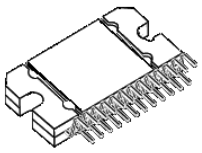
TDA7388 **LINEAR INTEGRATED CIRCUIT**

4 X 41W QUAD BRIDGE CAR RADIO AMPLIFIER



HZIP-25B

■ 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

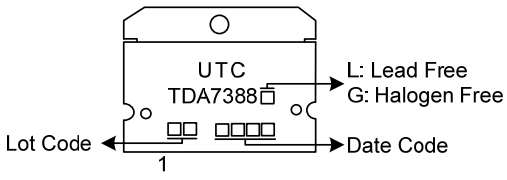
* High Output Power@ V_{CC}=14.4V, f=1kHz, R_L=4 Ω:
  -4 x 41W Max.
  -4 x 25W @THD=10%
* Rail to rail output voltage swing
* Low THD & e_{No}

■ ORDERING INFORMATION

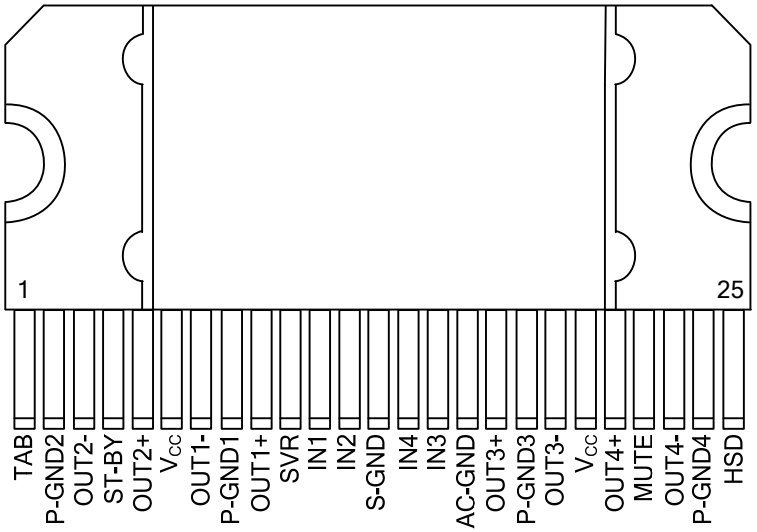
Ordering Number		Package	Packing
Lead Free	Halogen Free		
TDA7388L-J25-B-T	TDA7388G-J25-B-T	HZIP-25B	Tube

TDA7388G-J25-B-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube (2) J25-B: HZIP-25B (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



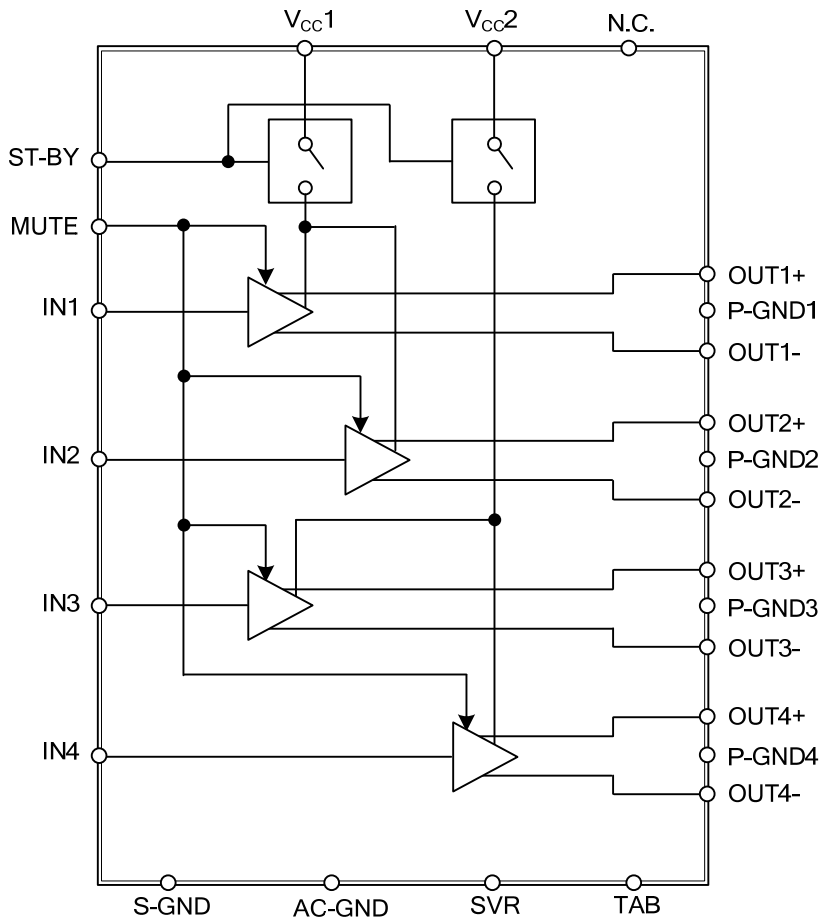
■ PIN CONFIGURATION



■ 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_{CC}	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_{CC}	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 = 100μs)		5.5	A
Power Dissipation (T_C= 70°C)		P_D	80	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ 150	°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

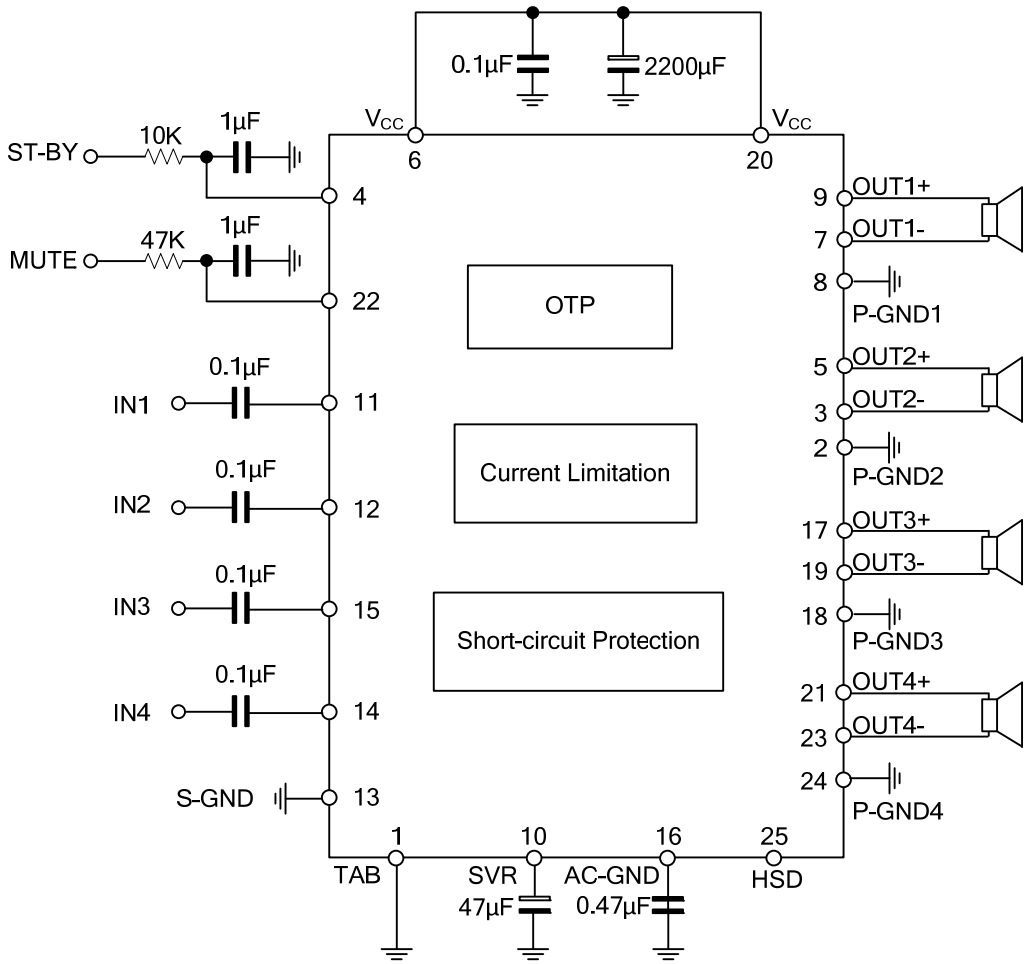
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	θ_{JC}	1	°C/W

■ ELECTRICAL CHARACTERISTICS (V_S =14.4V, f =1KHz, R_G=600Ω, R_L=4Ω, T_A =25°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=∞	120	190	350	mA
Output Offset Voltage	V_{OS}	Play Mode			±80	mV
During Mute ON/OFF Output Offset Voltage	ΔV_{OS}				±80	mV
Voltage Gain	G_V		25	26	27	dB
Output Power	P_O	THD = 10%, V_S= 14.4V	22	26		W
Max. Output Power (Note 1)	$P_{O(MAX)}$	V_S= 14.4V	38	41		W
Distortion	THD	P_O= 4W		0.04	0.15	%
Output Noise	e_{NO}	"A" Weighted		50	70	μV
		B_W = 20Hz ~ 20KHz		70	100	μV
Supply Voltage Rejection	SVR	f = 100Hz, V_R= 1Vrms	50	65		dB
High Cut-Off Frequency	f_{CH}	P_O= 0.5W	100	200		KHz
Input Impedance	R_I		70	100		KΩ
Cross Talk	C_T	f = 1KHz, P_O = 4W	60	70		dB
		f = 10KHz, P_O = 4W	50	60		dB
St-By Current Consumption	I_{SB}				50	μA
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	$P_{O(REF)}$= 4W	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≥80dB, $P_{O(REF)}$=4Ω			6.5	V
		(Amp: Play), Att <0.1dB, P_O= 0.5Ω		7.6	8.5	V
Muting Pin Current	I_{PIN22}	V_{MUTE}= 1.5V (Source Current)	5	11	20	μA

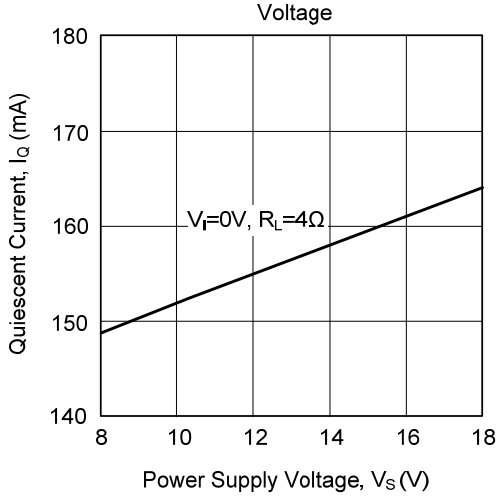
Note: 1. Saturated square wave output.

■ TYPICAL APPLICATION CIRCUIT

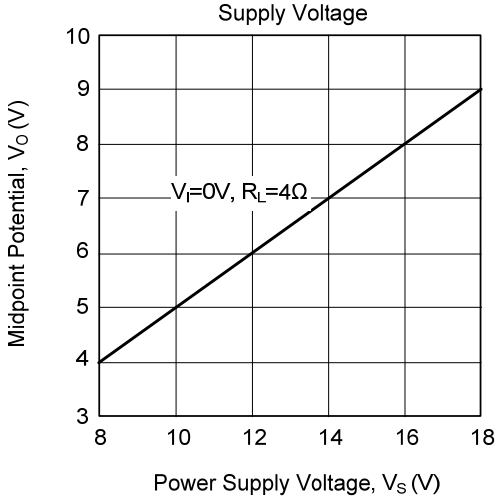


■ TYPICAL CHARACTERISTICS

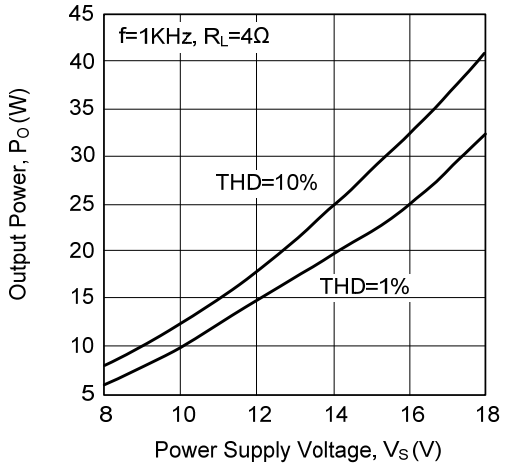
Quiescent Current vs Power Supply Voltage



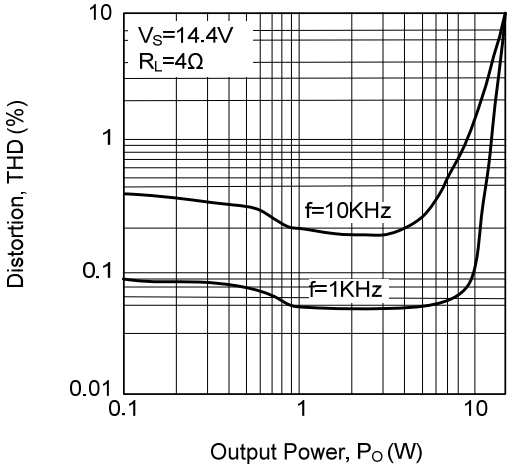
Output DC Voltage vs. Power Supply Voltage



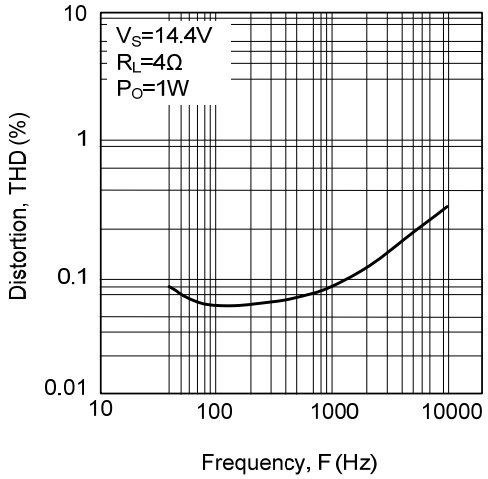
Output Power vs Supply Voltage



Distortion vs. Output Power



Distortion vs. Frequency



Supply Voltage Rejection Ratio vs. Frequency