High Efficiency Piezo Driver

APZD300V2A

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 ~ 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.

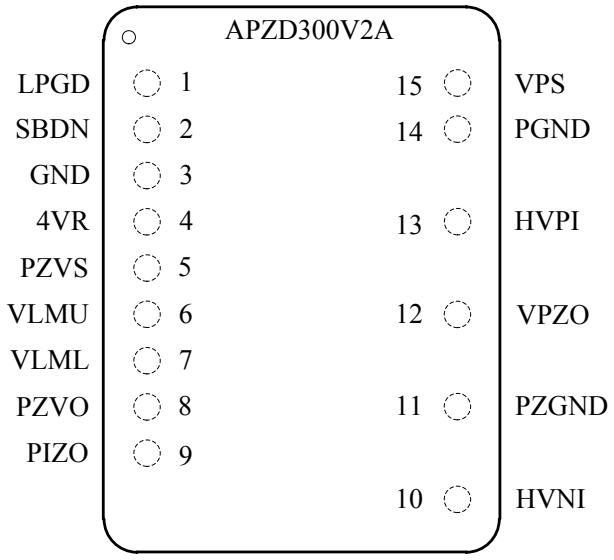

Figure 2. Pin Names and Locations

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 ($T_{Ambient}$ = 25°C)

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Units
Power Supply Input: VPS pin, pin 15							
Input Range		V_{VPS}		4.7	5	5.5	V
Input Current		I_{VPS}		50		500	mA
Voltage Output: VPZO, pin 12							
Output Voltage		V_{VPZO}		–30		300	V
Standby Shutdown Control: SBDN pin, pin 2							
SBDN Voltage	Logic High	V_{SBDN}		1.2		5	V
	Logic Low			0		0.8	V
SBDN Current		I_{SBDN}					µA
Loop Good Indication: LPGD pin, pin 1							
LPGD Voltage	Logic High	V_{LPGD}			5		V
	Logic Low						
4V Reference Voltage: 4VR, pin 4							
Voltage Reference		V_{REF}			4		V
High Voltage Positive Input: HVPI, pin 13							
Positive Voltage		V_{HVPI}			300		V
High Voltage Negative Input: HVNI, pin 10							
Negative Voltage		V_{HVNI}			–30		V
Maximum Input Power							
Maximum Slew Rate							

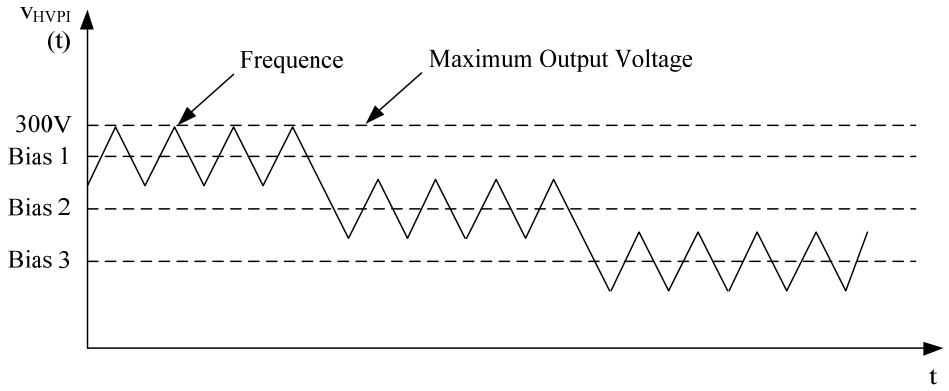

Figure 3. Output Voltage

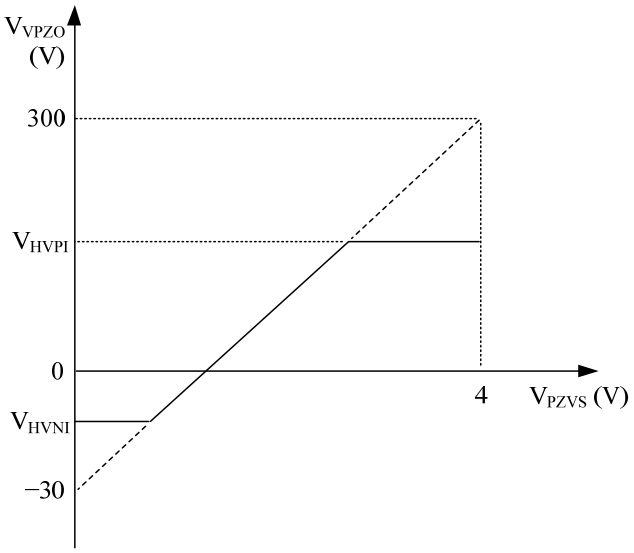

Figure 4. V_{VPZO} vs. V_{PZVS}

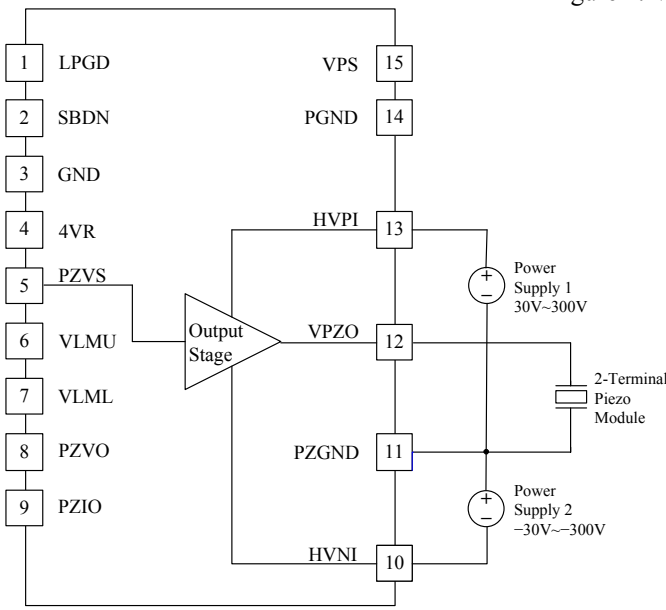

Figure 5. Schematic for Driving a 2-Terminal Piezo Module

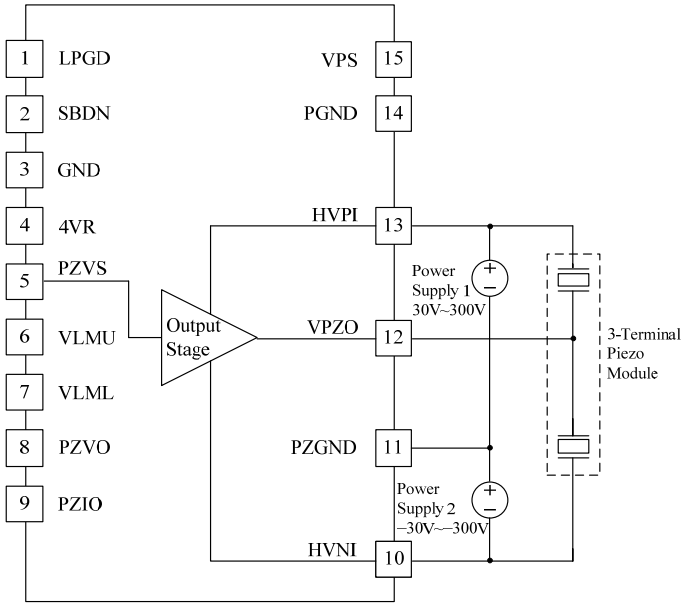

Figure 6. Schematic for Driving a 3-Terminal Piezo Module

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.

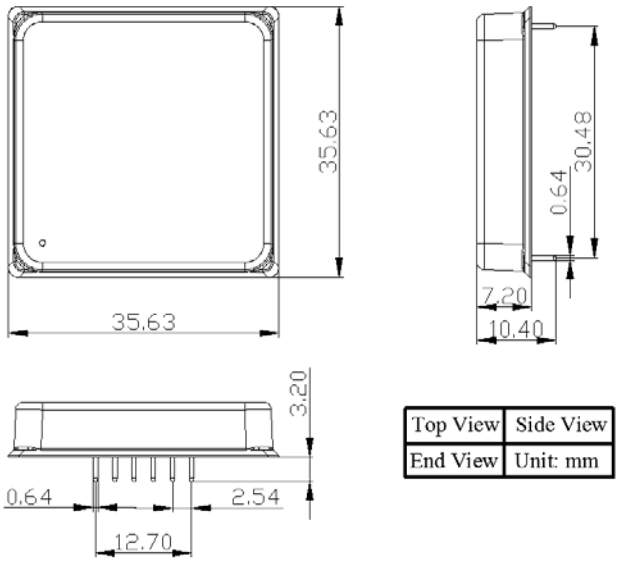

Figure 7. Dimensions of APZD300V2A

ORDERING INFORMATION

Table 3.

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

NOTICE

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