Features

- Using ASIC design
- Low power consumption In power-saving mode（<3uA）
- Short-circuit protection (OCP)
- Under voltage protector (UVLO)
- Overheat protection (OTP)
- LED work indication function
- Wide voltage charging (4.5-6V).Excellent charging performance and process safety
- High precision charge voltage detection error (under 1%)
- Perfect battery protection function
- Few external components、inexpensive
- SOT-23-5 package

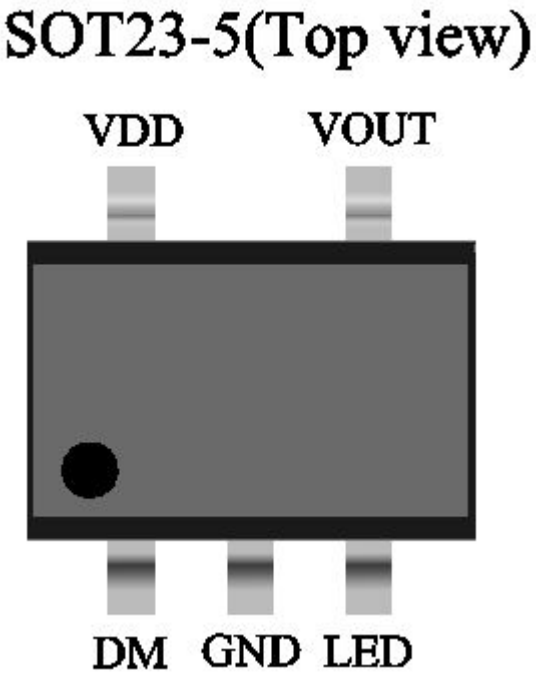
Applications

- Electronic cigarette

General Description

TX818C is a special IC for electronic cigarettes, using ASIC design. The current MCU program's crash phenomenon will not happen to it, and the chip can reset when the voltage is lower than the critical voltage. The chip's working condition is stable, and its constant output voltage is 3.6V, which ensures the amount of smoke when smoking. It also contains heating wires short-circuit protection function. When the output load is less than 1.4Ω（± 0.5Ω) or less, it is smokeless. Low power consumption in power-saving mode is less than 3uA. Meanwhile, the chip has a visual LED work indication function. Depending on the application status, there will be distinguishable LED indications in the process of smoking, voltage detection, short circuit protection and charging. The chip's battery protection function is perfect, which means its charging performance is excellent and charging process is safety. It also has charge control circuit in it, and can support common adapters and USB charging devices, etc. When the charging voltage is less than 2.7V to trickle charge, the chip can ensure safety and not to damage the battery. When charged to more than 2.7V, high current charging starts and when the voltage is close to 4.2V, charging current is gradually declined. The charging voltage detection error can be less than 1%. The external application circuit of system is simple. The integrated power tube in this IC is convenient to process and power consumption is extremely low. Using SOT-23-5 package, the size is small. There are very few external components: only one LED light and a capacitor, so the system cost is low.

Pin Assignment



Pin Description

Pin name	Pin number	introduction
DM	1	diaphragm microphone probe pin
GND	2	IC ground, connect the battery negative
LED	3	LED output pin，for a variety of instructions
VOUT	4	External heating wire, for heating oil smoke
VDD	5	IC power,connect the battery positive

Function description

TX818C is a highly integrated, high-performance control chip used in electronic cigarettes. Unlike previous MCU program, this chip uses ASIC design. Crash phenomenon will not happen to it, and the chip can reset when the voltage is lower than the critical voltage. The integrated power MOS tube in this IC is convenient to process and power consumption is extremely low. There are very few external components: only one LED light and a capacitor, so the system cost is low. The main features are as follows:

1.Ultra-low static state current（<3uA）

The chip has three operating work modes in the system: Charge mode, Normal mode and Power-saving mode. When power-on, the chip will directly enter power-saving mode after the LED light flashes three times. When there is no smoking action, the circuit will be maintained to the power-saving mode. And the chip will switch from the power-saving mode to the normal mode only when smoking. This chip has low power consumption in power-saving mode, so it can extend the battery life effectively after a single charge.

2. LED work indicating function

Because there are different working modes, in each mode the system has different working conditions, so the system program provides a visual LED work indicating function
that allows customers to define the state of the system. Depending on the application status, there will be distinguishable LED indications in the process of smoking, voltage detection, short circuit protection and charging. Programs are as follows:

1.When power-on, the chip will directly enter power-saving mode after the LED light flashes three times.

2.When turning on the switch (smoking) under normal circumstances, the LED lights gradually. It takes 0.5 second to be brightest. When stopping smoking, the light gradually goes off, and it takes 1 second.

3.When triggering the internal control switch more than 5 seconds, the LED light will flash twice consecutively, and then the output cuts off.

4.When turning on the switch, if there is a short circuit (Output resistance less than 1.4Ω), the short circuit protection function will work. The LED light continues to light two seconds and the output cut off.

5.When the system is charging, the LED light will always stay lit. After full charge （VDD≥4.2V, the LED light will automatically go off.

6.When turning on the switch, the chip will detect battery voltage before outputting load current. When the battery voltage is lower than 3.3V, the LED light will flash for 10 consecutive times and VOUT no output.

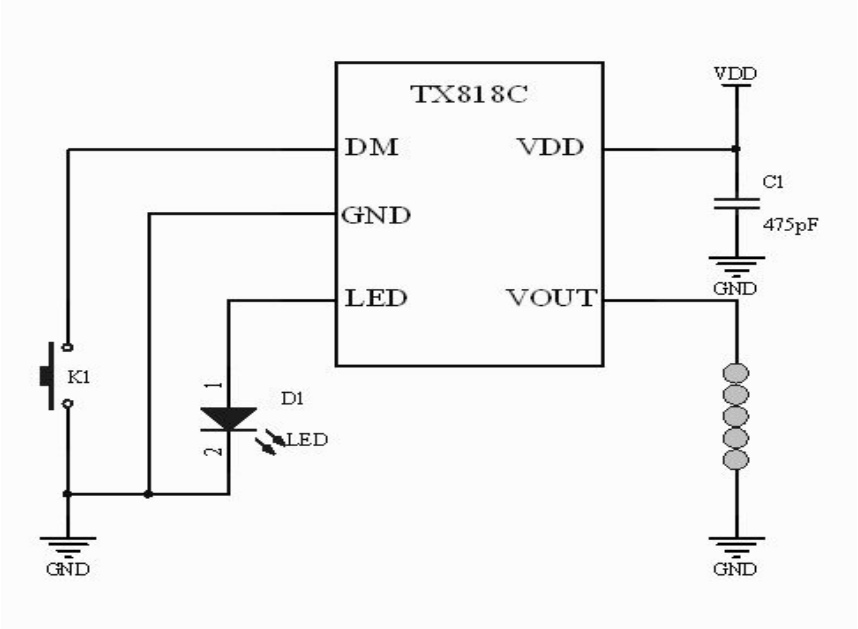
3.Excellent charging performance Charging process safety

The chip has integrated charge control circuit and wide range of charging voltage(4.5V~6V), which can support common adapters and USB charging devices. The recommended value of voltage is 5V， When charged to 4.2V, the system enters the constant voltage charging mode, and the charging current gradually decreases. Charging voltage detection error can be less than 1%. When charging, LED light remains on, when fully charged (typically 4.2V), light goes off.

4.Protection control modules

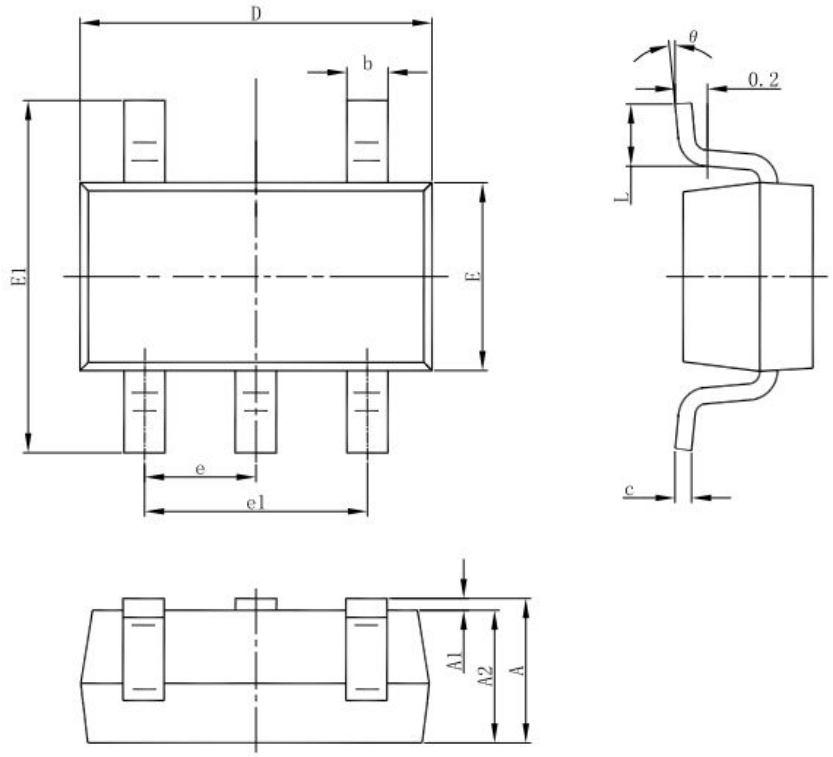
The chip integrates Under voltage protection module to detect the supply voltage of battery in the system. When the working voltage is lower than 3.3V, UVLO can enable ; Short circuit protection module(OCP) is used to indicate the situation that the load resistance of heating wire less than 1.4Ω; Over-temperature protection module(OTP) is used to control working temperature of the system, by preventing the system from overheating and reducing the life of the chip.

Typical applications



Package Information

5-pin SOT23-5L Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°