KEY FEATURES

- Unique LED mode for LED power driver test
- Programmable LED dynamic resistance (R_d)
- Programmable internal resistance (Rr) for simulating LED ripple current
- Fast response for PWM dimming test
- Up to eight channels in one mainframe
- 16-bit precision voltage and current measurement with dual-range
- Full Protection: OC, OP, OT protection and OV alarm

As a constant current source, the LED power driver has an output voltage range with a constant output current. LED power drivers are usually tested in one of the following ways :
1. With LEDs
2. Using resistors for loading
3. Using Electronic Loads in Constant Resistance (CR) mode, or Constant Voltage (CV) mode

However, all these testing methods, each of them has their own disadvantages.

As shown on the V-I curve in Figure 1, the LED has a forward voltage V_F and a dynamic resistance (Rd). When using a resistor as loading, the V-I curve of the resistor is not able to simulate the V-I curve of the LED as shown on Figure 1. This may cause the LED power driver to not start up due to the difference in V-I characteristic between the resistors and the LEDs. When using Electronic Loads, the CR and CV mode settings are set for when the LED is under stable operation and therefore, is unable to simulate turn on or PWM brightness control characteristics. This may cause the LED power driver to function improperly or trigger it's protection circuits. These testing requirements can be achieved when using a LEDs as a load; however, issues regarding the LED aging as well as different LED power drivers may require different types of LEDs or a number of LEDs. This makes it inconvenient for mass production testing.

63113A/63115A

Chroma has created the industries first LED Load Simulator for simulating LED loading with our 63110A/63113A/63115A load model from our 6310A series Electronic Loads. By setting the LED power driver's output voltage, and current, the Electronic Load can simulate the LED's loading characteristics. The LED's forward voltage and operating resistance can also be set to further adjust the loading current and ripple current to better simulate LED characteristics. The 63110A design also has increased bandwidth to allow for PWM dimming testing.

Figure 2 shows the dimming current waveform of the LED. Figure 3 shows the dimming current waveform when using 63110A as a load.The 6314A holds up to four 63110A load modules, which will result in an 8-channel 100W/channel load with standard front-panel inputs. This makes it ideal for testing single output and multiple output LED driver. Additionally, the GO/NG output port is useful for UUT's pass/fail testing on an automated production line. All modules on the 6314A/6312A mainframe share a common GPIB address to synchronize and speed up the control of the load modules and the read-back of data.

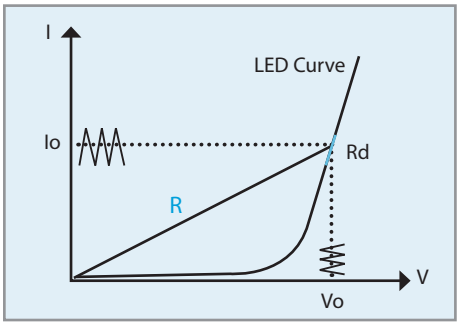

Figure 1 LED V-I Characteristics

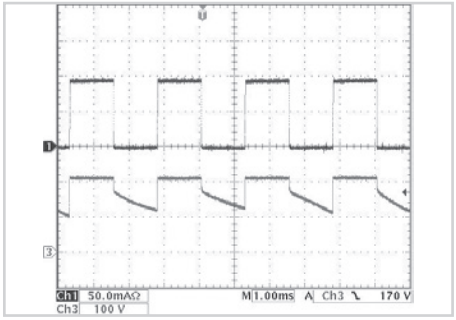

Figure 2 - LED dimming test

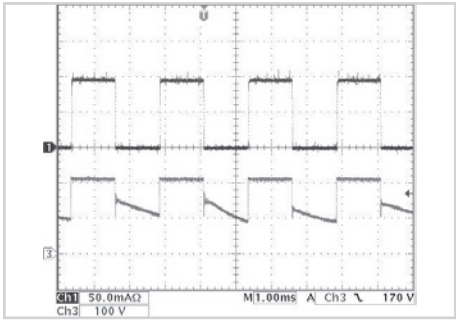

Figure 3 - 63110A dimming test

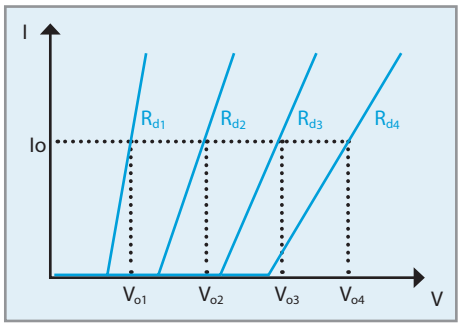

Figure 4 - Simulate different number of LEDs

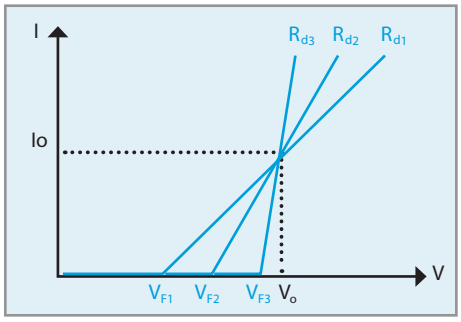

Figure 5 - Simulate different characteristic of LEDs

6312A : 2 in 1 Mainframe

6314A : 4 in 1 Mainframe

SPECIFICATIONS						
Model	**63110A (100Wx2)**		**63113A**		**63115A *3**	
Power	100W		300W		300W	
Current	0~0.6A	0~2A	0~5A	0~20A	0~2A	0~10A
Voltage *1	0~500V		0~300V		0~600V	
Min. Operating Voltage	6V@2A		4V@20A		2V@10A	
LED Mode						
Range	Operating Voltage: 0~100V/0~500V R_d Coefficient : 0.001~1 V_F: 0~100V/0~500V Current : 0~2A R_d: 1Ω~1kΩ/10Ω~10kΩ		Operating Voltage : 0~60V/0~300V R_d Coefficient : 0.001~1 V_F : 0~60V/0~300V LEDL @ CH : 0~60V- 0~20A (R_d: 0.05Ω~50Ω) LEDL @ CL : 0~60V- 0~5A (R_d: 0.8Ω~800Ω) LEDH @ CL : 0~300V- 0~5A (R_d: 4Ω~4kΩ)		Operating Voltage : 0~60V/0~600V R_d Coefficient : 0.001~1 V_F : 0~60V/0~600V LEDL @ CH : 0~60V- 0~10A (R_d: 0.05Ω~50Ω) LEDL @ CL : 0~60V- 0~2A (R_d: 1.6Ω~1.6kΩ) LEDH @ CL : 0~600V- 0~2A (R_d: 8Ω~8kΩ)	
Resolution *2	Vo : 4mV/20mV Io : 0.1mA R_d Coefficient : 0.001 R_d : 62.5μS/6.25μS V_F : 4mV/20mV		Vo : 1.2mV/6mV Io : 100μA/400μA R_d Coefficient : 0.001 R_d : 400μS / 25μS / 5μS V_F : 1.2mV/ 6mV		Vo : 1.2mV/6mV Io : 100μA/400μA R_d : 0.4mS/12.5uS/2.5uS V_F : 6mV/ 30mV	
Constant Resistance Mode						
Range	CRL : 3Ω~1kΩ (100W/100V) CRH : 10Ω~10kΩ (100W/500V)		CRL @ CH : 0.2Ω~200Ω (300W/60V) CRL @ CL : 0.8Ω~800Ω (300W/60V) CRH @ CL : 4Ω~4kΩ (300W/300V)		CRL @ CH : 0.4Ω~400Ω (300W/60V) CRL @ CL : 1.6Ω~1.6kΩ (300W/60V) CRH @ CL : 8Ω~8kΩ (300W/600V)	
Resolution*2	CRL : 62.5μS CRH : 6.25μS		CRL @ CH : 100μS CRL @ CL : 25μS CRH @ CL : 5μS		CRL @ CH : 50μS CRL @ CL : 12.5μS CRH @ CL : 2.5μS	
Accuracy	1kΩ : 4mS+0.2% 10kΩ : 1mS+0.1%		0.2% (setting + range)		0.2% (setting + range)	
Constant Voltage Mode						
Range	0~500V		0~300V		0~600V	
Resolution	20mV		6mV		12mV	
Accuracy	0.05% + 0.1%F.S.		0.05% + 0.1%F.S.		0.05% + 0.1%F.S.	
Constant Current Mode						
Range	0~0.6A	0~2A	0~5A	0~20A	0~2A	0~10A
Resolution	12μA	40μA	100μA	400μA	40μA	200μA
Accuracy	0.1%+0.1% F.S.		0.1%+0.1% F.S.	0.1%+0.2% F.S.	0.1%+0.1% F.S.	0.1%+0.2% F.S.
Measurement Section						
Voltage Read Back						
Range	0~100V	0~500V	0~60V	0~300V	0~60V	0~600V
Resolution	2mV	10mV	1.2mV	6mV	1.2mV	12mV
Accuracy	0.025%+0.025% F.S.		0.025%+0.025% F.S.		0.025%+0.025% F.S.	
Current Read Back						
Range	0~0.6A	0~2A	0~5A	0~20A	0~2A	0~10A
Resolution	12μA	40μA	100μA	400μA	0.04mA	0.2mA
Accuracy	0.05%+0.05% F.S.		0.05%+0.05% F.S.		0.05%+0.05% F.S.	

NOTE*1 : If the operating voltage exceeds 1.1 times of the rated voltage, it would cause permanent damage to the device.
NOTE*2 : S (siemens) is the SI unit of conductance, equal to one reciprocal ohm.
NOTE*3 : Call for availability