Datasheet

Multi Channel Programmable DC Electronic Load FT66100

Model	FT66103A		FT66105A		FT66106A		FT66108A	
Power	300W		300W		600W		600W	
Current	60A		10A		120A		20A	
Voltage	80V		500V		80V		500V	
V_{Min} for I_{Max}	1.5V@60A		4.5V@10A		2V@120A		5V@20A	
Constant current								
Range	0～6A	0～60A	0～1A	0～10A	0～12A	0～120A	0～2A	0～20A
Resolution	0.1mA	1mA	0.02mA	0.2mA	0.2mA	2mA	0.04mA	0.4mA
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.	
Constant voltage								
Range	0～16V	0～80V	0～50V	0～500V	0～16V	0～80V	0～50V	0～500V
Resolution	0.3mV	2mV	1mV	10mV	0.3mV	2mV	1mV	10mV
Accuracy	0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.	
Constant power								
Range	0～300W		0～300W		0～600W		0～600W	
Resolution	5mW		5mW		10mW		10mW	
Accuracy	0.5%+1%F.S.		0.5%+1%F.S.		0.5%+1%F.S.		0.5%+1%F.S.	
Constant resistance								
Range	0.025Ω～100Ω(16V)		0.5Ω～1875Ω(50V)		12.5mΩ～50Ω(16V)		0.25～937.5Ω(50V)	
	0.625Ω～2500Ω(80V)		25Ω～93600Ω(500V)		0.3125～1250Ω(80V)		12.5～46.8KΩ(500V)	
Resolution	16bit		16bit		16bit		16bit	
Accuracy	0.35%+0.05S(100Ω)		0.35%+0.0025S(1875Ω)		0.35%+0.104S(50Ω)		0.35%+0.0052S(937.5Ω)	
	0.35%+0.002S(2500Ω)		0.35%+53uS(93600Ω)		0.35%+0.004S(1250Ω)		0.35%+110uS(46800Ω)	
Dynamic								
T1&T2	0.025～50ms/Res:5us 0.1～500ms/Res:25us 10～50s/Res:2.5ms		0.025～50ms/Res:5us 0.1～500ms/Res:25us 10～50s/Res:2.5ms		0.025～50ms/Res:5us 0.1～500ms/Res:25us 10～50s/Res:2.5ms		0.025～50ms/Res:5us 0.1～500ms/Res:25us 10～50s/Res:2.5ms	
Accuracy	1us/1ms+100ppm		1us/1ms+100ppm		1us/1ms+100ppm		1us/1ms+100ppm	
Slew rate								
Current range	0～6A	0～60A	0～1A	0～10A	0～12A	0～120A	0～2A	0～20A
Slew rate	1～25mA/us	0.01～2.5A/us	0.16～40mA/us	1.6～400mA/us	2～50mA/us	0.02～5A/us	0.32～80mA/us	3.2～800mA/us
	0.001A/us	0.01A/us	0.16mA/us	1.6mA/us	0.002A/us	0.02A/us	0.32mA/us	3.2mA/us
Accuracy	(1±35%)×Set value							
Voltage measurement								
Range	0～16V	0～80V	0～50V	0～500V	0～16V	0～80V	0～50V	0～500V
Resolution	0.3mV	2mV	1mV	10mV	0.3mV	2mV	1mV	10mV
Accuracy	0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.	
Current measurement								
Range	0～6A	0～60A	0～1A	0～10A	0～12A	0～120A	0～2A	0～20A
Resolution	0.1mA	1mA	0.02mA	0.2mA	0.2mA	2mA	0.04mA	0.4mA
Accuracy	0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.	
Power measurement								
Range	0～300W		0～300W		0～600W		0～600W	
Resolution	5mW		5mW		10mW		10mW	
Accuracy	0.5%+1%F.S.		0.5%+1%F.S.		0.5%+1%F.S.		0.5%+1%F.S.	
Short Circuit Characteristic								
Current (CC)	≒6A	≒60A	≒1A	≒10A	≒12A	≒120A	≒2A	≒20A
Voltage (CV)	0V		0V		0V		0V	
Temp Coefficient	100ppm/℃(Typical)		100ppm/℃(Typical)		100ppm/℃(Typical)		100ppm/℃(Typical)	
Weight	2.7kg		2.7kg		5.5kg		5.5kg	
Occupy Module Positions	1		1		2		2	

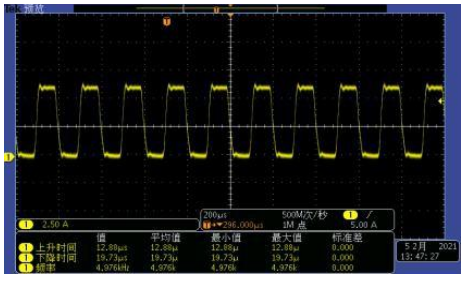
Datasheet

- Module voltage range: 80 V, 500 V;
- Module current range: 10 A, 20 A, 60 A, 120 A;
- Up to six channels in one mainframe, for testing multiple output SMPS;
- Parallel load modules up to 1800W for high current and power applications;
- Synchronization (SYNC) with multiple loads, or control individually;
- CC, CV, CR, CP and LED test modes;
- 16-bit precision voltage and current measurement with dual-range;
- 5-digit data display, 20kHz dynamic frequency;
- Fast response of 0.32mA/μs ~ 5A/μs current slew rate;
- User programmable 10 programs, each contains 10 sequence steps;
- High/Low limits (SPEC) of testing parameters to test GO/NG;
- Program automatic test (PROG) and prompts results in the form of PASS/FAILURE;
- Over current protection (OCP) testing function, prompts the test result in the form of PASS/FAILURE;
- Digital I/O control ports, GO/NG output ports;
- Remote sensing capability;
- Short circuit test, Voltage-on (Von) function;
- Simulate capacitive & inductive load in CV Rise, CC Rise mode (APPLY);
- 8-inch self-adaptive LCD display;
- Self-test at power-on;
- OVP, OCP, OPP, OTP, polarity reverse connection protection;
- RS232, GPIB (optional), LAN (optional) ports, support standard SCPI.

General

FT66100 series multi channel DC electronic load has 16-bit precision voltage and current measurement with dual-range, 20 kHz transient response. The FT66100A electronic load mainframe accepts the user-installable FT66100 series load modules, and can be mounted into a 19″ instrument rack, built-in RS232 and optional GPIP/LAN support SCPI commands, which facilitates system integration. The FT66100A load mainframe holds up to six FT66103A or FT66105A load modules, which will result in an 6-channel 300W/channel load with standard front-panel inputs. Also the main frame can control all modules synchronously or individually, this makes it ideal for testing multiple output switching power supplies and multiple output DC-DC converters. There are also 600W modules that can be mixed for an even more versatile system. The FT66100 series provides program automatic test, OCP test, etc.. Additionally, the GO/NG output port is useful for UUT's pass/fail testing on an automated production line or ATE system.

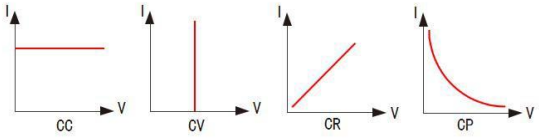
Transient test



Modern electronic devices operate at very high speeds and demand rapid transient response characteristics. To address these applications, the series offers high speed, programmable dynamic current loading. The figure shown below exhibits the programmable parameters such as range select, current high/low level, T1/T2, rise/fall rate. The dynamic loading can be controlled by a trigger signal via external input, or bus, which allow the dynamic load behavior to be synchronized with other events. The dynamic change is up to 20kHz.

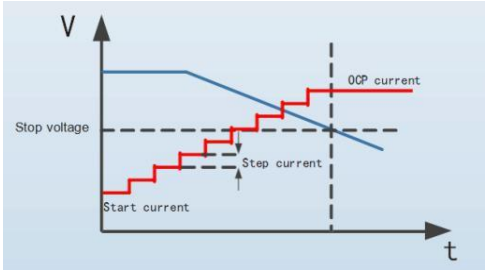
Static test

The FT66100 series multi-channel DC electronic loads operate in constant current, constant voltage, constant resistance and constant power modes to satisfy a wide range of test requirements.



OCP test

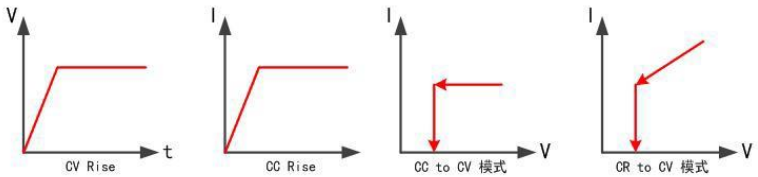
All models provides OCP test feature, which enables the user to set current orders to test overcurrent protections, also to judge the test result as Pass or Fail on electronic load. The maximum current (I_{max}) during testing can be captured and showed on the display without using an oscilloscope to verify the correctness of designed overcurrent. It can save a lot of testing time for the user.



Application (APPLY) mode

The FT66100 series electronic load provides a variety of application modes to adapt to the test under special circumstances, such as: inductive load simulation (CC Rise), capacitive load simulation (CV Rise), constant current to constant voltage (CC To CV) and constant resistance to constant voltage mode (CR To CV). The constant voltage soft-start (CV Rise) mode is equivalent to a capacitive load, and the size of its analog capacitance is proportional to the rise time of the soft-start.

The constant current soft start (CC Rise) mode is equivalent to an inductive load, and the size of the simulated inductance is proportional to the rise time of the soft start. CC TO CV mode and CR TO CV mode are mainly used for battery or capacitor product testing, which discharges more thoroughly.



Program (PROG) mode

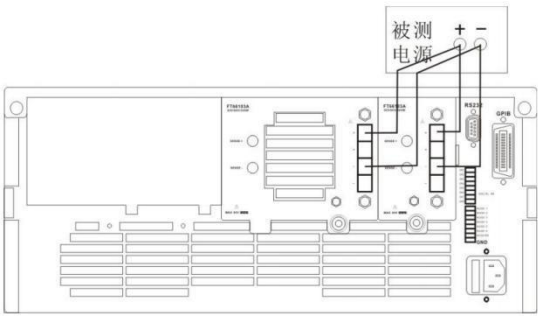
With program mode, the load performs multiple tests on the DUTs according to the program files, compare the test parameters with corresponding upper and lower limits (SPEC), and display the test results in the form of PASS/FAILURE. The advantages of the program test mode are especially obvious in product inspection, which can significantly improve the efficiency of product inspection. The load can store up to 10 programs, each program contains 10 sequence steps. If a single program is not enough to test the DUT, just chain the programs to obtain more sequences steps. Sequence steps can be run in auto mode or manual mode, also it can be controlled by a trigger signal via external input or Bus.

Digital interfaces

In addition to the local controls through full keypad rotary knob, there are standard remote control interfaces such as standard RS232, optional GPIB and LAN interfaces. RS232 and LAN can be used to control and monitor the devices either with SCPI language commands or ModBus RTU protocol, while with GPIB only SCPI is supported.

Parallel

The FT66100 series provides parallel control, which enables high power and high current testing when a single module cannot meet the requirements of applications. Two or more load modules can be paralleled together to achieve the desired load. The FT66100 series comes with standard RS232 for remote control and automated testing applications. LAN and GPIB interfaces are available as options.



Options

Optional digital interfaces such as GPIB, LAN;

Model options

Model	Specification	Notes
FT66100A	FT66100 electronic load cabinet	Max 1800W, 6 installing positions
FT66103A	Electronic load module 80V/60A/300W	Occupies 1 installing position
FT66105A	Electronic load module 500V/10A/300W	Occupies 1 installing position
FT66106A	Electronic load module 80V/120A/600W	Occupies 2 installing position
FT66108A	Electronic load module 500V/20A/600W	Occupies 2 installing position

All specifications are subject to changes without notice.