
СИСТЕМЫ ОСМОТРА ЧИПОВ

58603, 58604, 58620

ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

По вопросам продаж и поддержки обращайтесь:

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MODEL 58620

KEY FEATURES

- Full Turn-Key Automated Test for edge-emitting laser diodes
- High precision and large capacity carrier, interchangeable with other automated equipment
- Fully automated alignment for fiber-coupled tests
- Automated optical inspection to decrease mechanical positioning delays
- Highly accurate TEC temperature controller with stability up to $\pm 0.01^{\circ}\text{C}$
- PXI-Based SMU and power meter for fast test times
- Full suite of software analysis tools for laser diode characterization (Ith, Rs, Vf, slope efficiency, λ_p , SMSR and etc.)

LASER DIODE CHARACTERIZATION SYSTEM MODEL 58620

Laser Diodes are becoming more ubiquitous. Current applications range from medical and defense, to being the critical back bone of the world's fiber optic communication networks. There are several highly precise processes involved in the production of Laser Diodes. These processes are all quite cost intensive ranging from wafer growth all the way to fibre alignment and package high speed testing.

The 58620 Laser Diode Characterization Station is a state-of-the-art full turnkey system designed specifically for Laser Diodes. Its features

range from macro inspection of the facet or aperture active area to a full suite of electro-optical parametric tests. When Chroma's high capacity carrier is used, multiple devices can be rapidly repeatably indexed improving not only test times but the reliability of the tests themselves.

The 58620 is equipped with a highly stable, large scale, temperature control platform to provide the ability to incorporate R&D style tests in a production environment. This enables the ability to study correlation between laser diode forward current and temperature.



SPECIFICATIONS

Model	58620
Device Under Test	
Form Factor	CoC, CoS
Channels in Carrier	80 Channels per cycle ^{**1}
Current Ranges (Model 52401)	
Current Range (Source & Measurement)	± 200nA / 2µA / 20µA / 200µA / 2mA / 20mA / 200mA
Current Resolution	± 1.6pA/ ± 16pA/ ± 160pA/ ± 1.6nA/ ± 16nA/ ± 160nA/ ± 1.6µA
Current Accuracy (Source & Measurement)	I range ≥ 1mA : 0.1% + 0.1% FS ; I range < 1mA : 0.05%+0.2% FS
Voltage Ranges	
Compliance Voltage Range	± 0.5V/1V/2.5V/5V/10V/25V
Compliance Voltage Accuracy	≥ 1V: 0.05% + 0.01%FS ; <1V: 0.05% + 0.1%FS
Voltage Measurement	± 3.8nV~ ± 25V
Voltage Measurement Accuracy	0.05% + 38nV @0.5V to 0.05% + 1.9mV @25V
Test Parameters	
Electrical	L-I-V Curves, I _{th} , V _f , R _s , Linearity (Kink)
Spectral	Peak wavelength, SMSR, etc.
Optical Spectrum Analyzer*(Optional)	
Wavelength Range	700 nm to 1700 nm
Resolution Bandwidth	< 0.1 nm
SMSR Measurement	> 40 dB
Wavelength Accuracy	± 0.03 nm
Optical Power Meter (Model 52962)	
Channel	Dual channels
Wavelength Range (InGaAs Based)	900 to 1700nm
Minimum Power / Current	-70 dBm
Maximum Power / Current	+10 dBm
Resolution	0.01dB
Dynamic Range	80dB
Accuracy	± 5%
Linearity	0.1dB
Measurements per Second	>5000
Fibre Types Supported	50/125um, 62.6/125um multimode and single mode fiber
Form Factor	3U PXI
Thermal-Electrical Controller (Model 54130)	
Output Power	300W
Temperature Range	0 °C ~80°C
Temperature Accuracy	0.3 °C
Temperature Uniformity *3	± 0.5°C
Cooling System	External chiller
Mechanical Specification	
Motion Stage Travel Distance	400 mm
Minima Fine Stage Resolution	20 nm
System Size (W x D x H)	1000 mm x 1200 mm x 1350 mm
System Weight	400 ± 20 Kg
Power Input	220V single phase · 50/60 Hz
Water flow Rate	<3~5 lpm
Operating Environment	Temperature : 20°C ~25 °C ; Humidity : <70%
Software	
Operating System Supported	Microsoft Windows® 2000, XP or 7

Note *1 : Capacity of carrier depends on the DUT size and form factor

Note *2 : 58620 is compatible with multiple Optical Spectrum Analyzers.
Please inquire for further details.

Note *3 : Temperature uniformity is dependent on operating temperature ± (0.5°C+ 1% Δ T)

TO-CAN/CoC Burn In System

Model 58603

Burn-in, Reliability & Life Test

The 58603 is a high density, multifunction, and temperature controlled module for laser diode burn-in and lifetime tests. Each module has up to 128 discrete channels which can source current and measure voltage in various control modes as described below.

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. No matter how the device resistance and temperature change, 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, the control circuit can adjust the laser diode current automatically to keep constant feedback signal strength, which means the optical output of the laser diode is maintained constant over the test period. The device voltage and current are recorded as quality parameters for reference.

Temperature Control

A proprietary designed heat plat will control the laser diode case temperature with high accuracy, excellent stability, and good uniformity. Compared with oven or chamber types of laser diode burn-in systems, our solution is much more compact, easier to operate, better performance, and energy saving. Customers gain benefit for small footprint, versatile usage, and easy maintenance.

Individual Module Operation

Modules are mounted in a 19" rack to form a system. Each module is a 3U height drawer to fit in the rack. Customers can set different modules in different temperatures, operated in different control modes, and with different start and stop times. This provides great flexibility in operation.

Protection and Individual Channel Shutdown

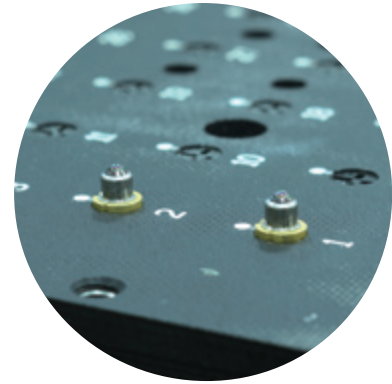
The control circuit is specially designed for protecting laser diodes. No rush current or voltage will occur to hurt the devices. High/Low limits of current and voltage can be set to perform shutdown protection. When abnormality happens, only the particular channel will be shutdown while others are running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

Auto Data Recovery after Communication Interruption

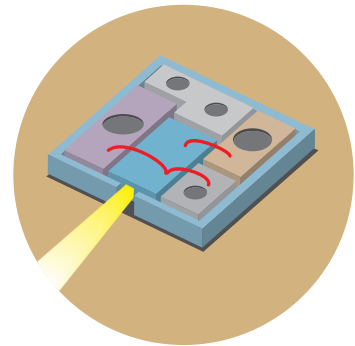
The burn-in data are stored in system PC and optional remote servers. If the communication between the module and PC is broken temporarily, the data will be buffered in the module up to 8 hours or even longer. After the communication is restored, the buffered data will be dumped to the PC/server without loss.

Key Features

- ✓ For Burn-In, Reliability and Life Testing
- ✓ Up to 128 laser diodes per module
- ✓ Up to 10 modules (1280 laser diodes) per systems
- ✓ ACC and APC control modes
- ✓ Individual channel driving and measurement
- ✓ Driving current 500 mA per channel and up
- ✓ Precise temperature control up to 120 °C
- ✓ Individual module operation
- ✓ Customization for device form factor upon request



TO-CAN carrier



CoC carrier



Optical module



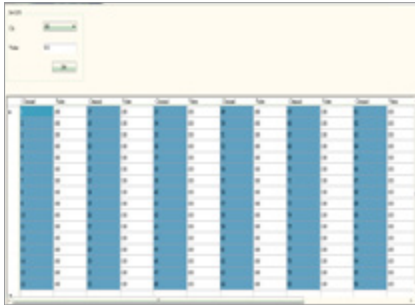
Half height rack



Full height rack

USER FRIENDLY SOFT PANEL

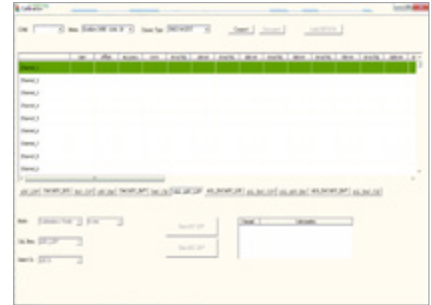
The soft panel provides an intuitive visual interface that one can check certain device at certain module with some simple mouse-clicks anytime during the tests. The burn-in raw data are stored in Microsoft Excel compatible format for further analyses. Optional barcode system can be cooperated for test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



Flexible to choose condition



Comprehensive test data



GUI calibration interface

SPECIFICATIONS		
Model	58603	
Module		
Channel Number	up to 128	
Laser Diode Type	TO-46, TO-56, CoC, CoS	
Test Function	ACC, APC (optional)	
Burn-in Record Time	1 min to 5000 hours	
Communication Port	RS232	
Change Kit	DUT carrier board	
Auto Current Control Mode		
Current Range	0~500 mA ^{*1}	
Current Setting Resolution	0.02 mA	
Current Accuracy	1%+1mA	
Compliant Voltage	4 V	
Voltage Measurement Range	4 V	
Voltage Measurement Resolution	200uV	
Voltage Measurement Accuracy	1%+10mV	
Auto Power Control Mode (Optional)		
External PD type	Si or InGaAs ^{*2}	
Wavelength Range	390 to 1700 nm	
PD Current Stability	1%	
LD Current Range	0~500 mA	
LD Current Measurement Accuracy	1%+1mA	
LD Compliant Voltage	4 V	
LD Voltage Measurement Accuracy	1% + 10mV	
Temperature Control		
Temperature Measuring Range	0~150 °C	
Temperature Setting Range	40~120 °C	
Temperature Setting/Reading Resolution	0.1 °C	
Temperature Stability	0.2 °C	
Temperature Accuracy	1 °C	
Temperature Uniformity	±(1 °C + 1.2% ΔT)	
System		
Configuration	23" rack, half or full height	
Number of Modules	up to 10 (For full height rack)	
DUTs per system	up to 1280 (For full height rack)	
Communication Port	Ethernet to server	
Dimensions (H x W x D)	Half height rack , 3 modules	1600 x 600 x 900 mm
	Full height rack , 10 modules	2000 x 600 x 900 mm
Weights	Half height rack , 3 modules	230kg
	Full height rack , 10 modules	500kg
Power Requirements	Half height rack , 3 modules	AC 220V ± 10%, 50/60Hz, 11.4A, 2.5KW
	Full height rack , 10 modules	AC 220V ± 10%, 50/60Hz, 20A, 4.4KW
Environment Temperature	20~30°C	
Humidity	<80% RH, non-condensing	

Note *1 : Can be customized for other specifications

Note *2 : Wavelength dependent, customized PD types upon request

Note *3 : Thermal platform temperature without DUT loading, $\Delta T = | \text{ambient temperature} - \text{setting temperature} |$

SPECIFICATIONS	
Model	58604
SMU Module	
Channel Number	up to 256
Laser Diode Type	TO-46, TO-56, CoC
Test Function	ACC (standard) APC, LIV (optional)
Burn-in Record Time	1 min to 5000 hours
Auto Current Control Mode	
Current Range	± 500 mA
Current Accuracy	0.2% F.S.
Compliant Voltage	± 7 V
Voltage Measurement Range	± 7 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
LD Current Range	± 500 mA
LD Current Measurement Accuracy	0.2% F.S.
LD Compliant Voltage	± 7V
LD Voltage Measurement Accuracy	0.2% F.S.
Temperature Control	
Temperature Measuring Range	Ambient ~ 125 °C
Temperature Setting Range	45~125 °C
Temperature Setting/Reading Resolution	0.1 °C
Temperature Stability *3	1 °C
Temperature Uniformity	± (1 °C + 1.2% ΔT) *2
System	
CommunicationPort	Ethernet to server
Dimensions (D x W x H)	1,300 mm x 900 mm x 1,900 mm
Weights	500 ± 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 ² , 30 L/min.; 0.5 Mpa

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

Note *2 : Thermal platform temperature without DUT loading, $\Delta T = | \text{ambient temperature} - \text{setting temperature} |$

Note *3 : 1 °C = (Max T - Min T) within 48 hrs burn-in time

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