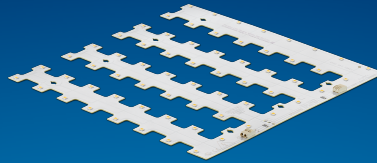


PHILIPS

Fortimo

LED

Fortimo LED Square
1250lm 9xx HV/LV3



Datasheet

Fortimo LED Square 1250lm 9xx HV/LV3

Fortimo LED Square systems consist of white light LED modules with square outer dimensions delivering high energy efficiency and high quality of light. Fortimo LED Square systems are ideal for office applications where the luminaires require a very homogeneous exit surface window. Typical applications are recessed, surface mounted and suspended office luminaires.

Key features and benefits

- LED module efficiency of 190 lm/W (nominal at 4000K, CRI80) or 180 lm/W in CRI90 (nominal at 4000K, CRI90)
- Long life-time: >50,000 hours
- High color rendering: choice between CRI >80 or CRI >90
- CRI90 products are based on our CRI90 High Efficiency technology
- Excellent color consistency of 3 SDCM
- Choice of color temperatures (3000 K, 4000 K and 6500 K)
- Two lumen packages: 1250lm and 2500lm
- FlexTune tunable white modules available in both lumen packages
- FlexTune tunable white modules can be tuned from 2700K to 6500K in CRI90
- FlexTune tunable white modules work perfectly together with the Xitanium FlexTune non-isolated drivers
- Tunable lumen output, efficacy and lifetime
- Wide temperature (Tc) range from -40 °C to +80 °C
- Push-in connectors enabling automated wiring
- Five year system warranty when paired with Xitanium drivers

February 2022



Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo LED Square 1250lm 930 HV/LV3	8719514 268470 00	9290 028 20206	20
Fortimo LED Square 1250lm 940 HV/LV3	8719514 268494 00	9290 028 20306	20
Fortimo LED Square 1250lm 965 HV/LV3	8719514 269651 00	9290 028 20406	20

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED Square 1250lm 9xx HV/LV3	160	400	400	mA

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T _c (case temperature at T _c point)	45	65	80	°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

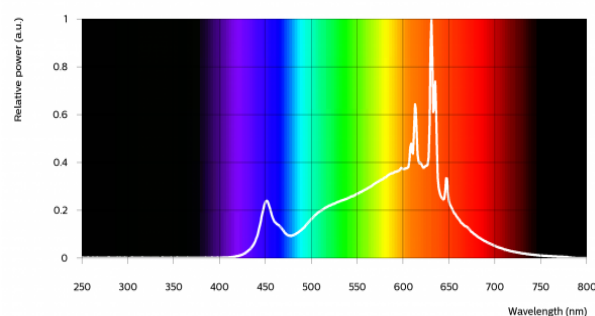
Optical characteristics - table per color (CCT)

Fortimo LED Square 1250lm 930 HV/LV3

Parameter	Min	Typ	Max	Unit
Luminous flux	1090	1180	1270	lm
Efficacy	153	168	186	lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.437, 0.399)		-
Color consistency			3	SDCM
CRI	90			
R9	50			
Photometric code		930/339		
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 128mA	Tc 25 °C	971	174
	Tc-nom 45 °C	949	171
	Tc-max 80 °C	898	164
I-nom 160mA	Tc 25 °C	1208	171
	Tc-nom 45 °C	1180	168
	Tc-max 80 °C	1117	161
I-max 400mA	Tc 25 °C	2866	152
	Tc-nom 45 °C	2799	150
	Tc-max 80 °C	2647	143



Fortimo LED Square 1250lm 940 HV/LV3

Parameter	Min	Typ	Max	Unit
Luminous flux	1124	1215	1306	lm
Efficacy	162	173	198	lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.388, 0.380)		-
Color consistency			3	SDCM
CRI	90			
R9	50			
Photometric code		940/339		
Photobiological safety			RG1 unlimited	

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

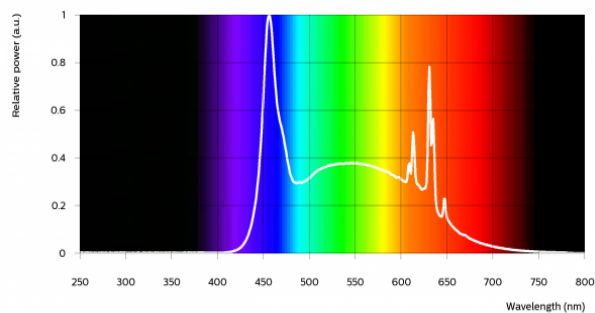
Operation point	940	lm	lm/W
80% I-nom 128mA	Tc 25 °C	1025	183
	Tc-nom 45 °C	996	179
	Tc-max 80 °C	936	171
I-nom 160mA	Tc 25 °C	1274	181
	Tc-nom 45 °C	1239	177
	Tc-max 80 °C	1164	168
I-max 400mA	Tc 25 °C	3031	162
	Tc-nom 45 °C	2946	158
	Tc-max 80 °C	2766	150

Fortimo LED Square 1250lm 965 HV/LV3

Parameter	Min	Typ	Max	Unit
Luminous flux	1147	1239	1333	lm
Efficacy	162	177	198	lm/W
Correlated color temperature (CCT)		6500		K
Color coordinates (CIEx, CIEy)		(0.313, 0.325)		-
Color consistency			3	SDCM
CRI	90			
R9	50			
Photometric code		965/339		
Photobiological safety			RG1 unlimited	

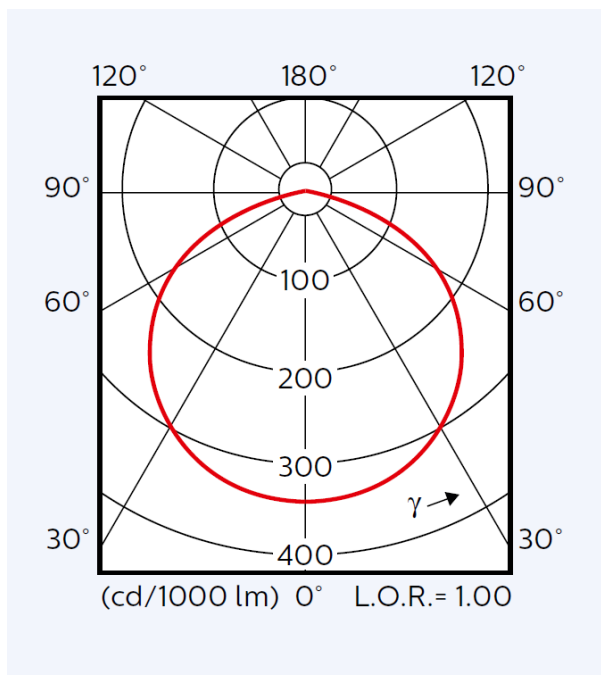
Measurement precision for flux +/- 5%. Measurement precision for x, y +/- 0.005. Measurement precision for CRI 1.5

Operation point	930	lm	lm/W
80% I-nom 128mA	Tc 25 °C	971	174
	Tc-nom 45 °C	949	171
	Tc-max 80 °C	898	164
I-nom 160mA	Tc 25 °C	1208	171
	Tc-nom 45 °C	1180	168
	Tc-max 80 °C	1117	161
I-max 400mA	Tc 25 °C	2866	152
	Tc-nom 45 °C	2799	150
	Tc-max 80 °C	2647	143



Beam shape

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



Electrical characteristics

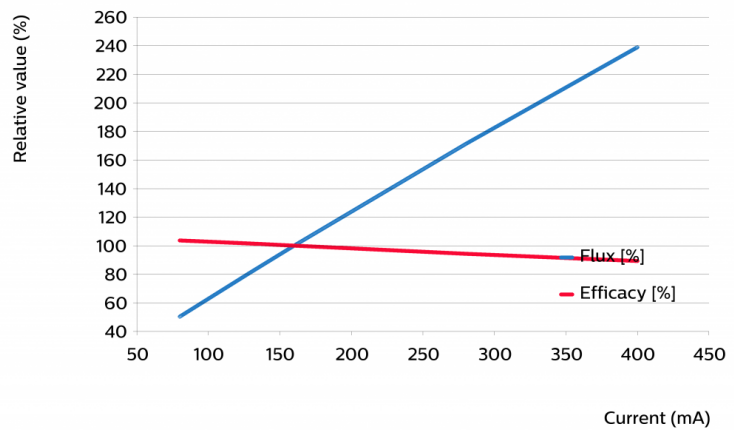
Parameter	Min	Typ	Max	Unit
Forward voltage	42.6	43.8	44.4	V
Power consumption	6.82	7.01	7.10	W = kWh/1000h
Number of modules in series per chain			7	
Number of modules in parallel			4	

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

Tuning information

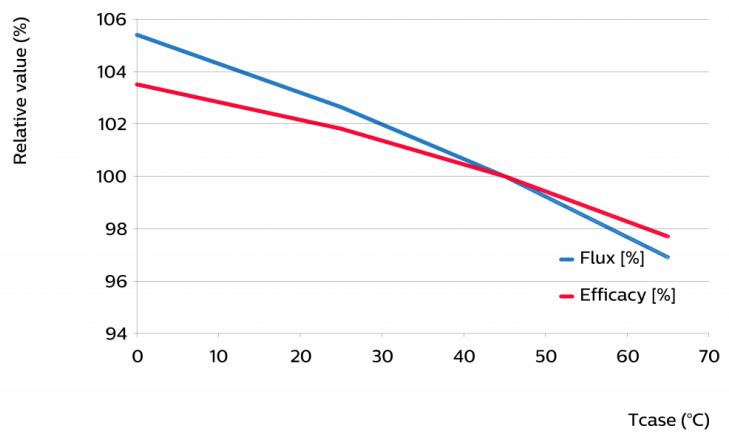
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
400	239	89
280	171	94
160	100	100
128	80	102
80	50	104



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

Tc [°C]	Flux [%]	Efficacy [%]
65	97	98
45	100	100
25	103	102
0	105	104



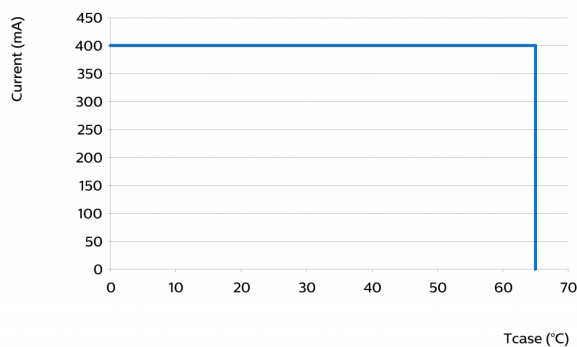
Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% I-nom 128 mA	Tc 25°C	>72	>72	>72	>72	>72	>72	66	64	63
	Tc-nom 45°C	>72	>72	>72	>72	>72	>72	52	50	50
	Tc life 65°C	>72	>72	>72	>72	>72	>72	42	40	40
I-nom 160 mA	Tc 25°C	>72	>72	>72	>72	>72	>72	66	64	63
	Tc-nom 45°C	>72	>72	>72	>72	>72	>72	52	50	50
	Tc life 65°C	>72	>72	>72	>72	>72	>72	42	40	40
L-life 400 mA	Tc 25°C	>72	>72	>72	>72	>72	>72	59	57	56
	Tc-nom 45°C	>72	>72	>72	>72	>72	>72	47	45	45
	Tc life 65°C	>72	>72	>72	>72	>72	>72	38	37	36

Lifetime

Parameter	Value	Unit
M70F50 nominal	>72000	hours
M70F50 life	>72000	hours

Performance Window

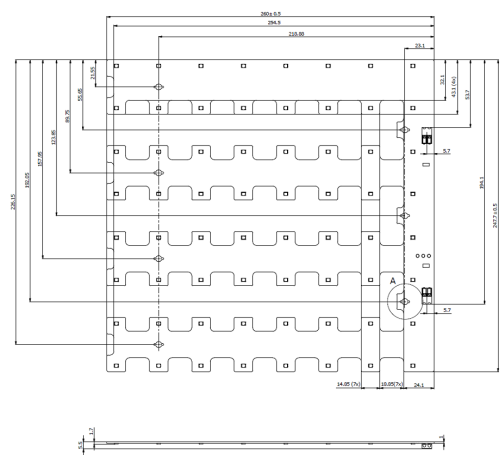


Wiring

Specification item	Value	Unit	Condition
Input wire cross-section	0.25...0.75	mm ²	solid wire
	18...24	AWG	solid wire
Input wire strip length	7.5...8.5	mm	
Input wire cross-section	0.33...0.5	mm ²	stranded wire
	20...22	AWG	stranded wire
Input wire strip length	7.5...8.5	mm	

Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	259.5	260	260.5	mm
Width	247.5	247.7	248.2	mm
Height PCB		1		mm
Height total	5.1	5.5	5.9	mm
Product mass		106		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		400	mA
Case temperature (Tc-max)		80	°C
ESD (direct contact)	8		kV
Working voltage		350	V _{dc}
Storage temperature	-40	80	°C

Application information

Certificates and Standards

CE
ENEC
ENEC+

Application

Dimming

Yes



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