



New energy vehicle sales continued to grow strongly in 2023, a year in which major automakers not only made significant breakthroughs in powertrain and battery technology, but also explored in-depth intelligence and internet connectivity.

New energy automotive electronic products are huge in scale, from cameras to lidar, from airbags to complex assisted driving systems, they are all components of automotive electronics. In the case of new energy vehicles, bi-directional charging and discharging as well as triboelectric systems are still developing rapidly. On one hand, automotive electronics manufacturers are faced with the challenges of increasing voltage levels and power supply capacity, and on the other hand, the diversity of test standards and the complexity of programming functions in the automotive industry add to the difficulty of this task. The automotive power grid voltage profile test function of the ITECH IT3900C series power supply can solve these problems.

IT3900C series bidirectional programmable DC power supply have built-in standard waveforms for customers to conveniently recall and directly execute tests. The standards covered by the built-in waveforms include DIN40839, ISO167502, ISO21848, SAEJ1113-11, LV123, LV124, LV148, ISO21780, and so on. These waveforms make it easier for automotive electronics engineers to select suitable standard waveforms for testing, avoiding the hassle of complex data setup.

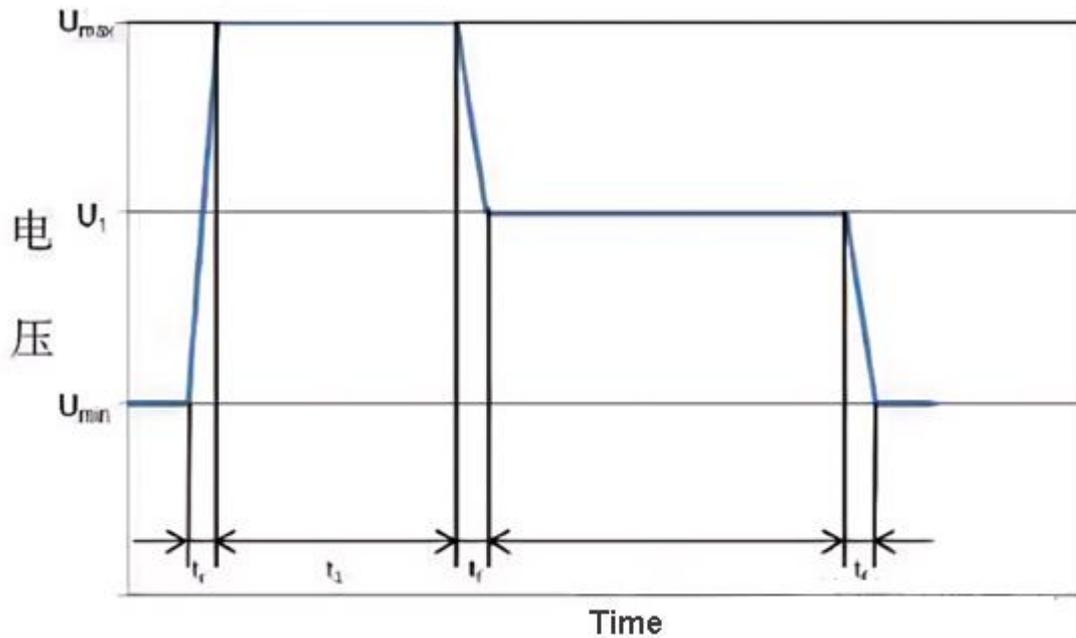


For example, the LV124 test focuses on the reliability and safety of automotive electronic equipment, covering products such as EMS systems, steering wheels and other electrical components, as well as air conditioning, airbags and other electronic components. These devices must meet a variety of requirements such as durability, anti-interference, operational reliability, environmental adaptability, etc. to ensure that they function properly under all circumstances and provide maximum protection for drivers and passengers.

Cases

Test Background:

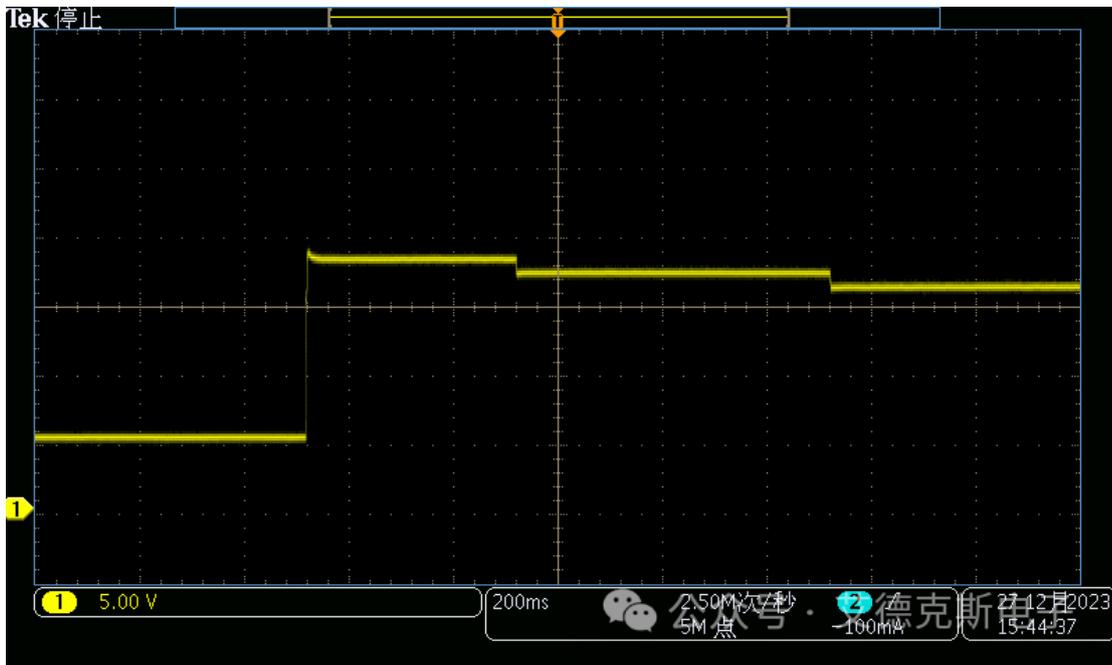
Take the E-02 transient overvoltage waveform as an example: this waveform can simulate the transient overvoltage in the baseboard wiring harness due to the disconnection of the appliance and in the case of a short-time gas impulse (Tip-In) to achieve the experimental purpose of testing the life of the appliance. A demonstration of the waveform is shown below:



Test Program:

IT-M3902C-32-80 supports both panel operation and host computer software to execute E-02 of LV124.

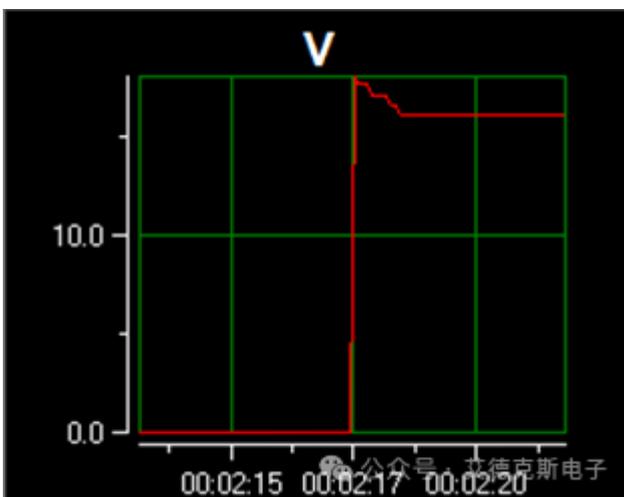
- 1) When operating the local panel, just select and trigger the function in the menu. Use an oscilloscope to capture the actual waveform of the IT-M3900C bidirectional power supply. You can see that the waveform is very standard.



- 2)
- 3) Use IT9000-PV3900 free PC software to select the type of waveform currently to be edited and tested in the configuration menu, select "On" and click the trigger button to output the waveform.



The upper computer software also has waveform representation:



(Note: E02 is a transient overvoltage waveform, the output time is less than 1ms)

ISO 21780:2020 "Road vehicles - 48V supply voltage - Electrical requirements and tests" published by the International Organization for Standardization in August 2020 specifies the requirements and requirements for electrical and electronic components installed in road vehicles with nominal voltage 48V DC electrical systems. Testing, including general requirements for 48V DC electrical systems, voltage ranges, and slow voltage transients and fluctuations. The IT-M3900C series bidirectional DC power supply also has this regulation built-in to facilitate the development and advancement of 48V DC electrical systems. The optional models with curve function for automotive networks cover voltage levels from 32V to 1500V. In addition to using regulatory waveforms, users can also meet various low-voltage and high-voltage testing needs and have ultra-wide power supply testing capabilities. The multi-functional, efficient and highly stable product design gives customers the confidence to face various complex tests and quickly improve product competitiveness.



ITECH
YOUR POWER TESTING SOLUTION

Tiny but Mighty

IT-M3900B Regenerative Power System	IT-M3900C Bidirectional DC Power Supply	IT-M3900D High Power DC Power Supply
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