

Performance Characteristics:

- Working mode: The input pulse signal is converted to the complementary signal output
- Operating voltage: -5V
- Input level: Compatible with TTL level
- Output level: 0/-5V
- Static current: 1mA
- Chip size: 0.6 x 1.13 x 0.1mm³

Product Description:

CW-FEN1A is a 1-bit negative pressure output FET driver chip, manufactured by GaAs technology, which can generate the input TTL pulse signal to output the complementary pulse signal of -5V/0V. The product can be widely used in the control of FET switch, CNC attenuator, CNC phase shifter and other circuits.

Electrical parameters: (TA=25°C, VEE=-5V)

Indicators	Symbols	Minimum	Typical value	Maximum value	Units	Remarks
Power supply voltage	V _{EE}	-5.5	-5	-4.5	V	Normal operating voltage of the chip
Static current	I _{EE}	-	1	-	mA	The current of the chip after it is powered on -
Input high level	V _{IH}	2.8	5	5	V	Input voltage of the A1 pin, compatible with TTL levels
Input low level	V _{IL}	0	0	0.4	V	
Input current	I _I	-	0.4	-	mA	Related to load
Output high level	V _{OH}	-	0	-	V	Output voltage of the output port 1A and its reverse port 1B
Output low	V _{OL}	-	-5V	-	V	
Output (drive) current	I _O	-	2	-	mA	Related to load
Operating frequency	f	0	10	30	MHz	Load dependent
Switching time	t	-	14	25	ns	-
Temperature	T _A	-55	25	86	°C	-

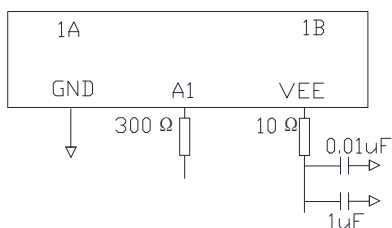
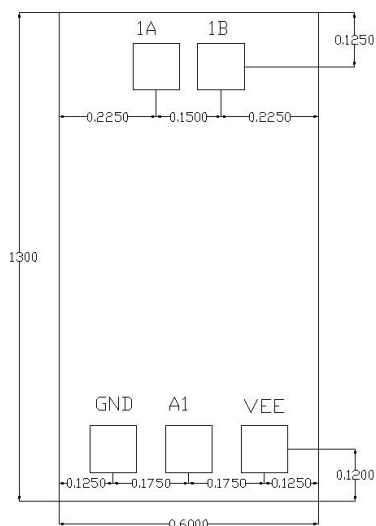
Truth table:

Input	Output	
A1	1A	1B
Li	Lo	Ho
Hi	Ho	Lo

Note: Taking the input pulse level of 0/5V and the supply voltage of -5V as an example, Li means 0V, Hi means 5V, Lo means -5V, and Ho means 0V.

Use limit parameters:

Power supply voltage	-6V
Input high level	5.5V
Input low	-0.5V
Storage temperature	-65°C~150°C

Typical usage:**Physical size drawing: (unit μm)**

Pad description:

Pad number	Function	Description
1	1A	The pad is the pulse level output, in phase with the input pulse level
2	1B	The pad is the output end of the pulse level, inverting the input pulse
3	VEE	The pad is the supply voltage input end, connected to -5V
4	A1	The pad is the pulse level input, and the highest pulse frequency supported is load dependent
5	GND	The pad is the ground end

Instructions for use:

Storage: The chip must be placed in a container with electrostatic protection and stored in a nitrogen environment.

Cleaning treatment: The bare chip must be operated and used in a purified environment. It is forbidden to use liquid cleaning agent to clean the chip.

Electrostatic protection: Strictly comply with the ESD protection requirements to avoid electrostatic damage to the components.

General operation: Use vacuum chuck or precision pointed tweezers to pick up the chip. Avoid touching the surface of the chip with tools or fingers during handling.

Mounting operation: The chip can be installed using AuSn solder eutectic welding or conductive adhesive bonding process. The mounting surface must be clean and flat.

Bonding operation: Input and output with 2 (recommended diameter of 25um gold wire) bonding wire, bonding wire length less than 250um is optimal. It is recommended to use the smallest possible ultrasonic energy. Bonding begins at the pressure point on the chip and ends at the package (or substrate).

Things to watch for:

1. When in use, 1uF filter capacitor should be added within the nearest 1cm range of power supply voltage input pin VEE; Pay attention to anti-static when the chip is used;
2. not use the output end should be suspended, not use the input end should be connected to 0V;
3. in order to ensure the speed, it is required to input TTL signal: rise time $t_r \leq 20\text{ns}$, fall time $t_f \leq 20\text{ns}$, $V_{IH} \geq 4V$;
4. the back of the chip should be suspended, it is recommended to use insulation adhesive bonding;
5. the input signal needs to be in common with the chip when in use;
6. Before powering up, the input terminal should be connected to low level 0V;
7. the input end should be connected in series with $300\Omega \sim 3\omega$ protection resistance, under the premise of meeting the switching speed, the larger the protection resistance, the better;