



Figure 1. The Physical Photo of APZD300V2A

### FEATURES

- Built-in waveform generator: sine, square and triangle
- High current capability: up to 2A
- Cut power consumption by 80%
- $V_{IN} = 5V$   
 $V_{OUT} = -30 \sim 300V$   
 Frequency = 0.1Hz ~ 20kHz

### APPLICATIONS

Efficiently drive large piezos at high speed.

### DESCRIPTION

The APZD300V2A is an electronic module designed for driving piezos with high efficiency. Figure 1 shows the physical photo of APZD300V2A. The output voltage is  $-30V$  to  $300V$  when powered by a  $5V$  power supply.

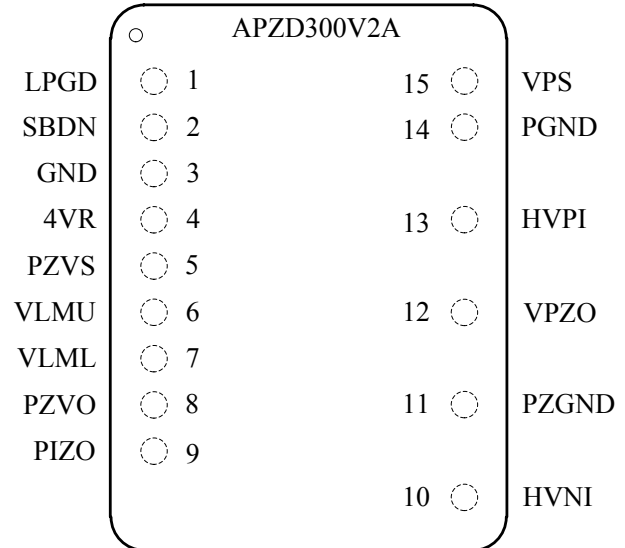


Figure 2. Pin Names and Locations

Figure 2 is the top view of the APZD300V2A, which shows the pin names and locations. Table 1 shows the pin function descriptions.

Table 1. Pin Function Descriptions

Pin #	Name	Type	Description
1	LPGD	Digital output	Loop good indication. When the driver is working properly, this pin goes high; otherwise, it goes low.
2	SBDN	Digital input	Shut down the entire driver.
3	GND	Signal ground	Signal ground pin. Connect ADC and DAC grounds to here.
4	4VR	Analog output	4V reference voltage.
5	PZVS	Analog input	Piezo voltage setting.
6	VLMU	Analog input	Upper voltage limit.
7	VLML	Analog input	Lower voltage limit.
8	PZVO	Analog output	Piezo voltage output indication.
9	PZIO	Analog output	Piezo current output.



10	HVNI	Analog output	High voltage negative input.
11	PZGND	Ground	Piezo ground.
12	VPZO	Analog output	Output voltage for driving Piezo.
13	HVPI	Analog output	High voltage positive input.
14	PGND	Power ground	Power ground pin.
15	VPS	Power input	Power supply: 5V.

**SPECIFICATIONS**

**Table 2. Characteristics (T<sub>Ambient</sub> = 25°C)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Power Supply Input: VPS pin, pin 15						
Input Range	V <sub>VPS</sub>		4.7	5	5.5	V
Input Current	I <sub>VPS</sub>		50		500	mA
Voltage Output: VPZO, pin 12						
Output Voltage	V <sub>VPZO</sub>		-30		300	V
Standby Shutdown Control: SBDN pin, pin 2						
SBDN Voltage	Logic High	V <sub>SBDN</sub>	1.2		5	V
	Logic Low		0		0.8	V
Loop Good Indication: LPGD pin, pin 1						
LPGD Voltage	Logic High	V <sub>LPGD</sub>		5		V
	Logic Low					
4V Reference Voltage: 4VR, pin 4						
Voltage Reference	V <sub>REF</sub>			4		V
High Voltage Positive Input: HVPI, pin 13						
Positive Voltage	V <sub>HVPI</sub>			300		V
High Voltage Negative Input: HVNI, pin 10						
Negative Voltage	V <sub>HVNI</sub>			-30		V

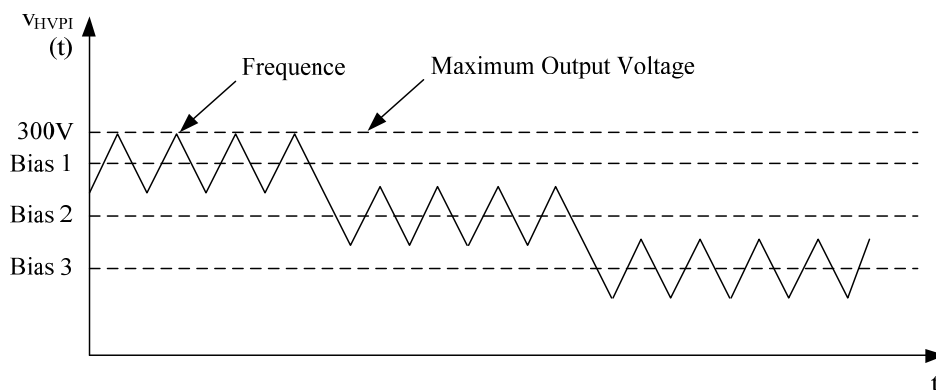


Figure 3. Output Voltage

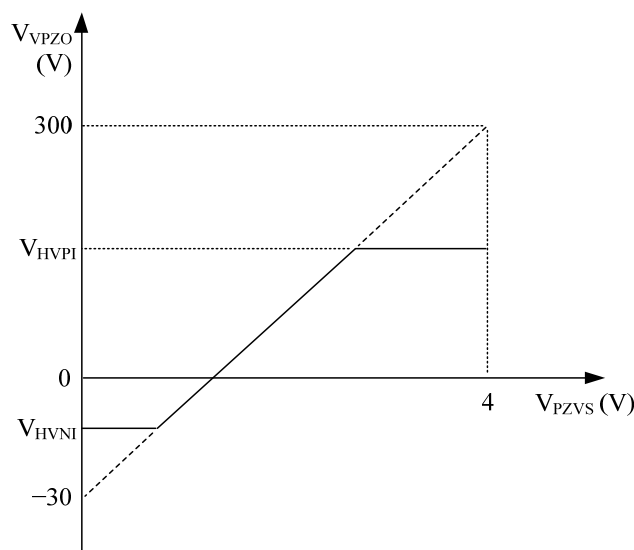


Figure 4.  $V_{VPZO}$  vs.  $V_{PZVS}$

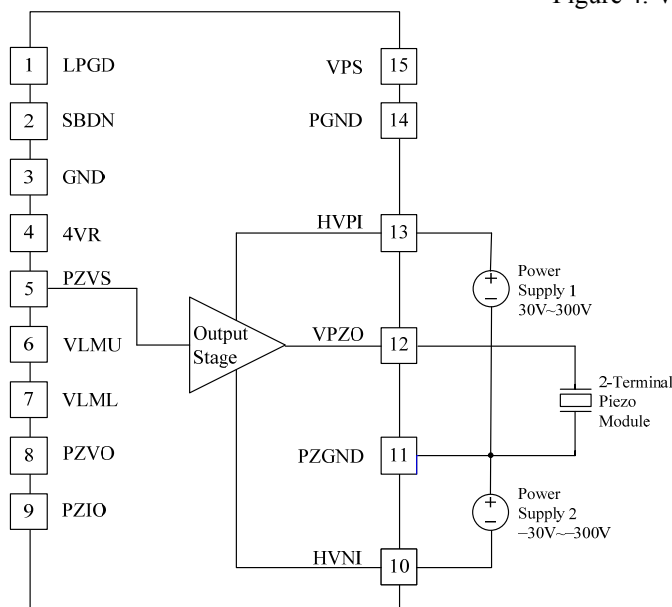


Figure 5. Schematic for Driving a 2-Terminal Piezo Module

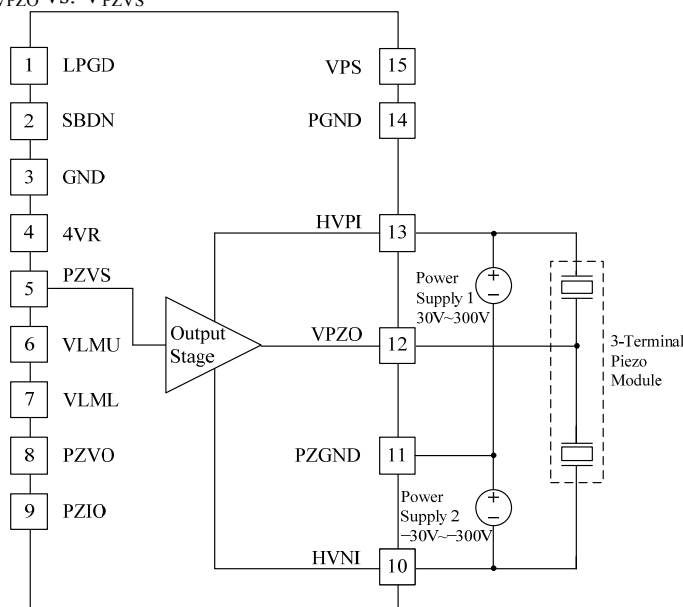


Figure 6. Schematic for Driving a 3-Terminal Piezo Module

Note: Power Supply1 + Power Supply 2 ≤ 500V



OUTLINE DIMENSIONS

This driver comes in one package: through hole mount, or so-called DIP (Dual Inline Package) or D (short for DIP) package. Dimensions of the DIP package Piezo driver are shown in Figure 7.

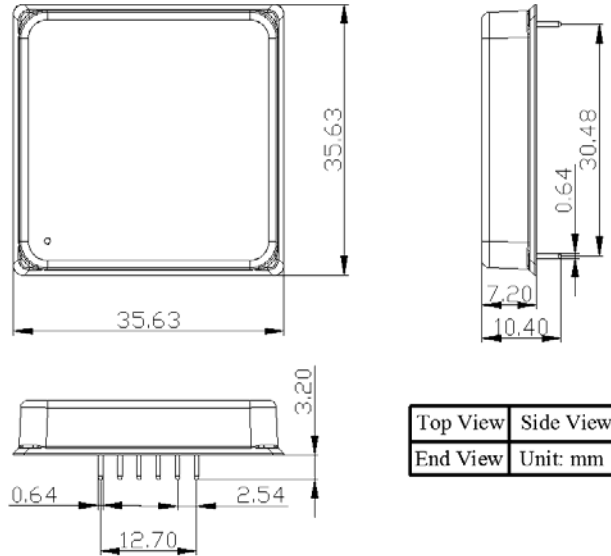


Figure 7. Dimensions of APZD300V2A

ORDERING INFORMATION

Table 3.

Part Number	Description	1 – 9 (PCs)
APZD300V2A	High Efficiency Piezo Driver	\$500



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