

IES LM-80 Test Report

Report Issue Date : February 03, 2017

Report Number : I-160223-20-I-01

Testing Start Date : March 29, 2016

Testing Completion Date : December 23, 2016

Revision Number : 01

Test Duration : 6 000 h

Manufacturer Information :

Applicant : Seoul Semiconductor Co., LTD

Address : 97-11, Sandan-ro 163, Danwon-gu, Ansan, Gyeonggi-do, Korea 15429

Description of Test Samples :

Classification : LED Package

PKG Name : MJT COB

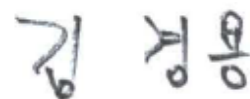
Part Number : SAWx1566-xx

Drive Current : 890 mA

Test Procedure :

IES LM-80-08 Approved Method for Measuring Lumen Maintenance of LED Light Sources

Tested by



KyungYong KIM, Research Engineer

Approved by

YoungJoon WON, Laboratory Manager



Seoul Semiconductor Testing Laboratory(TL-688) is accredited to ISO/IEC 17025:2005 for the above test procedure by IAS, USA which is a signatory to ILAC-MRA.

Seoul Semiconductor Testing Laboratory

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Applicable Series Model Numbers

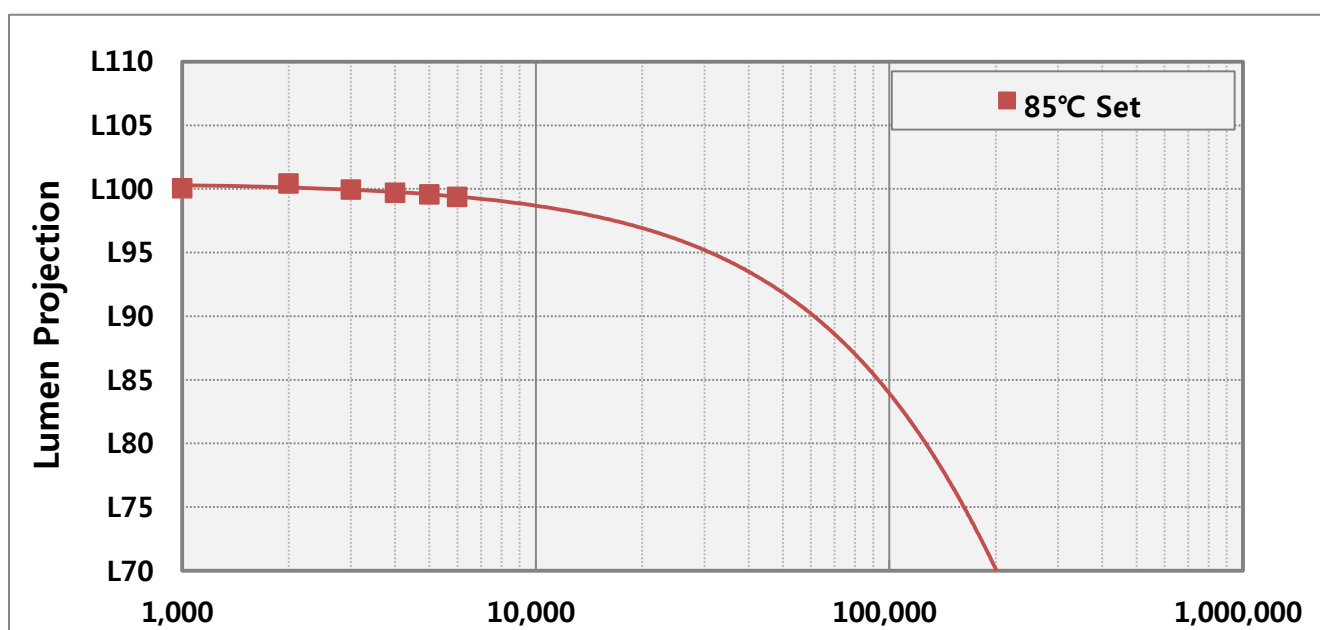
This LM-80 report is applicable to the following

Model	Current	Typical Vf	Power	Current per Die	Power Density	Current Density	CCT
SAWx1566-xx Tested	890 mA	35 V	31 W	148 mA	0.09 W/mm ²	176 mA/mm ²	≥2200 K
SDWx1F1D-xx	145 mA	35 V	5 W	145 mA	0.03 W/mm ²	172 mA/mm ²	≥2200 K
SAWx0661A-xx	145 mA	35 V	5 W	145 mA	0.03 W/mm ²	172 mA/mm ²	≥2200 K
SAWx1062A-xx	295 mA	35 V	10 W	148 mA	0.06 W/mm ²	175 mA/mm ²	≥2200 K
SAWx1063A-xx	445 mA	35 V	16 W	148 mA	0.09 W/mm ²	176 mA/mm ²	≥2200 K
SAWx1564A-xx	590 mA	35 V	21 W	148 mA	0.06 W/mm ²	175 mA/mm ²	≥2200 K
SAWx1565A-xx	740 mA	35 V	26 W	148 mA	0.07 W/mm ²	175 mA/mm ²	≥2200 K
SAWx2296A-xx	890 mA	52 V	46 W	148 mA	0.06 W/mm ²	176 mA/mm ²	≥2200 K
SAWx2298A-xx	1185 mA	52 V	62 W	148 mA	0.08 W/mm ²	175 mA/mm ²	≥2200 K
SAWx22AAA-xx	1180 mA	57 V	67 W	118 mA	0.09 W/mm ²	140 mA/mm ²	≥2200 K
SAWx33EAA-xx	1480 mA	81 V	120 W	148 mA	0.08 W/mm ²	175 mA/mm ²	≥2200 K
SAWx33GCA-xx	1360 mA	91 V	124 W	113 mA	0.09 W/mm ²	135 mA/mm ²	≥2200 K
SDWxAF1E-xx	1560 mA	138 V	215 W	130 mA	0.09 W/mm ²	154 mA/mm ²	≥2200 K

1. Test Summary

Items	Nominal Case Temperature		
		85 °C	
Number of LED tested		12	
Drive Current		890 mA	
Measurment Current		890 mA	
Test Duration		6 000 h	
Actual Case Temperature		≥83.1 °C	
Actual Ambient Temperature		≥81.7 °C	
Air Flow Velocity		≤0.47 m/s	
Averaged Initial Luminous Flux		4308.8 lm	
Averaged Initial CCT		2624 K	
Averaged Forward Voltage		34.86 V	
Averaged Lumen Maintenance		99.4 %	
Averaged Chromacity Shift		0.001 1	
α		-4.283E-07	
B		0.997	
TM-21 Projection L ₇₀		>33000	
TM-21 Projection L ₈₀		>33000	
TM-21 Projection L ₉₀		>33000	

※ The results shown in this certificate refer only to the sample(s) tested unless otherwise stated.
This test report cannot be reproduced, except in full.



Drive Current of the LED Light Source During Lifetime Test

See the Test Summary

Initial Luminous Flux and Forward Voltage at Photometric Measurement Current

See the Test Summary

Lumen Maintenance Data for Each Individual LED Light Source Along with Median Value, Standard Deviation, Minimum and Maximum Lumen Maintenance Value for All of the LED Light Sources

See the table of each data set

Observation of LED light Sources Failures

No failure observed

LED Light Source Monitoring Interval

See the table of each data set

Photometric Measurement Uncertainty

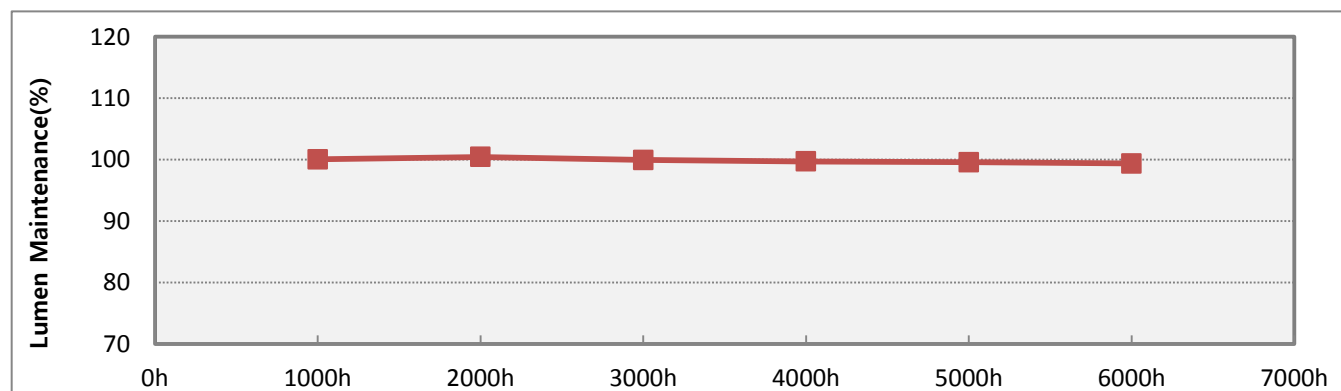
Seoul Semiconduc maintain a tolerance of ± 3.04 % at 95% confidence level ($k = 2$)

Chromaticity Shift Over the Measurement Time

See the table of each data set

3. 85°C Data Set

No.	Initial Characteristics			Lumen Maintenance								
	Vf (V)	Flux (lm)	CCT (K)	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h			
01	34.89	4288.91	2630	99.9	100.3	99.9	99.6	99.4	99.1			
02	34.80	4283.83	2644	100.7	100.7	100.3	100.2	100.3	100.3			
03	34.80	4314.63	2648	100.2	100.6	100.4	99.9	99.8	99.9			
04	34.87	4338.77	2650	100.3	100.5	100.4	100.1	100.1	99.8			
05	34.86	4286.23	2633	100.0	100.3	99.8	99.5	99.3	98.8			
06	34.91	4331.64	2586	100.1	100.6	100.0	99.9	99.9	99.9			
07	34.84	4295.74	2615	100.4	100.9	100.4	100.1	100.1	100.0			
08	34.90	4288.25	2588	100.1	100.4	100.0	99.9	99.9	99.7			
09	34.86	4307.73	2623	99.8	99.9	99.7	99.5	99.5	99.3			
10	34.84	4337.48	2643	99.1	99.7	98.8	98.1	97.3	96.4			
11	34.91	4346.53	2630	100.0	100.5	99.8	99.6	99.7	99.4			
12	34.88	4285.88	2600	100.1	100.6	99.9	99.9	99.7	99.8			
Ave.	34.86	4308.80	2624	100.1	100.4	99.9	99.7	99.6	99.4			
Med.	34.87	4301.74	2630	100.1	100.5	99.9	99.9	99.8	99.7			
Min.	34.80	4283.83	2586	99.1	99.7	98.8	98.1	97.3	96.4			
Max.	34.91	4346.53	2650	100.7	100.9	100.4	100.2	100.3	100.3			
σ	0.04	24.02	23	0.4	0.3	0.5	0.6	0.8	1.0			



3. 85°C Data Set

No.	Initial Characteristics		Chromaticity Shift du'v'								
	CIE1976 u'	CIE1976 v'	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h			
01	0.2651	0.5321	0.0011	0.0007	0.0009	0.0011	0.0013	0.0012			
02	0.2645	0.5316	0.0009	0.0006	0.0007	0.0009	0.0010	0.0008			
03	0.2643	0.5316	0.0010	0.0007	0.0008	0.0010	0.0011	0.0009			
04	0.2642	0.5314	0.0009	0.0006	0.0008	0.0010	0.0011	0.0009			
05	0.2650	0.5321	0.0010	0.0006	0.0009	0.0012	0.0013	0.0013			
06	0.2673	0.5323	0.0010	0.0006	0.0009	0.0010	0.0011	0.0009			
07	0.2658	0.5328	0.0009	0.0006	0.0007	0.0009	0.0010	0.0009			
08	0.2674	0.5316	0.0011	0.0007	0.0009	0.0011	0.0012	0.0010			
09	0.2656	0.5312	0.0011	0.0008	0.0009	0.0011	0.0011	0.0010			
10	0.2646	0.5309	0.0013	0.0010	0.0012	0.0016	0.0020	0.0020			
11	0.2653	0.5312	0.0010	0.0007	0.0009	0.0011	0.0011	0.0010			
12	0.2668	0.5314	0.0011	0.0007	0.0009	0.0011	0.0012	0.0010			
Ave.	0.2655	0.5317	0.0010	0.0007	0.0009	0.0011	0.0012	0.0011			
Med.	0.2652	0.5316	0.0010	0.0007	0.0009	0.0011	0.0011	0.0010			
Min.	0.2642	0.5309	0.0009	0.0006	0.0007	0.0009	0.0010	0.0008			
Max.	0.2674	0.5328	0.0013	0.0010	0.0012	0.0016	0.0020	0.0020			
σ	0.0011	0.0005	0.0001	0.0001	0.0001	0.0002	0.0003	0.0003			

