Mode			$\pm 80$	mV
During Mute ON/OFF Output Offset Voltage	$\Delta V_{OS}$				$\pm 80$	mV
Voltage Gain	$G_V$		25	26	27	dB
Output Power	$P_O$	THD = 10%, $V_S=14.4\text{V}$	22	26		W
Max. Output Power (Note 1)	$P_{O(MAX)}$	$V_S=14.4\text{V}$	38	41		W
Distortion	THD	$P_O=4\text{W}$		0.04	0.15	%
Output Noise	$e_{NO}$	"A" Weighted		50	70	$\mu\text{V}$
		$B_W=20\text{Hz} \sim 20\text{KHz}$		70	100	$\mu\text{V}$
Supply Voltage Rejection	SVR	f = 100Hz, $V_R=1\text{Vrms}$	50	65		dB
High Cut-Off Frequency	$f_{CH}$	$P_O=0.5\text{W}$	100	200		KHz
Input Impedance	$R_I$		70	100		K $\Omega$
Cross Talk	$C_T$	f = 1KHz, $P_O=4\text{W}$	60	70		dB
		f = 10KHz, $P_O=4\text{W}$	50	60		dB
St-By Current Consumption	$I_{SB}$				50	$\mu\text{A}$
St-By OUT Threshold Voltage	$V_{SB(OUT)}$	(Amp: ON)	3.5			V
St-By IN Threshold Voltage	$V_{SB(IN)}$	(Amp: OFF)			1.5	V
Mute Attenuation	$A_M$	$P_{O(REF)}=4\text{W}$	80	90		dB
Mute OUT Threshold Voltage	$V_{M(OUT)}$	(Amp: Play)	3.5			V
Mute IN Threshold Voltage	$V_{M(IN)}$	(Amp: Mute)			1.5	V
$V_S$ Automute Threshold	$V_{AM(IN)}$	(Amp: Mute), Att $\geq 80\text{dB}$ , $P_{O(REF)}=4\Omega$			6.5	V
		(Amp: Play), Att < 0.1dB, $P_O=0.5\Omega$		7.6	8.5	V
Muting Pin Current	$I_{PIN2}$	$V_{MUTE}=1.5\text{V}$ (Source Current)	5	11	20	$\mu\text{A}$

Note: 1. Saturated square wave output.

■ TYPICAL APPLICATION CIRCUIT



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