2×35W 5A High Power Stereo Audio Power Amplifier XL7292

Features

- Operation Voltage：16V~40V
- Max. Output current capability up to 5A
- Max. Output power up to 2×35W
- Mute（“pop” free)
- Standby feature
- Built in output over power protection
- Built in output overvoltage protection
- Built in current limit protection function
- Built in thermal shutdown function
- Low quiescent current：31mA
- Low Distortion：0.02%，1KHz，1W
- Device HBM ESD Classification Level Class3B
- Available in FZIP11 package

Applications

- Car Audio Amplifiers
- Stage Sound
- Multimedia Speakers
- Open Mobile Sound System

General Description

XL7292 is a Class AB dual audio power amplifier optimized for high power and high efficiency. XL7292 has low quiescent current and minimizing system power consumption. XL7292 has excellent audio performance and achieved extremely low distortion levels even at 35W power levels.

XL7292 has mute function and standby function, built-in over power protection, output overvoltage protection, current limit protection function and thermal shutdown protection, which greatly improves the reliability and stability of the chip. The XL7292 achieves 25W@THD=0.1% of output power at an input voltage of ±20V and a load impedance of 4Ω or 8Ω, and 35W@THD=10% at an input voltage of ±20V and a load impedance of 4Ω or 8Ω.

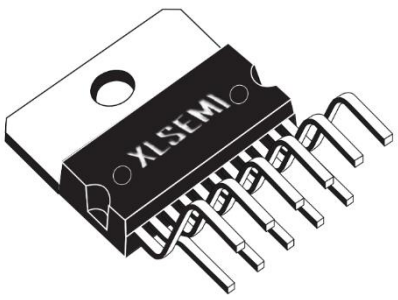


Figure1. Package Type of XL7292

Pin Configurations

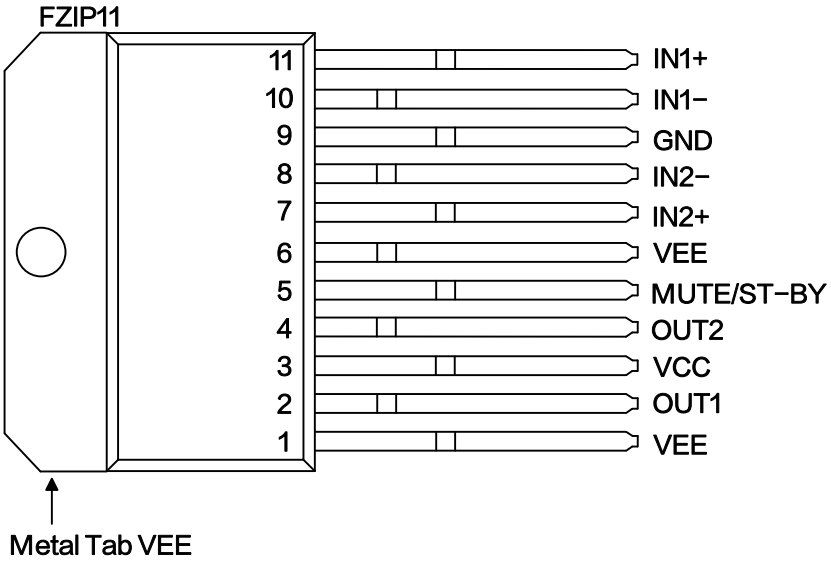


Figure2. Pin Configuration of XL7292

Table 1 Pin Description

Pin Number	Pin Name	Description
1	VEE	Ground/negative power supply side.
2	OUT1	Channel 1 Power amplifier output.
3	VCC	Positive power supply side.
4	OUT2	Channel 2 Power amplifier output.
5	MUTE/ST−BY	Mute or standby function pin.
6	VEE	Ground/negative power supply side.
7	IN2+	Channel 2 Isotropic terminal, audio signal input.
8	IN2−	Channel 2 Reverse terminal, negative feedback input.
9	GND	Ground pin.
10	IN1−	Channel 1 Reverse terminal, negative feedback input.
11	IN1+	Channel 1 Isotropic terminal, audio signal input.

Function Block

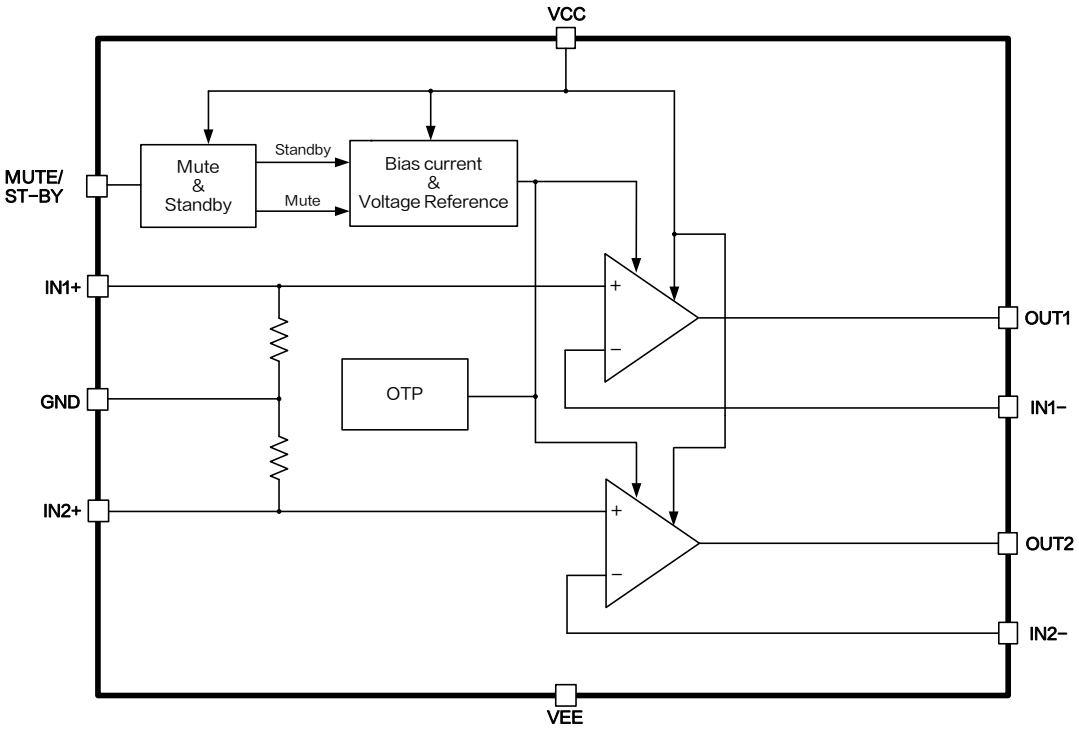


Figure3. Function Block Diagram of XL7292

Typical Application Circuit

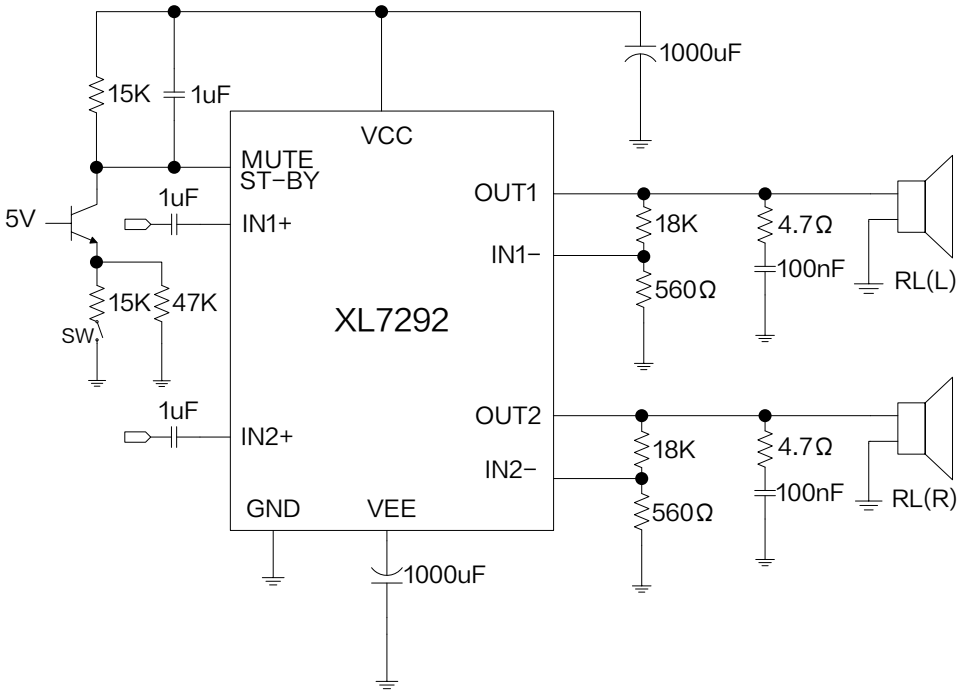


Figure 4. XL7292 Typical Application Circuit

Ordering Information

Order Information	Marking ID	Package Type	Eco Plan	Packing Type Supplied As
XL7292	XL7292	FZIP11	RoHS & HF	25 Units Per Tube

Absolute Maximum Ratings（Note1）

Parameter	Symbol	Value	Unit
Supply Voltage (Single Supply)	V_{CC}	48	V
Supply Voltage (Dual Supply)	V_S	±24	V
Input Signal Voltage	V_{IN}	V_{EE}~V_{CC}	V
Thermal Resistance (FZIP11) (Junction to Ambient, No Heatsink, Free Air)	R_{JA}	43	℃/W
Thermal Resistance (FZIP11) (Junction to Case)	R_{JC}	1.5	℃/W
Power Dissipation (T_C=70℃) (Note 2)	P_D	35	W
Operating Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	−40~150	℃
Lead Temperature (Soldering, 10 sec)	T_{LEAD}	260	℃
ESD(HBM)	−	>8000	V

Note1: Stresses greater than those listed under Maximum Ratings may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operation is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

Note2: For operation at case temperatures above 25℃, derating is performed based on a maximum junction temperature of 70℃ and a thermal resistance of R_{JC}=1.5℃/W (junction to case).

XL7292 Electrical Characteristics

T_A = 25℃, V_{CC}=20V, V_{EE}=−20V, R_L=8Ω, A_V=33, f_0=1KHz; system parameters test circuit figure4, unless otherwise specified.

Parameters	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Voltage (Single Supply)	V_{CC}	–	16	–	40	V
Supply Voltage (Dual Supply)	V_S	–	±8	–	±20	V
Mute Threshold	V_M	–	−7	−6	−5	V
Mute Attenuation	A_M	–	–	75	–	dB
Standby Threshold	V_{ST}	–	−3.5	−2.5	−1.5	V
Standby Attenuation	A_{ST}	–	–	110	–	dB
Standby Current	I_{ST}	–	–	9	–	mA
Quiescent Supply Current	I_Q	P_O=0W	25	31	40	mA
Output Power	P_O	THD=0.1%	–	25	–	W
		THD=10%	–	35	–	W
Total Harmonic Distortion	THD	P_O=1W	–	0.02	–	%
Offset Voltage	V_{FS}	–	−20	–	20	mV
Input Bias Current	I_B	–	–	0.5	1	uA
Open Loop Gain	A_{VO}	DC	–	80	–	dB
Crosstalk	C_T	–	–	70	–	dB
Input Resistance	R_i	–	–	20	–	KΩ
Power Supply Rejection Ratio	PSRR	–	–	75	–	dB
Max Slew Rate	SR	–	–	6	–	V/us
Current Limit	I_L	V_{OUT}=V_S−10V	–	5	–	A
Total Input Noise	e_N	f_0=20Hz~22KHz	–	4	–	uV
Thermal Shutdown Temperature	T_{SD}	–	–	165	–	℃
Thermal Shutdown Hysteresis	T_D	–	–	40	–	℃

Typical Performance Characteristics

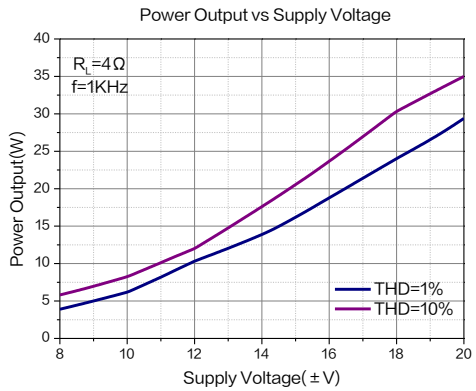


Figure 5.Power Output vs Supply Voltage

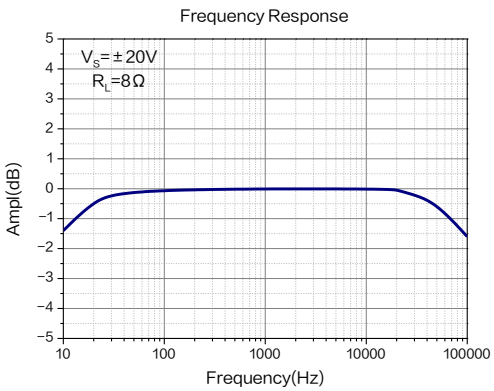


Figure 6.Frequency Response

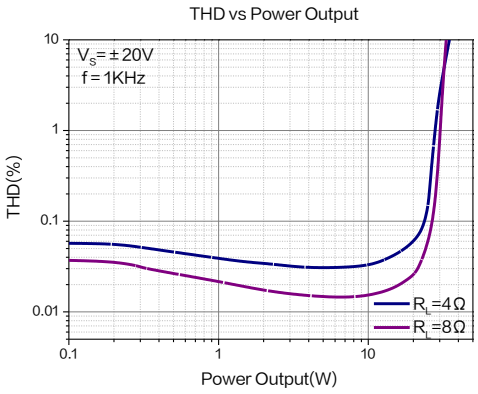


Figure 7.THD vs Power Output

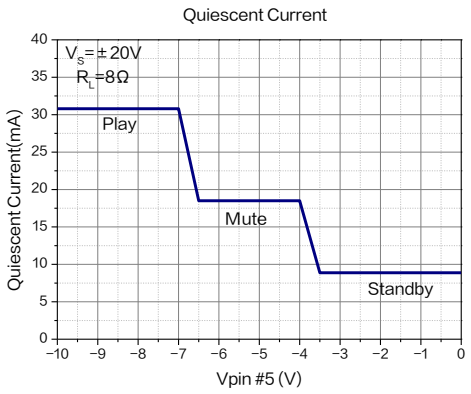
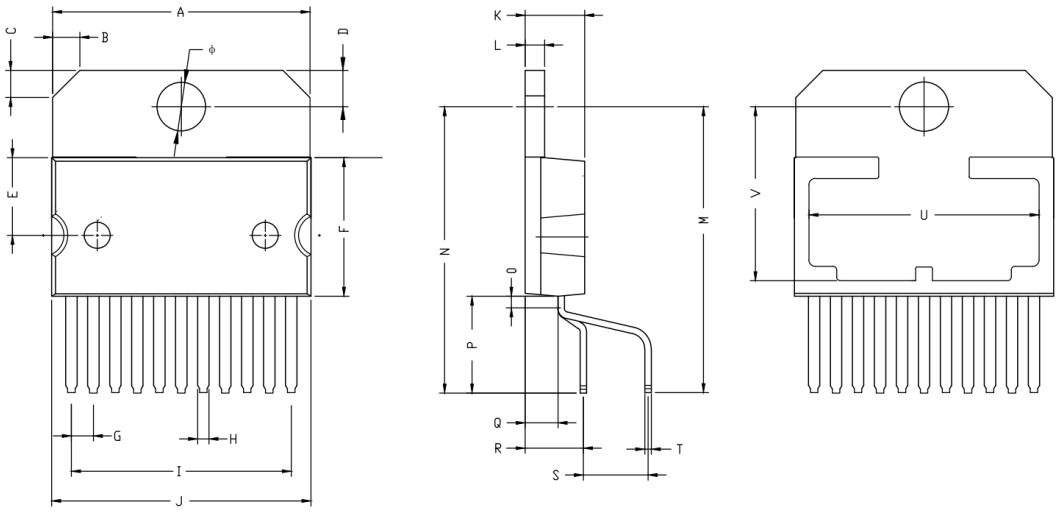


Figure 8.Quiescent Current

Package Information

FZIP11



Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	19.85	19.90	19.95	0.781	0.783	0.785
B	1.80	2.10	2.40	0.070	0.083	0.094
C	1.80	2.10	2.40	0.070	0.083	0.094
D	2.75	2.80	2.85	0.108	0.110	0.112
E	5.90	6.00	6.10	0.232	0.236	0.240
F	10.60	10.70	10.80	0.417	0.421	0.425
G	–	1.70	–	–	0.067	–
H	–	0.90	–	–	0.035	–
I	–	17.00	–	–	0.669	–
J	20.00	20.05	20.10	0.787	0.789	0.791
K	4.55	4.60	4.65	0.179	0.181	0.183
L	–	1.50	–	–	0.059	–
M	22.00	22.10	22.60	0.866	0.870	0.890
N	22.00	22.14	22.64	0.866	0.872	0.891
O	–	0.90	–	–	0.035	–
P	–	7.50	–	–	0.295	–
Q	–	2.54	–	–	0.100	–
R	4.25	4.50	4.75	0.167	0.177	0.187
S	4.75	5.00	5.25	0.187	0.197	0.207
T	–	0.50	–	–	0.020	–
U	17.70	17.80	–	0.696	0.700	–
V	13.00	13.50	–	0.512	0.531	–
ϕ	–	3.75	–	–	0.148	–

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