



MODEL 58604

KEY FEATURES

- Burn-In, reliability and life test
- ACC and APC control modes
- Individual channel source and measurement
- Spike-Free sourcing
- Current to 500 mA per channel or parallel up
- Precise temperature control up to 125°C
- Independent module operation
- Software auto reconnection
- ESD protection (device interface)

LASER DIODE BURN-IN & RELIABILITY TEST SYSTEM MODEL 58604

Burn-in, Reliability & Life Test

The Chroma 58604 is a high density, multifunction, and temperature controlled module based system for laser diode burn-in and lifetime tests. Each module has up to 256 SMU channels which can source current and measure voltage in various control modes as described below. The system can accommodate 7 modules for a total of 1792 SMU channels.

Auto Current Control Mode (ACC)

In auto current control (ACC) mode, the control circuit will provide the preset current to each laser diode with high stability. Even with fluctuations in device resistance and temperature, the current will be kept constant over the test period. The device voltage will be recorded as a quality reference parameter.

Auto Power Control Mode (APC)

With feedback signal from the optional external Photo Diode PCB or the onboard Monitor Photo Diode (MPD), the control circuit can adjust the laser diode current automatically to keep a constant optical power output over the test period. The device voltage and current are recorded as quality parameters for reference.

Temperature Control

A proprietary designed heat plate will control the laser diode case temperature with high accuracy, excellent stability, and good uniformity. This thermal condition approach is much more compact, easier to operate, offers better performance, and energy saving over

chamber based systems. Customers gain the benefit of a small footprint, versatile usage, and easy maintenance.

Independent Module Operation

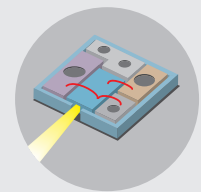
Customers can set each modules to a set test program varying from all other modules in the system. Variation includes all parameters including temperatures, Control Modes (APC/ ACC), start times and test durations. Modules can also accept fixtures for a variation of CoS and packages so allowing for multiple device types in one system. This provides the highest flexibility in operation.

Protection and Individual Channel Shutdown

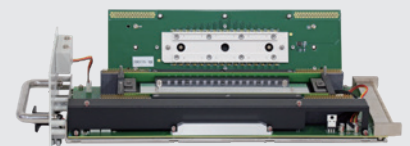
The control circuit is specially designed for protecting each laser diodes. No in-rush current or voltage will occur to hurt the devices. High/ Low limits of current and voltage can be set to perform shutdown protection. When abnormality happens, only the particular channel will be shutdown while others are running normally. Ensuring device safety, ESD protection is also sustained in the system design.

Auto Data Recovery after Communication Interruption

The burn-in data is stored in the system PC and optionally in remote servers. If the communication between the module and PC is temporarily broken, the data will be buffered in the module 6 hours or more. After the communication is restored, the buffered data will be dumped to the PC/server without loss.



CoC carrier



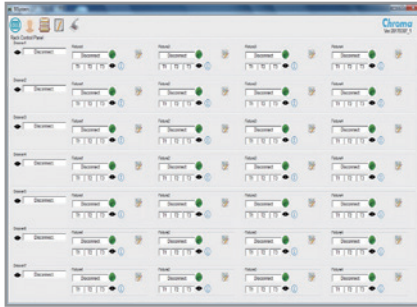
Test fixture



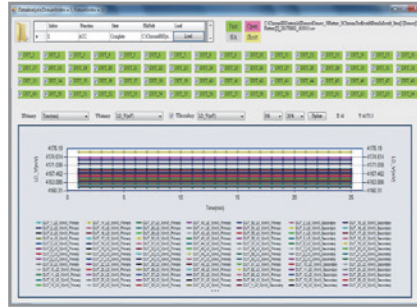
Chroma

USER FRIENDLY SOFT PANEL

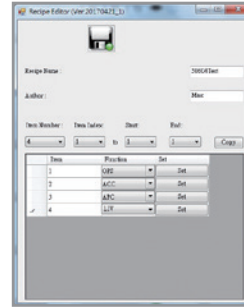
The soft panel provides an intuitive visual interface that one can check certain device at certain module with some simple mouse-clicks anytime during the tests. The burn-in raw data are stored in Microsoft Excel compatible format for further analysis. Optional barcode system can be cooperated for test management.



Control Panel



Data Analysis



Test Item

SPECIFICATIONS

Model	58604
SMU Module	
Channel Number	256 channels per module
Laser Diode Type	TO-46, TO-56, CoC
Test Function	ACC (standard) ; APC, LIV (optional)
Burn-in Record Time	1min. to 5,000hrs or more
Auto Current Control Mode	
Current Range	$\pm 500\text{mA}$ / $\pm 50\text{mA}$ / $\pm 5\text{mA}$ / $\pm 0.5\text{mA}$, four ranges configuration
Current Accuracy	0.2% F.S.
Compliant Voltage	$\pm 7\text{V}$
Voltage Measurement Range	$\pm 7\text{V}$
Voltage Measurement Accuracy	0.2% F.S.
Auto Power Control Mode (Optional)	
External PD type	Si or InGaAs *1
Wavelength Range	400 ~ 1600 nm *1
Optical Power Measurement Repeatability	$\pm 1\%$
Temperature Control	
Temperature Measuring Range	Ambient ~ 125 °C
Temperature Setting Range *2	45~125 °C
Temperature Setting/Reading Resolution	0.1 °C
Temperature Stability *3	1 °C
Temperature Uniformity	$\pm(1\text{ °C} + 1.2\% \Delta T)$ *4
System	
CommunicationPort	Ethernet to server
Dimensions (D x W x H)	1,300 mm x 900 mm x 1,900 mm
Weights	800 \pm 50 kg
Power Requirements	187 ~ 250 Vac (3 Phase 4 Wire, Δ Connection) or 323 ~ 437 Vac (3 Phase 5 Wire, Y Connection) / 45 ~ 65 Hz
Environment Temperature	20~30°C
Humidity	<80% RH, non-condensing
Compressed Air	5 kgf/cm ³ , 30 L/min. ; 0.5 Mpa

Note *1 : Wavelength dependent, customized PD types upon request

Note *2 : Condition : under 10W thermal load of test fixture

Note *3 : Thermal platform temperature without DUT loading,


$\Delta T = |$ ambient temperature - setting temperature |

Note *4 : 1 °C = (Max T - Min T) within 48 hrs burn-in time


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58604 : Laser Diode Burn-in & Reliability Test System



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