

PHILIPS

Fortimo

LED

Fortimo SLM 1204
L09 1619 G7+



Datasheet

Experience bright and vivid colors

Fortimo SLM 1204 L09 1619 G7+

Fortimo LED SLM Gen 7+ continues to focus on the combination of Quality of Light and performance. Fortimo SLM Gen 7+ range further enhance the efficacy performance Vs Gen 7 with dedicated design. With this upgrade, we try to offer a more reliable solution to help our OEM customer to achieve compact luminaire design or narrow beam angle design. Please also check the online Easy Design-in Tool for your perfect system combination (www.easydesignintool.com)

Key features and benefits

- Best quality of light available for all application
- Extensive ranges of CCTs
- Small LES for narrow beam angels and small reflector designs
- State of the art Chip-on-Board (CoB) technology, enable highest system efficacy
- System proposition (Module + Driver + Holder)
- Flexibility to optimize luminaire performance (high efficacy or high lm output)
- 50,000 hours lifetime
- Instant full light

August 2020



indirect



instant

Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo SLM C 827 1204 L09 1619 G7+	8718699 766214 00	9290 021 95806	100
Fortimo SLM C 830 1204 L09 1619 G7+	8718699 766238 00	9290 021 95906	100
Fortimo SLM C 835 1204 L09 1619 G7+	8718699 766252 00	9290 021 96006	100
Fortimo SLM C 840 1204 L09 1619 G7+	8718699 766276 00	9290 021 96106	100
Fortimo SLM C 850 1204 L09 1619 G7+	8718699 766290 00	9290 021 96206	100
Fortimo SLM C 857 1204 L09 1619 G7+	8718699 766313 00	9290 021 96306	100
Fortimo SLM C 927 1204 L09 1619 G7+	8718699 766337 00	9290 021 96406	100
Fortimo SLM C 930 1204 L09 1619 G7+	8718699 766351 00	9290 021 96506	100

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo SLM 1204 L09 1619 G7+	400	see performance window	960	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)

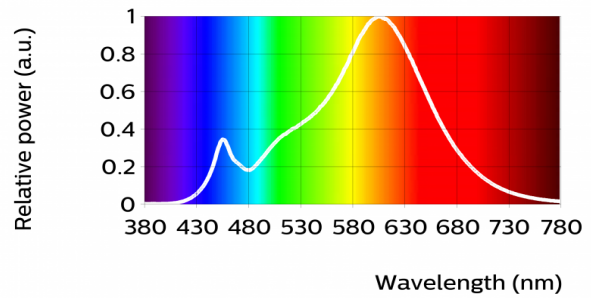
Fortimo SLM C 827 1204 L09 1619 G7+

Parameter	Min	Typ	Max	Unit
Luminous flux	1667	1793	1972	lm
Module efficacy		131		lm/W
Correlated color temperature (CCT)		2700		K
Color coordinates (CIEx, CIEy)		(0.458, 0.410)		-
Color consistency			3	SDCM
CRI	81	83		
Photometric code		827/359		
Photobiological safety			RG1 unlimited	



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

Operation point	827	lm	lm/W
80% I-nom 320mA	Tc 25 °C	1619	147
	Tc-nom 85 °C	1480	138
	Tc-max 95 °C	1460	137
I-nom 400mA	Tc 25 °C	1980	142
	Tc-nom 85 °C	1793	131
	Tc-max 95 °C	1767	130
I-max 960mA	Tc 25 °C	4071	110
	Tc-nom 85 °C	3636	100
	Tc-max 95 °C	3577	99



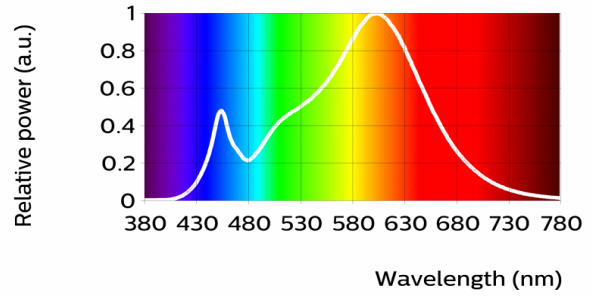
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
82	93	94	81	83	94	81	57	7	85	81	79	85	97	73

Parameter	Min	Typ	Max	Unit
Luminous flux	1746	1878	2065	lm
Module efficacy		138		lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.434, 0.403)		-
Color consistency			3	SDCM
CRI	81	83		
Photometric code		830/359		
Photobiological safety			RG1 unlimited	



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

Operation point	830	lm	lm/W
80% I-nom 320mA	Tc 25 °C	1696	154
	Tc-nom 85 °C	1550	144
	Tc-max 95 °C	1530	143
I-nom 400mA	Tc 25 °C	2075	149
	Tc-nom 85 °C	1878	138
	Tc-max 95 °C	1851	136
I-max 960mA	Tc 25 °C	4268	115
	Tc-nom 85 °C	3810	105
	Tc-max 95 °C	3748	103



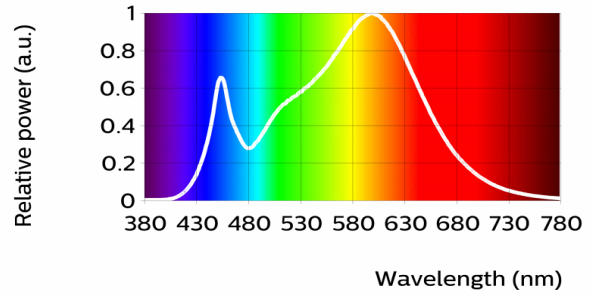
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
82	92	95	81	83	91	82	59	7	83	81	76	86	98	74

Parameter	Min	Typ	Max	Unit
Luminous flux	1792	1927	2120	lm
Module efficacy		141		lm/W
Correlated color temperature (CCT)		3500		K
Color coordinates (CIEx, CIEy)		(0.407, 0.392)		-
Color consistency			3	SDCM
CRI	81	83		
Photometric code		835/359		
Photobiological safety			RG1 unlimited	



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

Operation point	835	lm	lm/W
80% I-nom 320mA	Tc 25 °C	1740	158
	Tc-nom 85 °C	1590	148
	Tc-max 95 °C	1569	147
I-nom 400mA	Tc 25 °C	2129	153
	Tc-nom 85 °C	1927	141
	Tc-max 95 °C	1899	140
I-max 960mA	Tc 25 °C	4385	118
	Tc-nom 85 °C	3913	108
	Tc-max 95 °C	3849	106



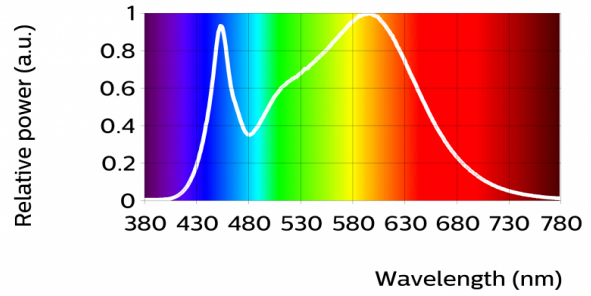
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81	91	96	81	82	89	84	60	5	80	80	71	84	98	74

Parameter	Min	Typ	Max	Unit
Luminous flux	1834	1972	2169	lm
Module efficacy		145		lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.382, 0.380)		-
Color consistency			3	SDCM
CRI	81	83		
Photometric code		840/359		
Photobiological safety			RG2	
Ethr			886	lux



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

Operation point	840	lm	lm/W
80% I-nom 320mA	Tc 25 °C	1781	162
	Tc-nom 85 °C	1627	152
	Tc-max 95 °C	1606	150
I-nom 400mA	Tc 25 °C	2179	156
	Tc-nom 85 °C	1972	145
	Tc-max 95 °C	1944	143
I-max 960mA	Tc 25 °C	4488	121
	Tc-nom 85 °C	4005	110
	Tc-max 95 °C	3939	109



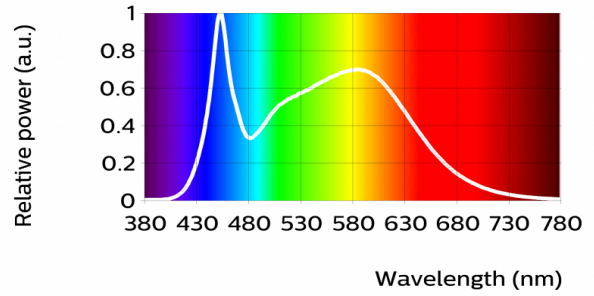
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
82	90	95	82	83	88	86	64	9	79	81	67	85	98	75

Parameter	Min	Typ	Max	Unit
Luminous flux	1844	1982	2181	lm
Module efficacy		145		lm/W
Correlated color temperature (CCT)		5000		K
Color coordinates (CIEx, CIEy)		(0.345, 0.355)		-
Color consistency			3	SDCM
CRI	81	83		
Photometric code		850/359		
Photobiological safety			RG2	
Ethr			656	lux



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

Operation point	850	lm	lm/W
80% I-nom 320mA	Tc 25 °C	1791	163
	Tc-nom 85 °C	1635	152
	Tc-max 95 °C	1614	151
I-nom 400mA	Tc 25 °C	2191	157
	Tc-nom 85 °C	1982	145
	Tc-max 95 °C	1954	144
I-max 960mA	Tc 25 °C	4517	122
	Tc-nom 85 °C	4029	111
	Tc-max 95 °C	3962	109



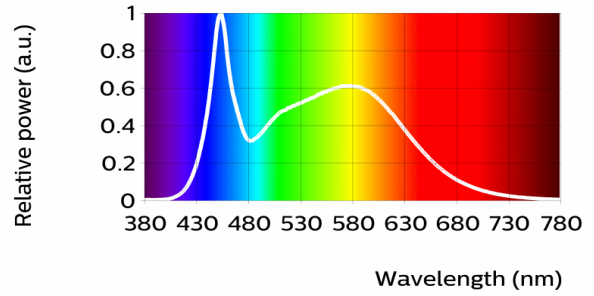
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
82	90	95	83	83	86	86	64	7	77	82	67	84	98	76

Parameter	Min	Typ	Max	Unit
Luminous flux	1852	1992	2191	lm
Module efficacy		146		lm/W
Correlated color temperature (CCT)		5700		K
Color coordinates (CIEx, CIEy)		(0.329, 0.342)		-
Color consistency			3	SDCM
CRI	81	83		
Photometric code		857/359		
Photobiological safety			RG2	
Ethr			577	lux



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

Operation point	857	lm	lm/W
80% I-nom 320mA	Tc 25 °C	1799	164
	Tc-nom 85 °C	1643	153
	Tc-max 95 °C	1622	152
I-nom 400mA	Tc 25 °C	2202	158
	Tc-nom 85 °C	1992	146
	Tc-max 95 °C	1963	144
I-max 960mA	Tc 25 °C	4540	122
	Tc-nom 85 °C	4048	111
	Tc-max 95 °C	3982	110



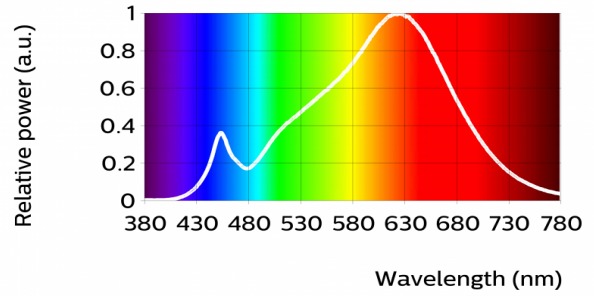
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81	90	94	81	82	85	86	66	2	75	80	64	83	97	75

Parameter	Min	Typ	Max	Unit
Luminous flux	1424	1531	1684	lm
Module efficacy		112		lm/W
Correlated color temperature (CCT)		2700		K
Color coordinates (CIEx, CIEy)		(0.458, 0.410)		-
Color consistency			3	SDCM
CRI	91	93		
R9	50			
Photometric code		927/359		
Photobiological safety			RG1 unlimited	



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

Operation point	927	lm	lm/W
80% I-nom 320mA	Tc 25 °C	1383	126
	Tc-nom 85 °C	1263	118
	Tc-max 95 °C	1247	117
I-nom 400mA	Tc 25 °C	1691	121
	Tc-nom 85 °C	1531	112
	Tc-max 95 °C	1509	111
I-max 960mA	Tc 25 °C	3474	94
	Tc-nom 85 °C	3103	85
	Tc-max 95 °C	3053	84



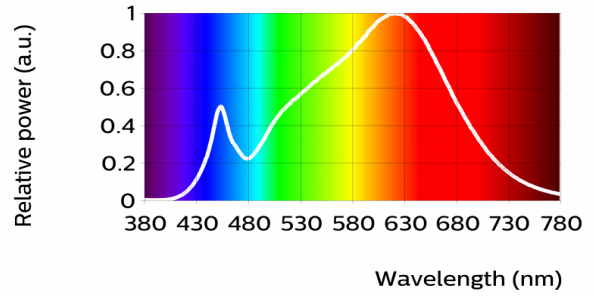
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
93	97	98	93	93	96	92	82	60	91	94	86	94	98	89

Parameter	Min	Typ	Max	Unit
Luminous flux	1494	1606	1767	lm
Module efficacy		118		lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.434, 0.403)		-
Color consistency			3	SDCM
CRI	91	93		
R9	50			
Photometric code		930/359		
Photobiological safety			RG1 unlimited	

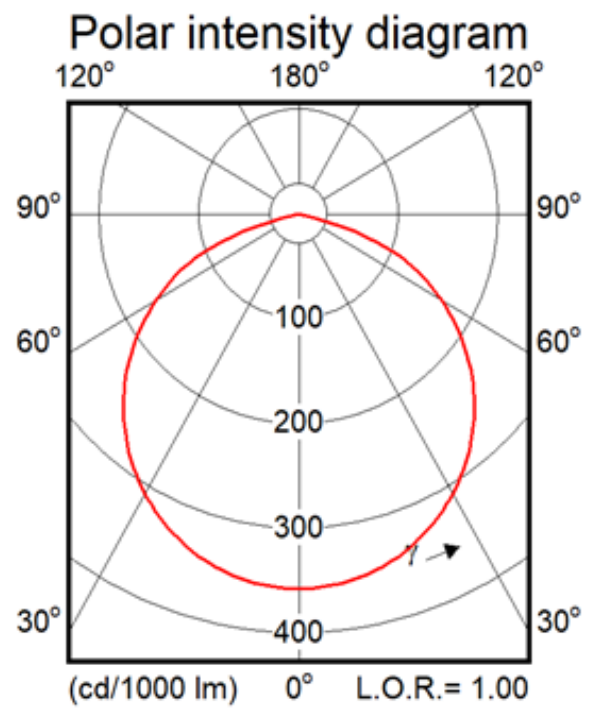


Measurement precision for flux +/- 5%. Measurement precision for x, y +/- 0.005. Measurement precision for CRI 1.5

Operation point	930	lm	lm/W
80% I-nom 320mA	Tc 25 °C	1451	132
	Tc-nom 85 °C	1326	124
	Tc-max 95 °C	1309	122
I-nom 400mA	Tc 25 °C	1775	127
	Tc-nom 85 °C	1606	118
	Tc-max 95 °C	1583	116
I-max 960mA	Tc 25 °C	3648	98
	Tc-nom 85 °C	3258	90
	Tc-max 95 °C	3205	88



R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
93	96	97	93	92	94	93	83	60	89	93	81	93	98	89



Electrical characteristics

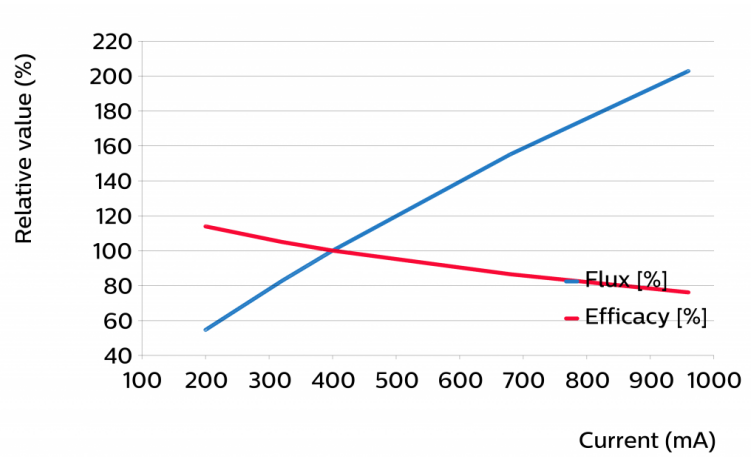
Parameter	Min	Typ	Max	Unit
Forward voltage	32.1	34.1	36.1	V
Power consumption	12.8	13.6	14.4	W = kWh/1000h
Number of modules in parallel			1	

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

Tuning information

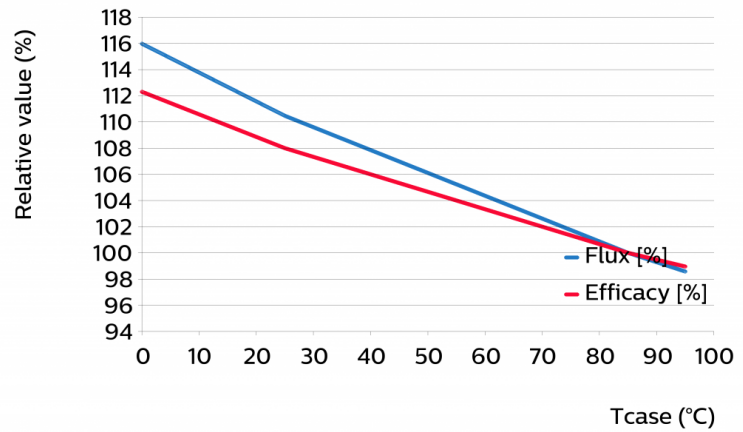
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
960	203	76
680	155	86
400	100	100
320	83	105
200	55	114



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

Tc [°C]	Flux [%]	Efficacy [%]
95	99	99
85	100	100
25	110	108
0	116	112



Lumen maintenance

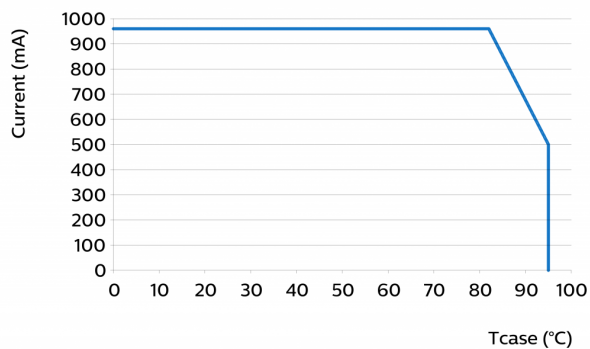
Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80%I nom 320 mA	Tc 75°C	>50	>50	>50	>50	>50	>50	46	30	24
	Tc nom 85°C	>50	>50	>50	>50	43	34	31	20	16
	Tc max 95°C	>50	47	38	45	30	24	21	14	11
I nom 400 mA	Tc 75°C	>50	>50	>50	>50	>50	45	40	26	21
	Tc nom 85°C	>50	>50	49	>50	38	30	27	18	14
	Tc max 95°C	>50	42	34	40	26	21	19	12	10
I max 960 mA	Tc 75°C	46	33	26	31	20	16	15	10	8
	Tc nom 85°C	35	23	19	22	15	12	10	7	6
	Tc max 95°C	26	17	14	16	11	8	8	5	4

Lifetime

Parameter	Value	Unit
C10 at Tc life	50000	hours
M70F50 nominal	>50000	hours
M70F50 life	>50000	hours

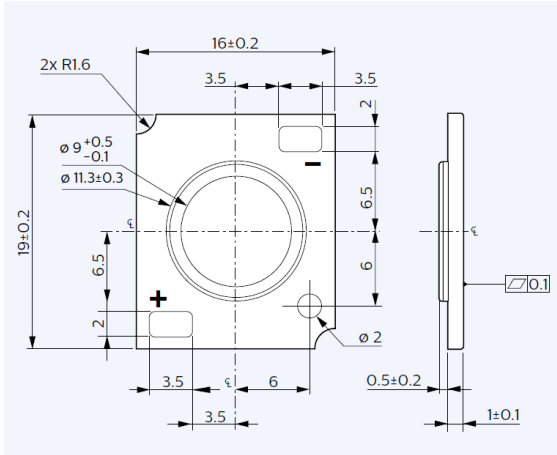
Switching cycles in accordance to EU 1194/2012: >15000

Performance Window



Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	18.8	19	19.2	mm
Width	15.8	16	16.2	mm
Height PCB	0.9	1	1.1	mm
Height including dam	1.2	1.5	1.8	mm
Product mass		0.78		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		960	mA
Case temperature (Tc-max)		95	°C
ESD (direct contact)		8	kV
Working voltage		180	V _{dc}
Ambient temperature	-20	40	°C
Storage temperature	-40	80	°C

Application information

Certificates and Standards

IEC 62031:2008/A1:2012/A2:2014

EN 62031:2008/A1:2013/A2:2015

Relevant clauses of IEC 62471:2006 (Incl. IEC/TR 62471-2: 2009 and IEC/TR 62778: 2014)

Relevant clauses of IEC 60838-1:2004/A1:2008/A2:2011 with IEC 60838-2-2:2006 /A1:2012

Relevant clauses of EN 62471:2008 (With IEC/TR 62471-2: 2009 and IEC/TR 62778: 2014)

Relevant clauses of EN 60838-1:2004/A1:2008/A2:2011 with EN 60838-2-2:2006/A1:2012

UL 8750

ENEC+

CE

Environmental

RoHS/REACH

Application

Dimming

Yes



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