PHILIPS

Fortimo

LED system

DLM Flex 3000 lm Gen2

Datasheet

A **new generation solution**
for downlight applications

Fortimo LED DLM Flex 3000 lm Gen2

The Fortimo LED DLM Flex G2 is a new generation solution for down light applications. It is a product in line with the Fortimo brand promise of light quality and a smart system. We provide you with a system proposition ranging from 1100 lm to 5000 lm, with the flexibility to tune as per your needs.

Benefits

- Increased energy efficiency
- Flexibility to tune the performance as per your need by modifying the operating point
- Improved luminaire manufacturability
- Improved temperature management
- Smart systems with Xitanium drivers, including the new mini drivers
- Part of the Philips warranty scheme
- Best in class lumen maintenance

Features

- Ability to operate your module at a desired current
- Flexibility to choose between the PCB, with or without the housing
- Two choices for the housing, a high housing having the same form factor as the DLM G5 and the shallow housing, having the same foot print as the DLM G5, but slimmer
- One stop shop for your system (detailed list of complementary partners in design-in guide)

October 2015

Ordering Data

Commercial product name	Type	EOC	12NC
Fortimo LED DLM Flex 3000/830 Gen2	LED board	6974939 121267 00	9290 015 04480
Fortimo LED DLM Flex 3000/840 Gen2	LED board	6974939 121281 00	9290 015 04580
Fortimo LED DLM Flex 3000/850 Gen 2*	LED board	6947939 171040 00	9290 015 08580
Fortimo LED DLM Flex Cover	Shallow housing	8718291 797456 00	9290 009 08506
Fortimo LED DLM Flex High Cover	High housing	8718696 421178 00	9290 009 27806
Fortimo LED DLM Flex cable 600mm	Cable	8718696 421192 00	9290 009 10706

* Available in APR, please contact your local sales representative if availability in EU is needed.

Drive Currents and Case Temperature

Parameter	Nominal*	Life**	Max***	Unit
I (LED board only) – 830	617	617	1500	mA
I (LED board + shallow housing) – 830	751	751	1500	mA
I (LED board + high housing) – 830	914	914	1500	mA
I (LED board only) – 840, 850	566	566	1500	mA
I (LED board + shallow housing) – 840, 850	685	685	1500	mA
I (LED board + high housing) – 840, 850	825	825	1500	mA
Tc (Case temperature at Tc point)	75	75	85	°C

*   Nominal value at which typical performance is specified.
**   Value at which lifetime is specified.
*** Maximum value for safe operation, do not operate above this value.

Electrical Characteristics

Parameter	Typ	Max	Unit
Forward Voltage (LED board only) – 830	34.2	37	V
Forward Voltage (LED board + shallow housing) – 830	34.6	37.4	V
Forward Voltage (LED board + high housing) – 830	35	37.4	V
Forward Voltage (LED board only) – 840, 850	34.1	36.8	V
Forward Voltage (LED board + shallow housing) – 840, 850	34.4	37.1	V
Forward Voltage (LED board + high housing) – 840, 850	34.7	37.1	V
Power Consumption (LED board only) – 830	21.1	62.1	W
Power Consumption (LED board + shallow housing) – 830	26	62.8	W
Power Consumption (LED board + high housing) – 830	32	62.8	W
Power Consumption (LED board only) – 840, 850	19.3	61.8	W
Power Consumption (LED board + shallow housing) – 840, 850	23.6	62.4	W
Power Consumption (LED board + high housing) – 840, 850	28.7	62.4	W

Specifications stated at Tc-nom and I-nom.

Absolute Maximum Ratings

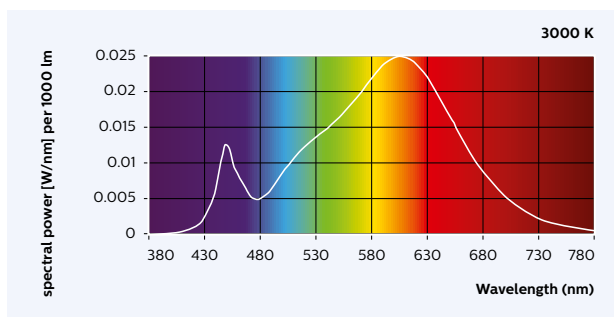| Parameter	Min	Typ	Max	Unit
Current through the LED module (I-max)			1500	mA
Case temperature (Tc-max)			85	°C
Human Body Model (HBM) Class 2A JS-001-2012			4	kV
Storage temperature	–40		100	°C

Optical characteristics – table per CCT

Fortimo LED DLM Flex 3000 lm 830 Gen2

Parameter	Min	Typ	Unit
Luminous Flux		3000	lm
Efficacy: LED board		142	lm/W
Efficacy: LED board + shallow housing		115	lm/W
Efficacy: LED board + high housing		94	lm/W
Correlated color temperature (CCT) range		3000	K
CRI	80		–
Energy efficiency label Fortimo LED DLM Flex 2000/830 GEN2		A++	
Energy efficiency label Fortimo LED DLM Flex 2000/830 GEN2 + Shallow Housing		A++	
Energy efficiency label Fortimo LED DLM Flex 2000/830 GEN2 + High Housing		A+	

Color consistency of 3 SDCM, averaged over the module.

Operation Point	830	lm	lm/W
80% I-nom	Tc 65 °C	2520	122
	Tc– nom 75 °C	2460	120
	Tc – max 85 °C	2410	118
I-nom	Tc 65 °C	3070	117
	Tc– nom 75 °C	3000	115
	Tc – max 85 °C	2930	113
I-max	Tc 65 °C	5890	91
	Tc– nom 75 °C	5750	89
	Tc – max 85 °C	5600	87

Tolerance for flux data is –10% – +20%.
Tolerance for Vf data is ±10%.
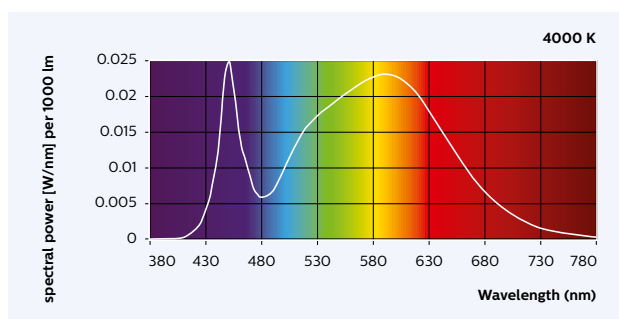Tolerance for efficacy data is dependent on the above mentioned tolerances.

Fortimo LED DLM Flex 3000 lm 840 Gen2

Parameter	Min	Typ	Unit
Luminous Flux		3000	lm
Efficacy: LED board		156	lm/W
Efficacy: LED board + shallow housing		127	lm/W
Efficacy: LED board + high housing		105	lm/W
Correlated color temperature (CCT) range		4000	K
CRI	80		–
Energy efficiency label Fortimo LED DLM Flex 3000/840 GEN2		A++	
Energy efficiency label Fortimo LED DLM Flex 3000/840 GEN2 + Shallow Housing		A++	
Energy efficiency label Fortimo LED DLM Flex 3000/840 GEN2 + High Housing		A+	

Color consistency of 3 SDCM, averaged over the module.

Operation Point	840	lm	lm/W
80% I-nom	Tc 65 °C	2510	133
	Tc– nom 75 °C	2450	131
	Tc – max 85 °C	2400	129
I-nom	Tc 65 °C	3070	128
	Tc– nom 75 °C	3000	126
	Tc – max 85 °C	2930	123
I-max	Tc 65 °C	6390	98
	Tc– nom 75 °C	6230	96
	Tc – max 85 °C	6080	94

Tolerance for flux data is –10% – +20%.
Tolerance for Vf data is ±10%.
Tolerance for efficacy data is dependent on the above mentioned tolerances.

Fortimo LED DLM Flex 3000 lm 850 Gen2

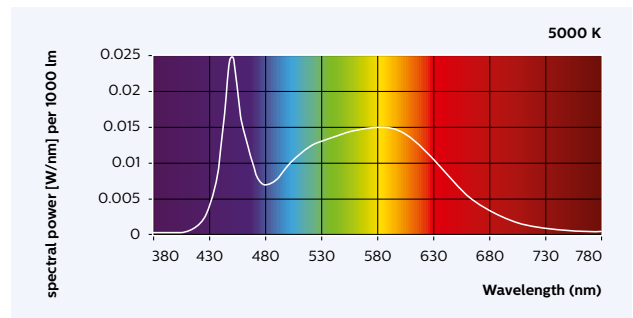| Parameter	Min	Typ	Unit
Luminous Flux		3000	lm
Efficacy: LED board		156	lm/W
Efficacy: LED board + shallow housing		127	lm/W
Efficacy: LED board + high housing		105	lm/W
Correlated color temperature (CCT) range		5000	K
CRI	80		–
Energy efficiency label Fortimo LED DLM Flex 3000/850 GEN2		A++	
Energy efficiency label Fortimo LED DLM Flex 3000/850 GEN2 + Shallow Housing		A++	
Energy efficiency label Fortimo LED DLM Flex 3000/850 GEN2 + High Housing		A+	

Color consistency of 3 SDCM, averaged over the module.

Operation Point	850	lm	lm/W
80% I–nom	Tc 65 °C	2510	133
	Tc– nom 75 °C	2450	131
	Tc – max 85 °C	2400	129
I–nom	Tc 65 °C	3070	128
	Tc– nom 75 °C	3000	126
	Tc – max 85 °C	2930	123
I–max	Tc 65 °C	6390	98
	Tc– nom 75 °C	6230	96
	Tc – max 85 °C	6080	94

5000 K

Tolerance for flux data is –10% – +20%.
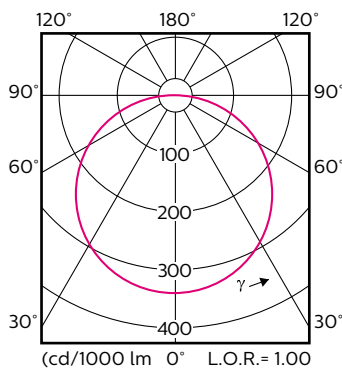Tolerance for Vf data is ±10%.
Tolerance for efficacy data is dependent on the above mentioned tolerances.
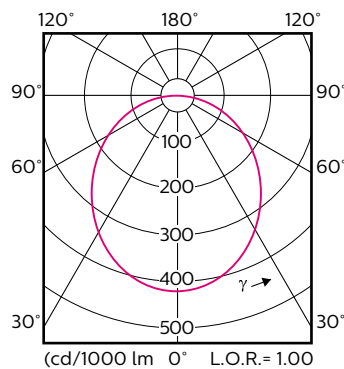
Beam shape

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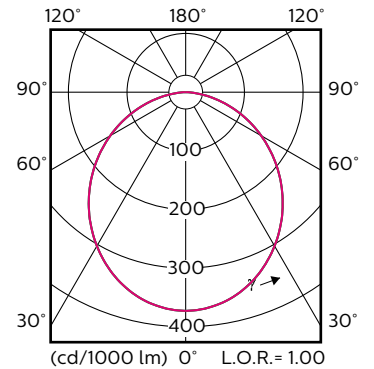
Polar intensity diagram

(cd/1000 lm   0°   L.O.R.= 1.00

Only LED board (L2)

Polar intensity diagram

(cd/1000 lm   0°   L.O.R.= 1.00

With Shallow Housing (L2+)

**Polar intensity diagram**


(cd/1000 lm)   0°   L.O.R.= 1.00

With High Housing (L2+)

Lifetime

| Operation Point	Lifetime x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% of Inom	Tc 55 °C	> 60	> 60	> 60	47	46	45	22	21	21
	Tc 65 °C	> 60	> 60	> 60	42	41	40	20	19	19
	Tc 75 °C	> 60	> 60	59	38	37	37	18	17	17
	Tc 85 °C	56	54	54	35	34	33	16	16	15
Inom	Tc 55 °C	> 60	> 60	> 60	45	44	43	21	20	20
	Tc 65 °C	> 60	> 60	> 60	41	40	39	19	18	18
	Tc 75 °C	> 60	58	57	37	36	35	17	17	16
	Tc 85 °C	54	53	52	34	33	32	16	15	15
Imax	Tc 55 °C	> 60	> 60	> 60	43	41	41	20	19	19
	Tc 65 °C	> 60	> 60	59	38	37	37	18	17	17
	Tc 75 °C	56	54	54	35	34	33	16	16	15
	Tc 85 °C	51	50	49	32	31	30	15	14	14

Mechanical characteristics
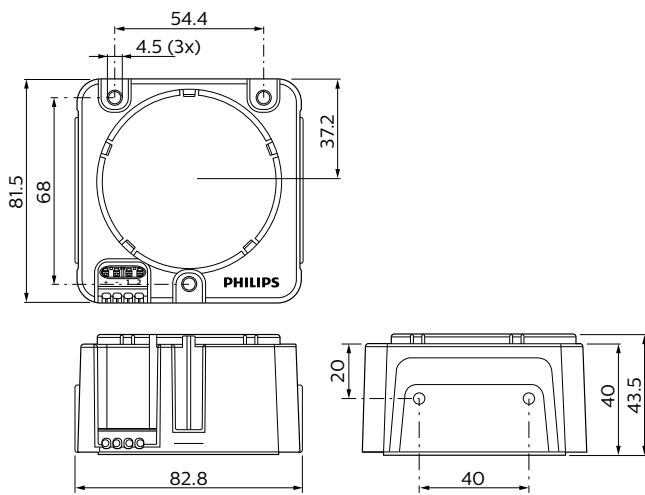
High housing
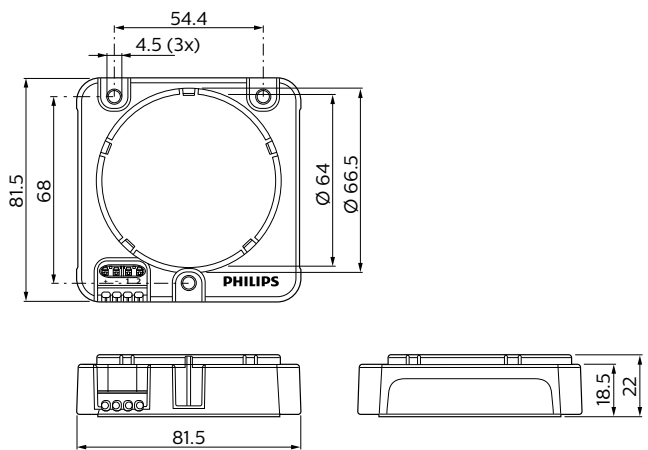
Shallow housing
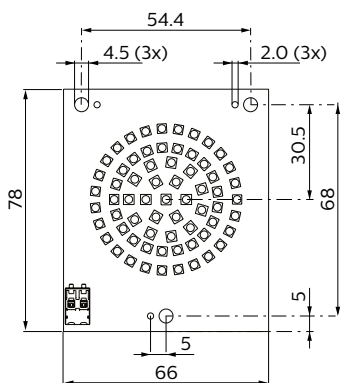
LED board

Dimensions in mm
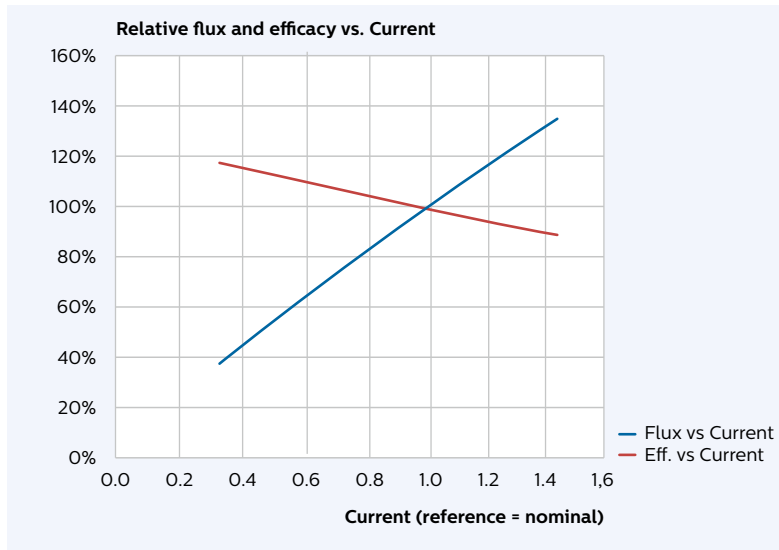
Application information

Compliance and approval

IEC/EN 62031, IEC 62471

Application information	
IP rating	No IP rating
Overheating protection	No protection

Tuning information

Flux and Efficacy vs Current (At Tc = 75 °C, for LED board + housing)

Relative flux and efficacy vs. Current

- Flux vs Current
- Eff. vs Current

Current (reference = nominal)

Flux and Efficacy vs Temperature (At I = I nom, for LED board + housing)

Relative flux and efficacy vs. Temperature

- Flux vs Tc
- Eff. vs Tc

Tc (°C)
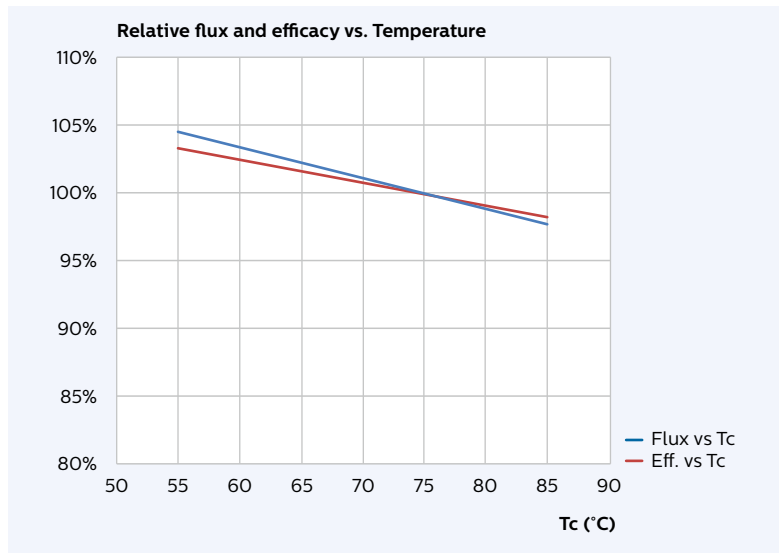
Lumen maintenance

Lumen maintenance at I-life and Tc-life conditions
Fortimo LED DLM Flex 3000 lm Gen2

Chart showing Lumen maintenance (%) vs Operating lifetime (hours). Curves labeled B50 and B10. Annotation: "50,000 hours proven by certified laboratory"
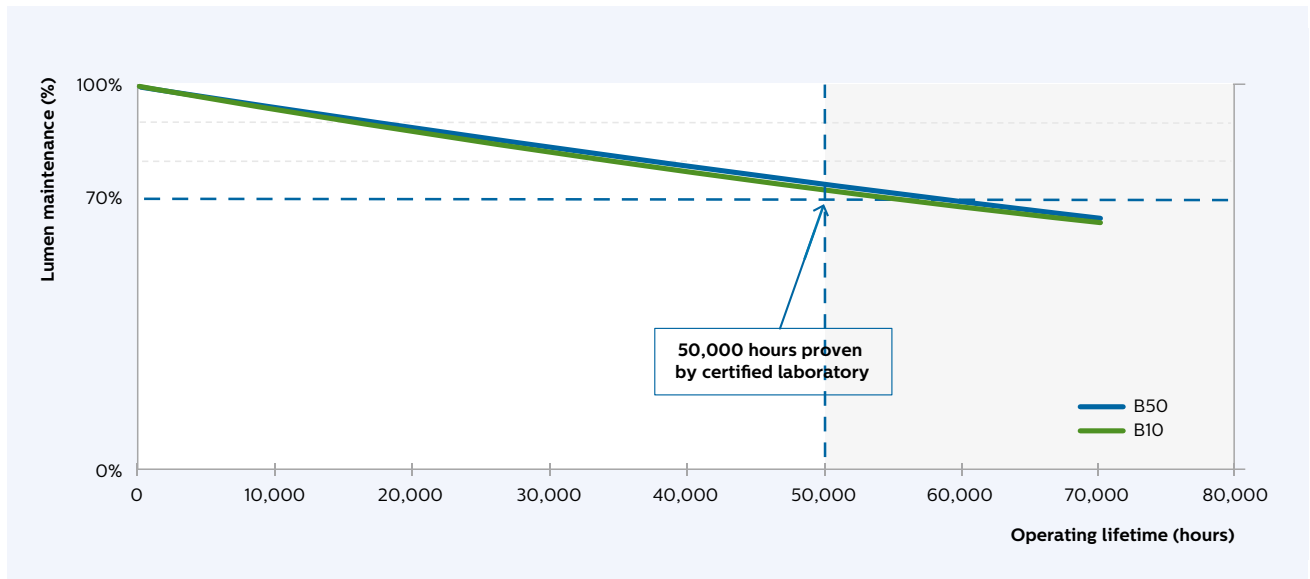
Lumen maintenance for B50 at current I-life conditions
Fortimo LED DLM Flex 3000 lm Gen2

Chart showing Lumen maintenance (%) vs Operating lifetime (hours). Curves labeled 65 °C, 75 °C, 85 °C. Annotation: "50,000 hours proven by certified laboratory"

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