PHILIPS

Fortimo

LED

Fortimo SLM VO 1206
LES15 G1

Datasheet

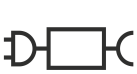
Fortimo SLM VO 1206 LES15 G1

The Fortimo SLM VO gen1 is a range of LED modules which aims at making a good performance accessible in downlights and spot lights without sacrificing lifetime. It offers a good Lm/W performance and there's a wide choice of CCT's available in CRI80 or CRI90. Due to it's dimensions, the Fortimo SLM VO gen1 can easily be used with a wide range of holders and reflectors which are available in the market.

Key features and benefits

- Extensive range of CCT's in CRI >80 and CRI >90
- Multiple lumen packages
- Typical 148 Lm/W (3000K CRI>80, at Tc 85°C)
- Lifetime: >50,000 hours
- System proposition: COB + holder + driver
- Five years system warranty when combined with Xitanium drivers

December 2019



Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo SLM VO 827 1206 LES15 G1	8718699 725259 00	9290 021 34006	225
Fortimo SLM VO 830 1206 LES15 G1	8718699 725273 00	9290 021 34106	225
Fortimo SLM VO 835 1206 LES15 G1	8718699 725297 00	9290 021 34206	225
Fortimo SLM VO 840 1206 LES15 G1	8718699 725310 00	9290 021 34306	225
Fortimo SLM VO 850 1206 LES15 G1	8718699 725334 00	9290 021 34406	225
Fortimo SLM VO 927 1206 LES15 G1	8718699 725372 00	9290 021 34506	225
Fortimo SLM VO 930 1206 LES15 G1	8718699 725396 00	9290 021 34606	225
Fortimo SLM VO 935 1206 LES15 G1	8718699 725419 00	9290 021 34706	225
Fortimo SLM VO 940 1206 LES15 G1	8718699 725433 00	9290 021 34806	225

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo SLM VO 1206 LES15 G1	490	see performance window	1200	mA

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T_c (case temperature at T_c point)	85	see performance window	95	°C

* Nominal value at which typical performance is specified

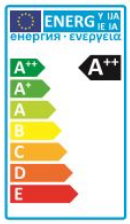
** Value at which life time is specified

*** Maximum value for safe operation, do not operate above this value

Optical characteristics - table per color (CCT)

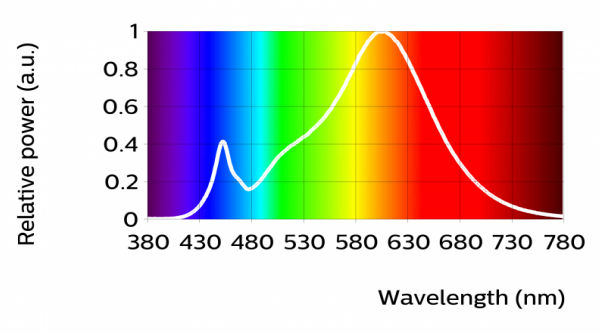
Fortimo SLM VO 827 1206 LES15 G1

Parameter	Min	Typ	Max	Unit
Luminous flux	2211	2377	2615	lm
Module efficacy	131	141		lm/W
Correlated color temperature (CCT)		2700		K
Color coordinates (CIEx, CIEy)		(0.458, 0.410)		-
Color consistency			3	SDCM
CRI	80	82		
Photometric code		827/359		
Photobiological safety			RG1 unlimited	



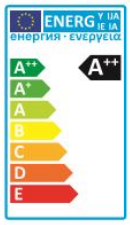
Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

Operation point	827	lm	lm/W
50% I-nom 245mA	Tc 25 °C	1378	169
	Tc-nom 85 °C	1270	159
	Tc-max 95 °C	1248	157
I-nom 490mA	Tc 25 °C	2630	153
	Tc-nom 85 °C	2377	141
	Tc-max 95 °C	2325	139
I-max 1200mA	Tc 25 °C	5578	117
	Tc-nom 85 °C	4885	105
	Tc-max 95 °C	4742	102



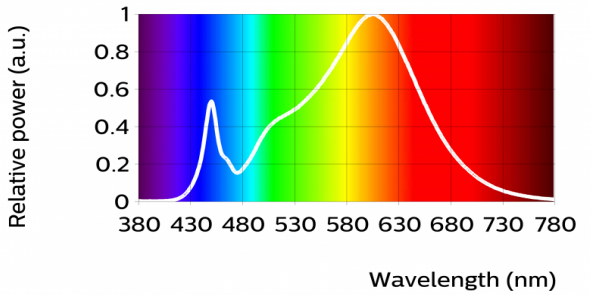
Fortimo SLM VO 830 1206 LES15 G1

Parameter	Min	Typ	Max	Unit
Luminous flux	2316	2491	2740	lm
Module efficacy	138	148		lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.434, 0.403)		-
Color consistency			3	SDCM
CRI	80	82		
Photometric code		830/359		
Photobiological safety			RG1 unlimited	



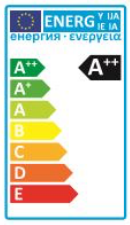
Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

Operation point	830	lm	lm/W
50% I-nom 245mA	Tc 25 °C	1443	177
	Tc-nom 85 °C	1331	167
	Tc-max 95 °C	1308	165
I-nom 490mA	Tc 25 °C	2756	161
	Tc-nom 85 °C	2491	148
	Tc-max 95 °C	2436	145
I-max 1200mA	Tc 25 °C	5847	123
	Tc-nom 85 °C	5123	110
	Tc-max 95 °C	4973	107



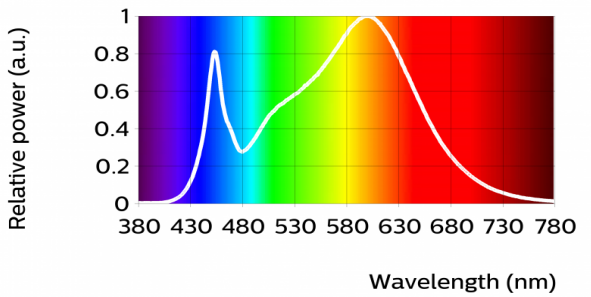
Fortimo SLM VO 835 1206 LES15 G1

Parameter	Min	Typ	Max	Unit
Luminous flux	2376	2555	2810	lm
Module efficacy	141	152		lm/W
Correlated color temperature (CCT)		3500		K
Color coordinates (CIEx, CIEy)		(0.408, 0.393)		-
Color consistency			3	SDCM
CRI	80	82		
Photometric code		835/359		
Photobiological safety			RG1 unlimited	



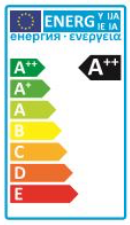
Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

Operation point	835	lm	lm/W
50% I-nom 245mA	Tc 25 °C	1480	182
	Tc-nom 85 °C	1365	171
	Tc-max 95 °C	1341	169
I-nom 490mA	Tc 25 °C	2826	165
	Tc-nom 85 °C	2555	152
	Tc-max 95 °C	2499	149
I-max 1200mA	Tc 25 °C	6000	126
	Tc-nom 85 °C	5259	112
	Tc-max 95 °C	5105	110



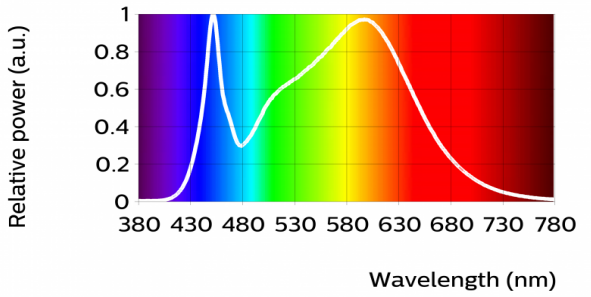
Fortimo SLM VO 840 1206 LES15 G1

Parameter	Min	Typ	Max	Unit
Luminous flux	2436	2619	2881	lm
Module efficacy	145	156		lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.382, 0.380)		-
Color consistency			3	SDCM
CRI	80	82		
Photometric code		840/359		
Photobiological safety			RG1 unlimited	



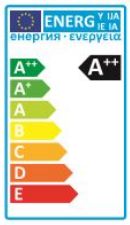
Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

Operation point	840	lm	lm/W
50% I-nom 245mA	Tc 25 °C	1516	186
	Tc-nom 85 °C	1398	176
	Tc-max 95 °C	1374	173
I-nom 490mA	Tc 25 °C	2897	169
	Tc-nom 85 °C	2619	156
	Tc-max 95 °C	2562	153
I-max 1200mA	Tc 25 °C	6153	129
	Tc-nom 85 °C	5395	115
	Tc-max 95 °C	5238	112



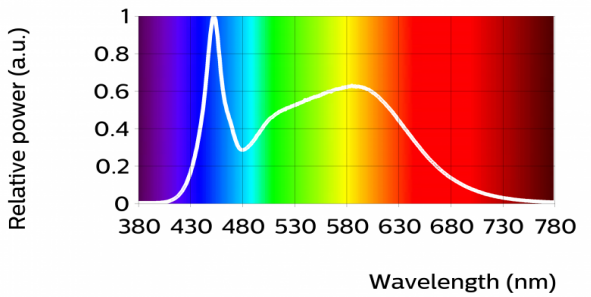
Fortimo SLM VO 850 1206 LES15 G1

Parameter	Min	Typ	Max	Unit
Luminous flux	2445	2629	2892	lm
Module efficacy	145	156		lm/W
Correlated color temperature (CCT)		5000		K
Color coordinates (CIEx, CIEy)		(0.345, 0.355)		-
Color consistency			3	SDCM
CRI	80	82		
Photometric code		850/359		
Photobiological safety			RG1 unlimited	



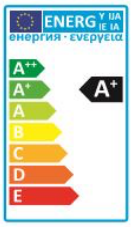
Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

Operation point	850	lm	lm/W
50% I-nom 245mA	Tc 25 °C	1522	187
	Tc-nom 85 °C	1404	176
	Tc-max 95 °C	1379	174
I-nom 490mA	Tc 25 °C	2908	169
	Tc-nom 85 °C	2629	156
	Tc-max 95 °C	2572	153
I-max 1200mA	Tc 25 °C	6179	130
	Tc-nom 85 °C	5420	116
	Tc-max 95 °C	5263	113



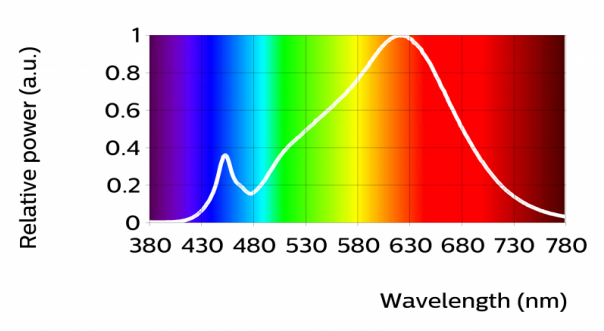
Fortimo SLM VO 927 1206 LES15 G1

Parameter	Min	Typ	Max	Unit
Luminous flux	1887	2029	2232	lm
Module efficacy	112	121		lm/W
Correlated color temperature (CCT)		2700		K
Color coordinates (CIEx, CIEy)		(0.458, 0.410)		-
Color consistency			3	SDCM
CRI	90	92		
R9	50			
Photometric code		927/359		
Photobiological safety			RG1 unlimited	



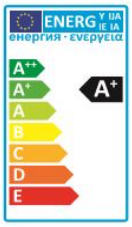
Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

Operation point	927	lm	lm/W
50% I-nom 245mA	Tc 25 °C	1176	145
	Tc-nom 85 °C	1085	136
	Tc-max 95 °C	1066	134
I-nom 490mA	Tc 25 °C	2246	131
	Tc-nom 85 °C	2029	121
	Tc-max 95 °C	1984	118
I-max 1200mA	Tc 25 °C	4758	100
	Tc-nom 85 °C	4164	89
	Tc-max 95 °C	4041	87



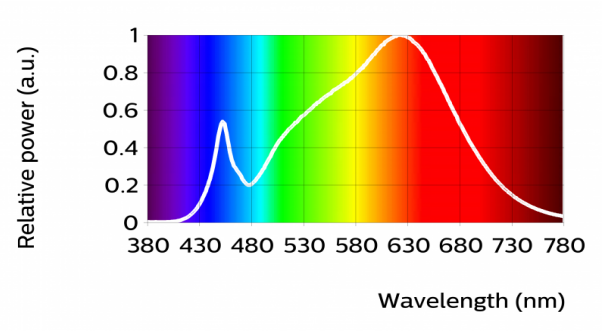
Fortimo SLM VO 930 1206 LES15 G1

Parameter	Min	Typ	Max	Unit
Luminous flux	1980	2129	2342	lm
Module efficacy	118	126		lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.434, 0.403)		-
Color consistency			3	SDCM
CRI	90	92		
R9	50			
Photometric code		930/359		
Photobiological safety			RG1 unlimited	



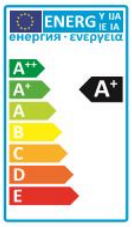
Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

Operation point	930	lm	lm/W
50% I-nom 245mA	Tc 25 °C	1234	152
	Tc-nom 85 °C	1138	143
	Tc-max 95 °C	1118	141
I-nom 490mA	Tc 25 °C	2356	137
	Tc-nom 85 °C	2129	126
	Tc-max 95 °C	2083	124
I-max 1200mA	Tc 25 °C	4998	105
	Tc-nom 85 °C	4377	94
	Tc-max 95 °C	4249	91



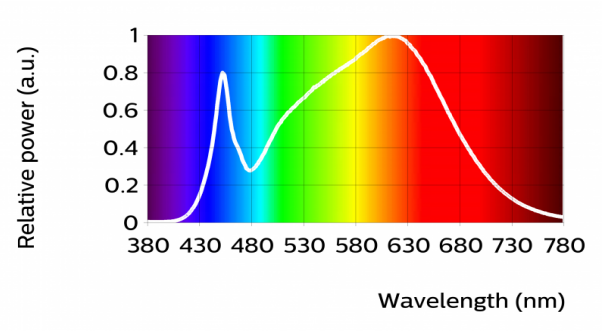
Fortimo SLM VO 935 1206 LES15 G1

Parameter	Min	Typ	Max	Unit
Luminous flux	2047	2201	2421	lm
Module efficacy	122	131		lm/W
Correlated color temperature (CCT)		3500		K
Color coordinates (CIEx, CIEy)		(0.408, 0.393)		-
Color consistency			3	SDCM
CRI	90	92		
R9	50			
Photometric code		935/359		
Photobiological safety			RG1 unlimited	



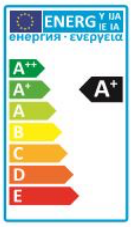
Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

Operation point	935	lm	lm/W
50% I-nom 245mA	Tc 25 °C	1276	157
	Tc-nom 85 °C	1176	148
	Tc-max 95 °C	1156	146
I-nom 490mA	Tc 25 °C	2436	142
	Tc-nom 85 °C	2201	131
	Tc-max 95 °C	2153	128
I-max 1200mA	Tc 25 °C	5166	109
	Tc-nom 85 °C	4524	97
	Tc-max 95 °C	4392	94



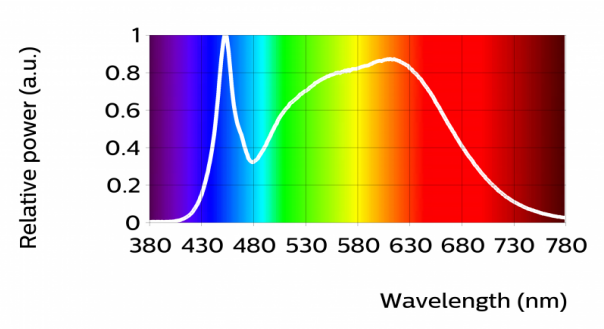
Fortimo SLM VO 940 1206 LES15 G1

Parameter	Min	Typ	Max	Unit
Luminous flux	2107	2265	2492	lm
Module efficacy	125	135		lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.382, 0.380)		-
Color consistency			3	SDCM
CRI	90	92		
R9	50			
Photometric code		940/359		
Photobiological safety			RG1 unlimited	



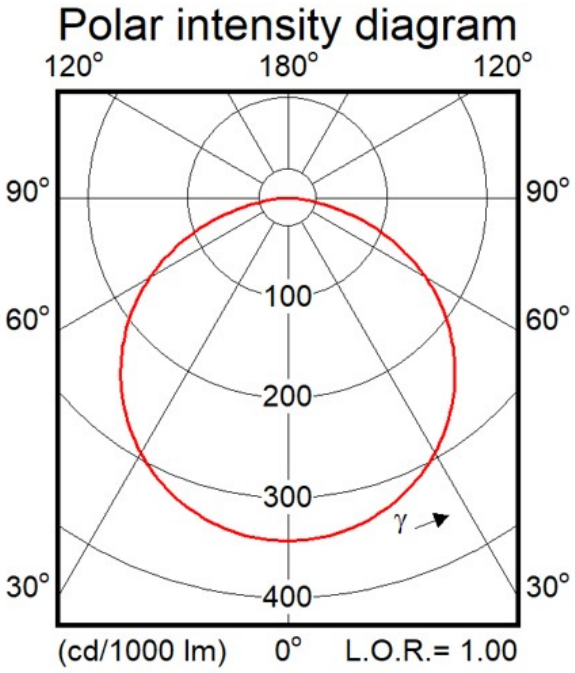
Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

Operation point	940	lm	lm/W
50% I-nom 245mA	Tc 25 °C	1313	161
	Tc-nom 85 °C	1210	152
	Tc-max 95 °C	1189	150
I-nom 490mA	Tc 25 °C	2507	146
	Tc-nom 85 °C	2265	135
	Tc-max 95 °C	2216	132
I-max 1200mA	Tc 25 °C	5318	112
	Tc-nom 85 °C	4660	100
	Tc-max 95 °C	4523	97



Beam shape

Bare CoB



Electrical characteristics

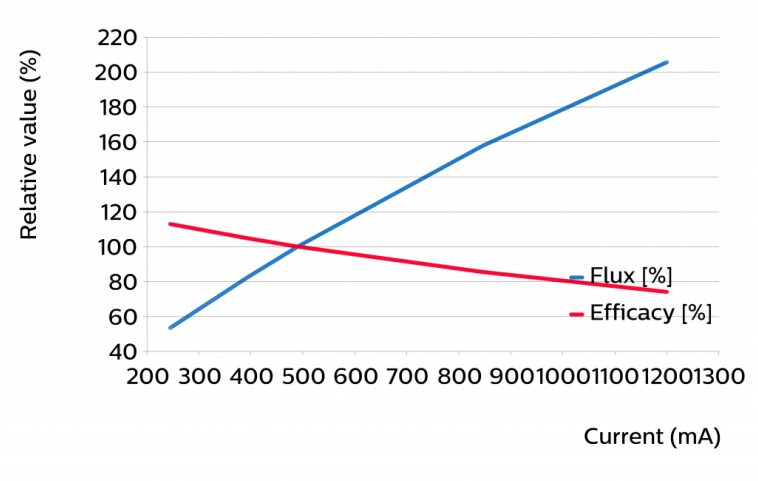
Parameter	Min	Typ	Max	Unit
Forward voltage	30.6	34.4	36.5	V
Power consumption	15.0	16.8	17.9	W = kWh/1000h

Measurement precision for Vf +/- 3%. Measurement precision for power +/- 3.3%

Tuning information

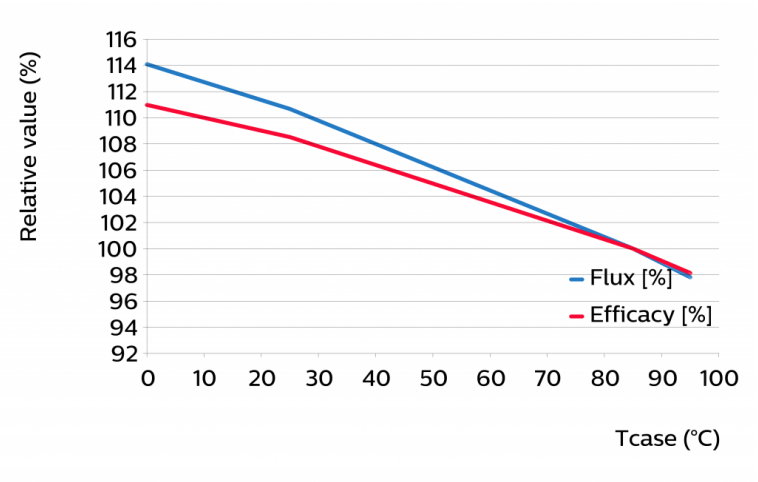
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
1200	206	74
845	158	86
490	100	100
392	82	105
245	53	113



Flux and efficacy versus temperature at Tc (at I nominal)

Tc [°C]	Flux [%]	Efficacy [%]
95	98	98
85	100	100
25	111	109
0	114	111



Lumen maintenance

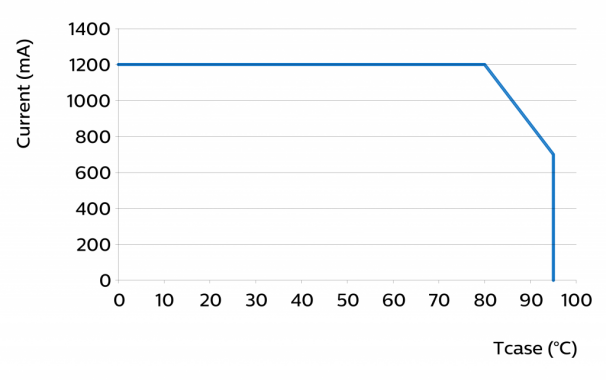
Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80%I-nom 392mA	Tc 65°C	>50	>50	>50	>50	>50	>50	>50	42	34
	Tc-nom 85°C	>50	>50	>50	>50	39	31	28	18	15
	Tc-max 95°C	>50	43	34	41	27	22	19	13	10
I-nom 490 mA	Tc 65°C	>50	>50	>50	>50	>50	>50	>50	38	31
	Tc-nom 85°C	>50	>50	46	>50	36	29	26	17	14
	Tc-max 95°C	>50	40	32	38	25	20	18	12	9
I-max 1200 mA	Tc 65°C	>50	>50	46	>50	36	29	26	17	13
	Tc-nom 85°C	41	27	22	26	17	14	12	8	6
	Tc-max 95°C	29	19	16	18	12	10	9	6	5

Lifetime

Parameter	Value	Unit
M70F50 nominal	>50000	hours

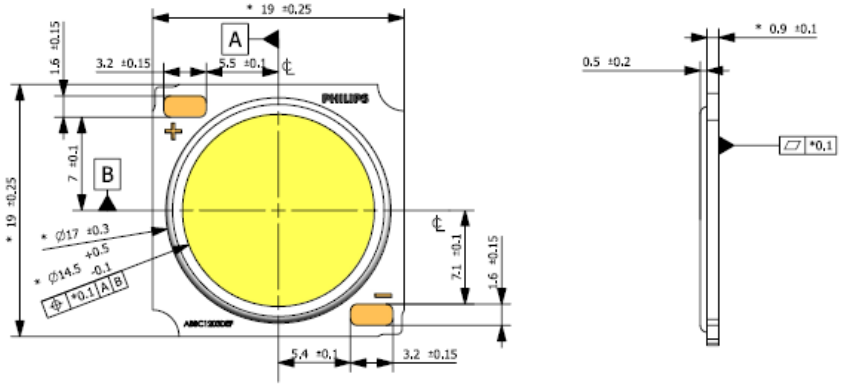
Switching cycles in accordance to EU 1194/2012: >15000

Performance Window



Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	18.75	19	19.25	mm
Width	18.75	19	19.25	mm
Height PCB	0.8	0.9	1	mm
Product mass		0.93		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		1200	mA
Case temperature (Tc-max)		95	°C
ESD (direct contact)		2	kV
Working voltage		60	V_{dc}
Ambient temperature	-20	40	°C
Storage temperature	-40	80	°C

Application information

Certificates and Standards
CE
ENEC
ENEC+
IEC 62031
IEC TR 62778
UL
UL 8750

Application	
IP rating	No IP-rating
Overheating protection	No
Luminaire class	IEC Class I and Class II
Dimming	Yes

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