ADVANCE
by signify

LED Modules

Fortimo DLM Flex L2

54 G2 NA



Fortimo LED downlight module (DLM) Flex L2 G2 Dip Switch (DS) supersedes its predecessors by offering lumen packages up to 13,000lm* or a high efficacy up to 180lm/W. The new generation also brings the focus on quality of light by introducing CRI 90 range to the portfolio. The all in one DLM Flex L2 G2 provides the ease of switching defined flux levels via a dip switch on board while still allows tuning the models through Advance Xitanium LED Drivers with SimpleSet technology. We bring you the best in class and versatile portfolio which caters to numerous applications.

Commercial Product Name	12NC
FORTIMO LED DLM FLEX DS L2 830 54 G2 NA	929001729413
FORTIMO LED DLM FLEX DS L2 835 54 G2 NA	929001729513
FORTIMO LED DLM FLEX DS L2 840 54 G2 NA	929001729613
Fortimo LED DLM Thermal Accessory G1	929000765413
Fortimo LED DLM Flex Cover NA	929000765313

For drivers' compatibility, please visit our Easy Design-In Tool:
https://www.na.easydesignintool.philips.com/select-module/24;jsessionid=B48812A82EB79F03366908351B479626

* Achieved with the 84up CRI80

Fortimo DLM Flex L2 54 G2 NA

Features

- Wide lumen output range: up to 13,000lm*
- Variation of color temperatures (2700K, 3000K, 3500K, 4000K, and 5000K*)
- Flexible output/performance when set through the dip switch on board and Advance Xitanium LED drivers with SimpleSet technology
- Lifetime > 50,000hrs[1] (B50L70 at Tc 85°C)
- High color consistency:
  - 2 SDCM for CRI 90
  - 3 SDCM for CRI 80
- Various mechanical interface options
  - Enabling standard or slim designs
  - Self-cooled option for up to 3,000lm[2]
  - No additional heat sink needed[3]

* With 84up CRI80

Benefits

- High energy efficiency (up to 180lm/W at Tc 85°C), also enabling excellent thermal management
- Flexible output/performance when set through the Advance Xitanium LED drivers with SimpleSet technology and the on-board dip switch
- Limited glare
- Integrated thermal protection, enabling universal voltage fixtures and low power consumption (compliant with UL SREC/991)
- Reduced effort with thermal design and testing[3]
- 5-year limited system warranty with Advance Xitanium LED drivers[4]

Application

- Recessed downlights
  - Offices
  - Hospitality
  - Education
  - Retail
- High-bay
  - Warehouses
  - Industries
- Surface mount luminaries
  - Residential
  - Hospitality
  - Offices

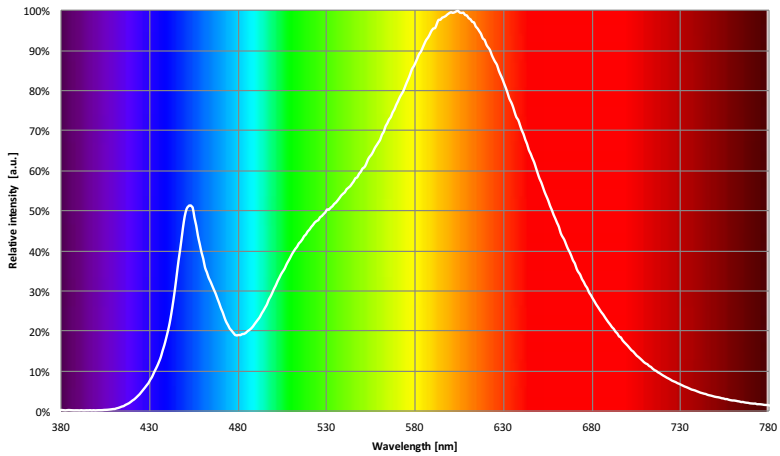
Optical Characteristics – Table per CCT

Fortimo LED DLM Flex DS L2 830 54 G2 NA					
	DS4	DS3	DS2	DS1	Unit
Nominal Current	976	818	690	610	mA
Luminous Flux	4759	4069	3488	3120	lm
Luminous Flux with DLM Flex Cover	3950	3377	2895	2590	lm
Module Efficacy	141	146	150	153	lm/W
Module Efficacy with DLM Cover	117	121	125	127	lm/W
Correlated Color Temperature	3000				K
CRI	>80				-
Color Consistency	<3				SDCM
Radiation Angle	115				degrees
Radiation Angle with DLM Cover	110				degrees

Note: Specifications stated at Tc nom = 85°C.
Tolerance for flux data is -10% +20%. Tolerance for efficacy data is ±10%.
Measurement precision for flux +/- 5%, for CRI +/- 1.5, for efficacy +/-6%.

Dip switch settings		
	1	2
DS1	ON	ON
DS2	OFF	ON
DS3	ON	OFF
DS4	OFF	OFF





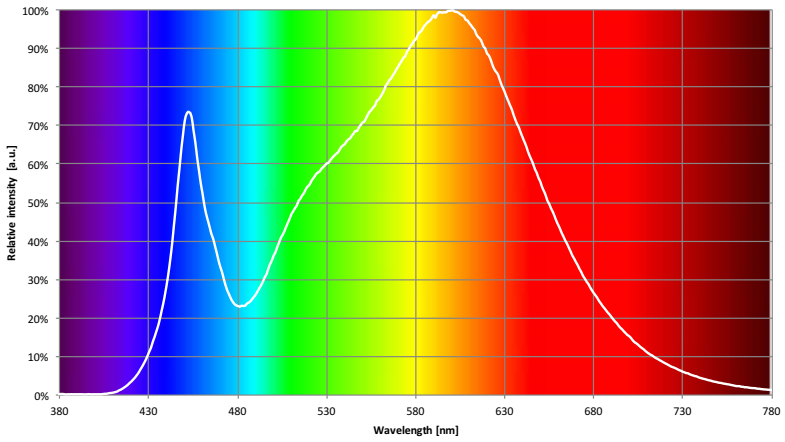
1. Average rated life is based one engineering data testing and probability analysis. The hours are at the B50, L70 point - 50,000 hours life with 70% lumen maintenance at Tc point when used with Advance produced cover and when Advance ESD protection guidelines are followed. Please refer to the design-in-guide for more information.
2. When combined with Fortimo LED thermal accessory G1. Please refer to product design-in guide for design instructions and restrictions.
3. When combined with the Fortimo thermal accessory G1, the need for an external heat sink is eliminated (for up to 3,000lm, according to the product design-in guide rules), resulting in simplified thermal management design and testing. The Fortimo DLM flex design-in guide is available at http://www.usa.lighting.philips.com/products/oem-components/led-modules-literature.html.
4. View limited warranty details and restrictions at http://www.usa.lighting.philips.com/support/support/warranty. Please note that the warranty is subjected to adherence to Advance ESD guidelines which are embedded in the design-in guide.

Fortimo DLM Flex L2 54 G2 NA

Optical Characteristics – Table per CCT

Fortimo LED DLM Flex DS L2 835 54 G2 NA					
	DS4	**DS3**	**DS2**	**DS1**	**Unit**
Nominal Current	976	818	690	610	mA
Luminous Flux	4929	4214	3613	3231	lm
Luminous Flux with DLM Flex Cover	4091	3498	2999	2682	lm
Module Efficacy	146	151	155	158	lm/W
Module Efficacy with DLM Cover	121	125	129	131	lm/W
Correlated Color Temperature	3500				K
CRI	>80				-
Color Consistency	<3				SDCM
Radiation Angle	115				degrees
Radiation Angle with DLM Cover	110				degrees

Note: Specifications stated at Tc nom = 85°C.
Tolerance for flux data is -10% +20%. Tolerance for efficacy data is ±10%.
Measurement precision for flux +/- 5%, for CRI +/- 1.5, for efficacy +/-6%.



Dip switch settings		
	1	**2**
DS1	ON	ON
DS2	OFF	ON
DS3	ON	OFF
DS4	OFF	OFF



Fortimo DLM Flex L2 54 G2 NA

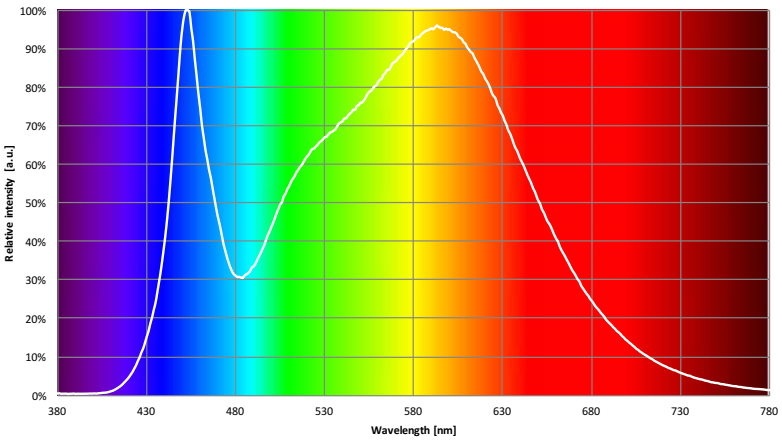
Optical Characteristics – Table per CCT

Fortimo LED DLM Flex DS L2 840 54 G2 NA					
	DS4	DS3	DS2	DS1	Unit
Nominal Current	976	818	690	610	mA
Luminous Flux	5099	4360	3737	3343	lm
Luminous Flux with DLM Flex Cover	4232	3619	3102	2775	lm
Module Efficacy	151	156	161	164	lm/W
Module Efficacy with DLM Cover	125	129	134	136	lm/W
Correlated Color Temperature	4000				K
CRI	>80				-
Color Consistency	<3				SDCM
Radiation Angle	115				degrees
Radiation Angle with DLM Cover	110				degrees

Dip switch settings		
	1	2
DS1	ON	ON
DS2	OFF	ON
DS3	ON	OFF
DS4	OFF	OFF



Note: Specifications stated at Tc nom = 85°C.
Tolerance for flux data is -10% +20%. Tolerance for efficacy data is ±10%.
Measurement precision for flux +/- 5%, for CRI +/- 1.5, for efficacy +/-6%.

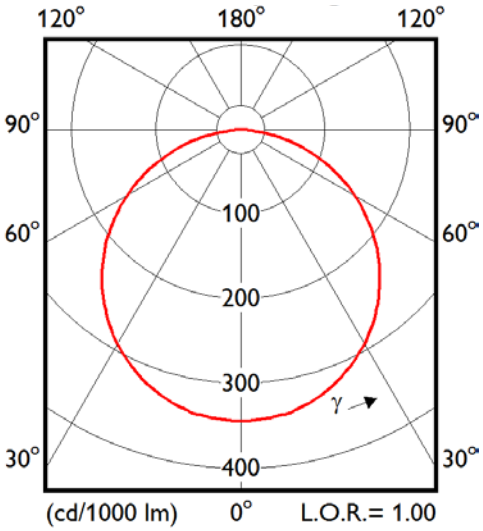


Fortimo DLM Flex L2 54 G2 NA

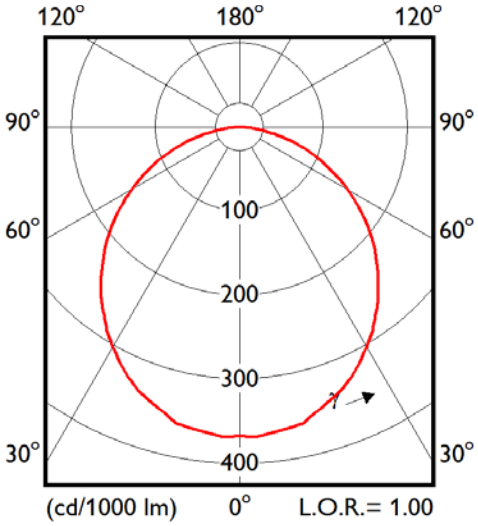
Beam Shape

The Fortimo LED DLM generates a Lambertian beam shape, which is a pragmatic starting point for OEMs wishing to design secondary optics.

Polar Intensity Diagram
DLM Flex L2 54 G2



Polar Intensity Diagram
DLM Flex L2 54 G2 with DLM Flex Cover



Electrical Characteristics

Fortimo LED DLM Flex DS L2 54 G2 CRI 80				
Parameter	**Min**	**Typ**	**Max**	**Unit**
Current		976		mA
Forward Voltage	33.4	34.6	35.8	V
Power Consumption	32.6	33.8	34.9	W

Note: Specifications stated at Tc nom = 85°C.
Measurement precision for Vf +/-3%, for Power +/-3.3%

Lifetime

Parameter	Min	Unit
Lumen Maintenance B50L70	50,000	hrs

Note: Lifetime stated at Tc nom = 85°C, refer to lumen maintenance graphs

Parameter	Nominal[5]	Max[6]	Max. Current[7]
Tc [°C] CRI 80	85	95	85

Refer to the warranty windows

5. Nominal value at which performance is specified.
6. Maximum value for safety.
7. Maximum TC allowed at maximum current within warranty window.

Fortimo DLM Flex L2 54 G2 NA

Abs Max Ratings

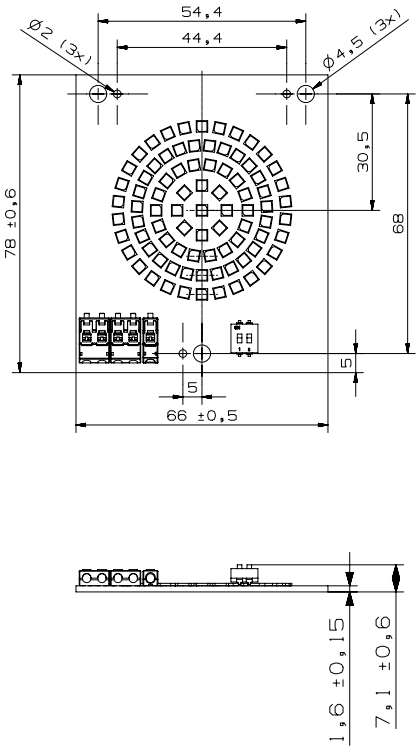
Parameter	Min	Typ	Max	Unit
Current Through the LED module (I-max)			1800	mA
Case Temperature (Tc-max)			95	°C
ESD IEC6100-4-2 (direct)			2*	kV
Storage Temperature	-40		100	°C

Storage at humidity <95%, non-condensing

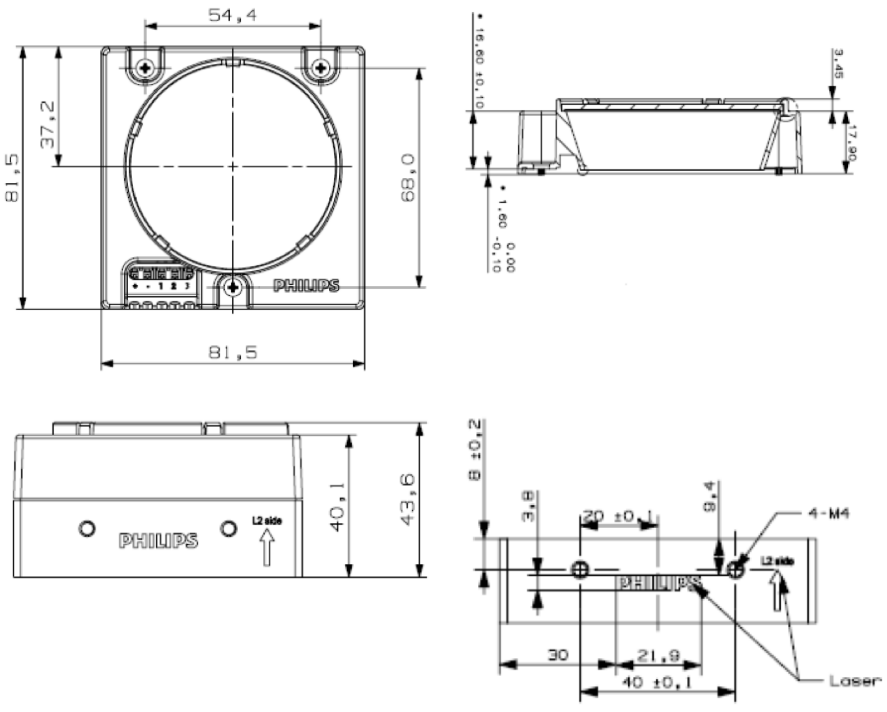
* Please refer to design-in guide for ESD guidelines.

Mechanical Characteristics

DLM Flex L2 54



DLM Flex Cover and DLM Thermal Accessory G1



Application Information

Compliance and Approval

Application Information

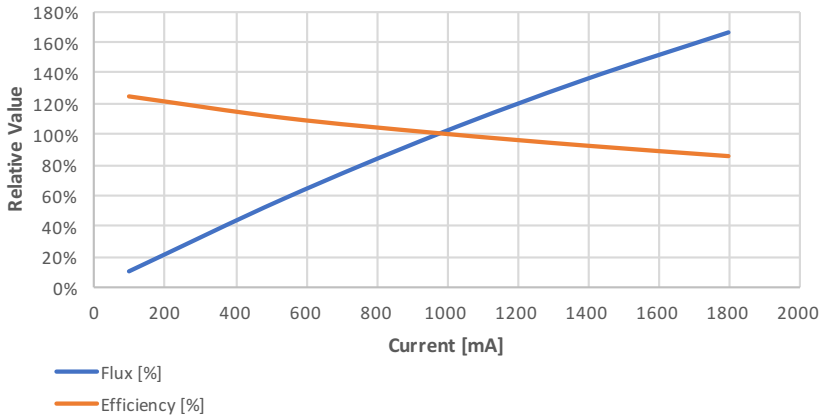
CSA/ (UL CoA#: E336402)/ UL SREC

Overheating Protection	UL SREC
Luminaire Class	UL Class 2

Fortimo DLM Flex L2 54 G2 NA

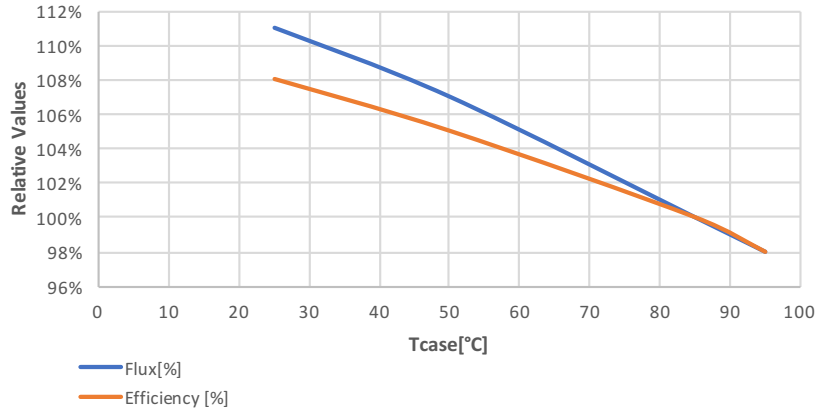
Tuning Information

Flux and Efficacy versus Current (at Nominal Temperature) DLM Flex L2 54 G2 - CRI 80



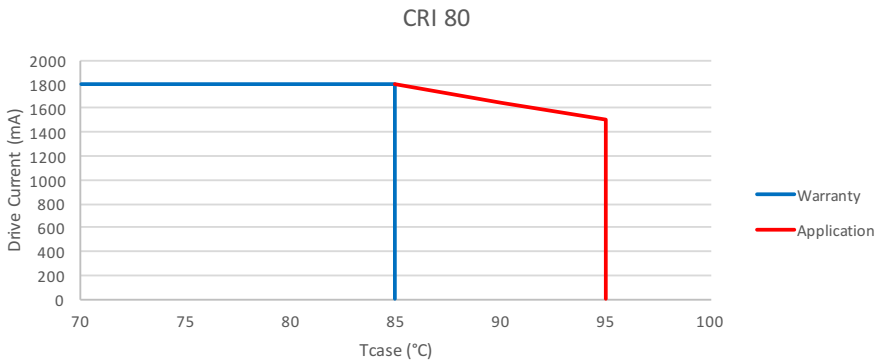
Current [mA]	Flux [%]	Efficiency [%]
100	11%	124%
538	58%	110%
976	100%	100%
1388	135%	92%
1800	166%	85%

Flux and Efficacy versus Temperature at Tc (at Nominal Current) DLM Flex L2 54 G2 - CRI 80



Tcase [°C]	Flux[%]	Efficiency [%]
95	98%	98%
85	100%	100%
50	107%	105%
25	111%	108%

Warranty Window

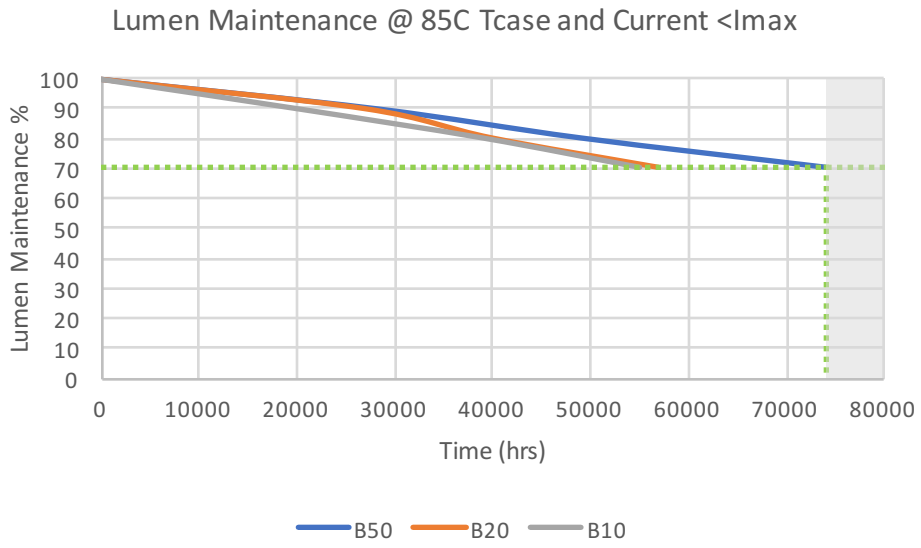


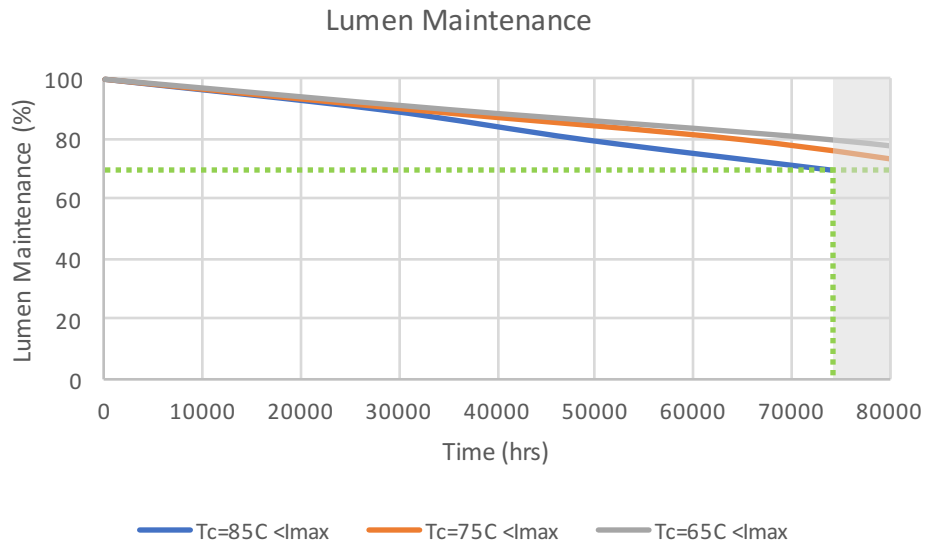
Warranted Number of Full Thermal Product Cycles within Warranty Window @ 25°C Ambient Temperature CRI 80

Case Temperature Tcase [°C]	Number of Cycles
85	8,000
80	>12,500
75	>12,500
70	>12,500
65	>12,500
55	>12,500

Lumen Maintenance

Fortimo LED DLM Flex L2 54 G2 NA - CRI 80





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