PHILIPS

Fortimo

LED

Fortimo LED Strip 2ft 2200lm PW HV4

Datasheet

Fortimo LED Strip Gen4 PW

Fortimo LED Strip Premium White achieves high rendering of colors and beautifully whites without impacting energy efficacy. Since its spectrum is compatible with other Premium White solutions (RDL, SLM), it can be perfectly combined with other Premium White light sources. Easy integration in existing luminaires is guaranteed as critical design-in parameters are equal to the existing Fortimo LED Strip Family.

Key features and benefits

- State-of-the-art LED module efficacy
- Long life-time
- High color rendering (CRI >80 and >90)
- Excellent color consistency of 3 SDCM
- Choice of color temperatures (3000 K, 3500K, and 4000 K)
- Available in 1ft and 2ft length
- Small LED module width of only 20mm
- Tunable lumen output, efficacy and lifetime
- Wide temperature (Tc) range from -40 °C to +80 °C
- Push-in connectors enabling automated wiring

April 2019

indirect

100%
instant

Zhaga

Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo LED Strip 2ft 2200lm 840 PW HV4	8718699 644567 00	9290 014 81406	168
Fortimo LED Strip 2ft 2200lm 930 PW HV4	8718699 644581 00	9290 014 81506	168
Fortimo LED Strip 2ft 2200lm 935 PW HV4	8718699 644604 00	9290 014 81606	168
Fortimo LED Strip 2ft 2200lm 940 PW HV4	8718699 644628 00	9290 014 81706	168

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
I (Fortimo LED Strip 2ft 2200lm 840 PW HV4)	282	390	417	mA
I (Fortimo LED Strip 2ft 2200lm 930 PW HV4)	321	390	417	mA
I (Fortimo LED Strip 2ft 2200lm 935 PW HV4)	321	390	417	mA
I (Fortimo LED Strip 2ft 2200lm 940 PW HV4)	321	390	417	mA

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T_c (case temperature at T_c point)	45	70	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

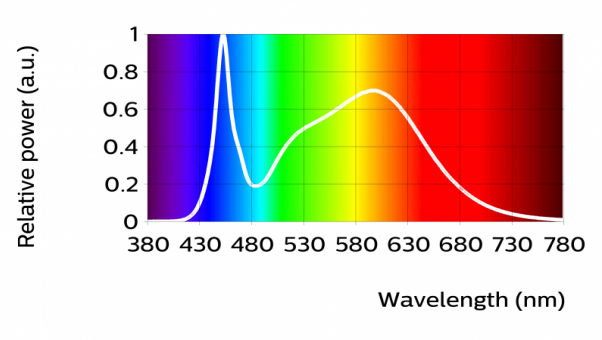
Optical characteristics - table per color (CCT)

Fortimo LED Strip 2ft 2200lm 840 PW HV4

Parameter	Min	Typ	Max	Unit
Luminous flux	2090	2200	2310	lm
Module efficacy	155	173		lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.374, 0.364)		-
Color consistency			3	SDCM
CRI	80			
R9	5			
Radiation angle		120		deg
Photobiological safety			RG1 unlimited	

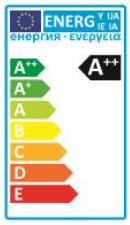
Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5

Operation point	840	lm	lm/W
80% I-nom 226mA	Tc 25 °C	1813	179
	Tc-nom 45 °C	1778	177
	Tc-max 80 °C	1694	171
I-nom 282mA	Tc 25 °C	2244	175
	Tc-nom 45 °C	2200	173
	Tc-max 80 °C	2096	166
I-life 390mA	Tc 25 °C	3050	167
	Tc-nom 45 °C	2989	164
	Tc-max 80 °C	2847	158



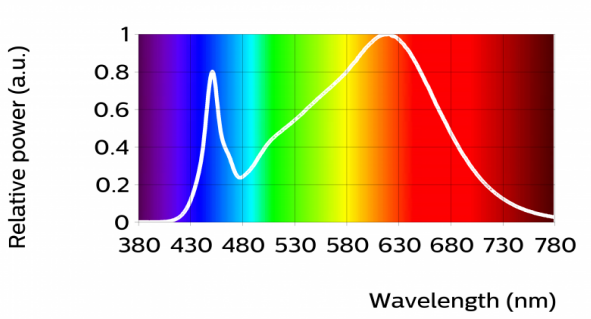
Fortimo LED Strip 2ft 2200lm 930 PW HV4

Parameter	Min	Typ	Max	Unit
Luminous flux	2019	2073	2232	lm
Module efficacy	127	141		lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.422, 0.386)		-
Color consistency			3	SDCM
CRI	90			
R9	50			
Radiation angle		120		deg
Photobiological safety			RG1 unlimited	



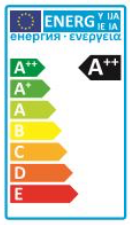
Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5

Operation point	930	lm	lm/W
80% I-nom 257mA	Tc 25 °C	1710	147
	Tc-nom 45 °C	1677	145
	Tc-max 80 °C	1598	140
I-nom 321mA	Tc 25 °C	2115	143
	Tc-nom 45 °C	2073	141
	Tc-max 80 °C	1975	136
I-life 390mA	Tc 25 °C	2542	139
	Tc-nom 45 °C	2491	137
	Tc-max 80 °C	2372	132



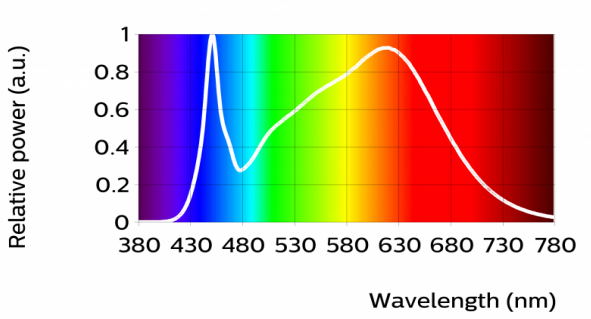
Fortimo LED Strip 2ft 2200lm 935 PW HV4

Parameter	Min	Typ	Max	Unit
Luminous flux	1970	2125	2177	lm
Module efficacy	130	145		lm/W
Correlated color temperature (CCT)		3500		K
Color coordinates (CIEx, CIEy)		(0.398, 0.376)		-
Color consistency			3	SDCM
CRI	90			
R9	50			
Radiation angle		120		deg
Photobiological safety			RG1 unlimited	



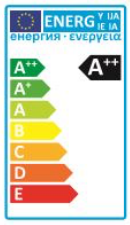
Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5

Operation point	935	lm	lm/W
80% I-nom 257mA	Tc 25 °C	1753	151
	Tc-nom 45 °C	1719	149
	Tc-max 80 °C	1638	144
I-nom 321mA	Tc 25 °C	2168	147
	Tc-nom 45 °C	2125	145
	Tc-max 80 °C	2025	139
I-life 390mA	Tc 25 °C	2606	142
	Tc-nom 45 °C	2554	140
	Tc-max 80 °C	2432	135



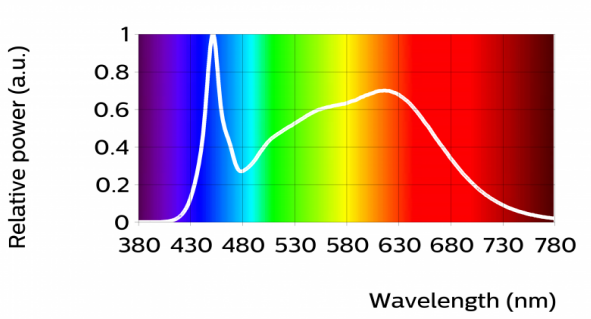
Fortimo LED Strip 2ft 2200lm 940 PW HV4

Parameter	Min	Typ	Max	Unit
Luminous flux	2090	2200	2310	lm
Module efficacy	135	150		lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.374, 0.364)		-
Color consistency			3	SDCM
CRI	90			
R9	50			
Radiation angle		120		deg
Photobiological safety			RG1 unlimited	



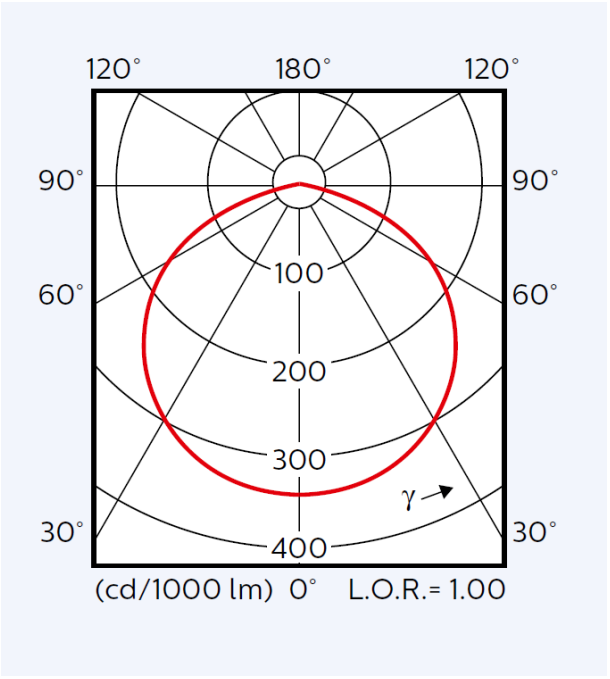
Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5

Operation point	940	lm	lm/W
80% I-nom 257mA	Tc 25 °C	1813	179
	Tc-nom 45 °C	1778	177
	Tc-max 80 °C	1694	171
I-nom 321mA	Tc 25 °C	2244	175
	Tc-nom 45 °C	2200	173
	Tc-max 80 °C	2096	166
I-life 390mA	Tc 25 °C	3050	167
	Tc-nom 45 °C	2989	164
	Tc-max 80 °C	2847	158



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

Fortimo LED Strip 2ft 2200lm 840 PW HV4

Parameter	Min	Typ	Max	Unit
Forward voltage	43.4	45.2	47.0	V
Power consumption	12.2	12.7	13.3	W = kWh/1000h
Number of modules in series per chain			6	
Number of modules in parallel per chain			8	

Measurement precision for Vf +/- 3%. Measurement precision for power +/- 3.3%
Specifications stated at Tc-nom and I-nom

Fortimo LED Strip 2ft 2200lm 930 PW HV4
Fortimo LED Strip 2ft 2200lm 935 PW HV4
Fortimo LED Strip 2ft 2200lm 940 PW HV4

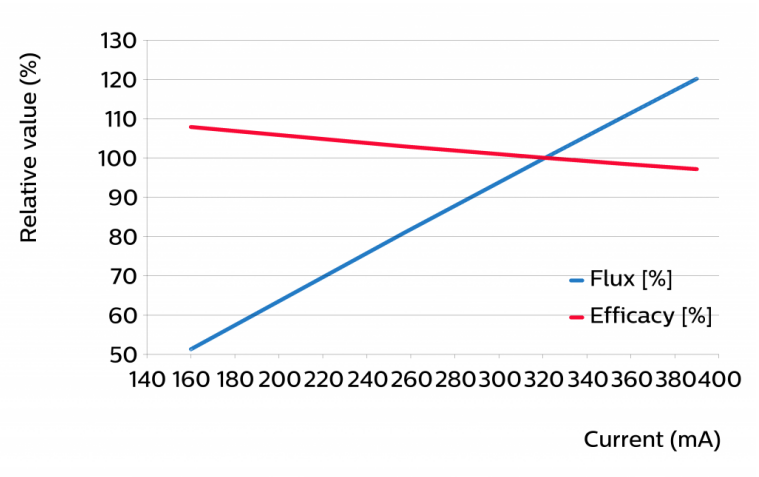
Parameter	Min	Typ	Max	Unit
Forward voltage	44.0	45.8	47.6	V
Power consumption	14.1	14.7	15.3	W = kWh/1000h
Number of modules in series per chain			6	
Number of modules in parallel per chain			8	

Measurement precision for Vf +/- 3%. Measurement precision for power +/- 3.3%
Specifications stated at Tc-nom and I-nom

Tuning information

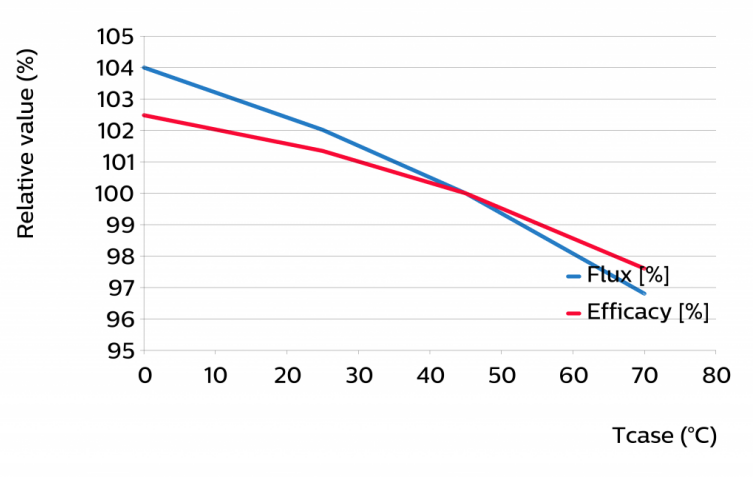
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
390	120	97
356	110	99
321	100	100
257	81	103
160	51	108



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

Tc [°C]	Flux [%]	Efficacy [%]
70	97	98
45	100	100
25	102	101
0	104	102



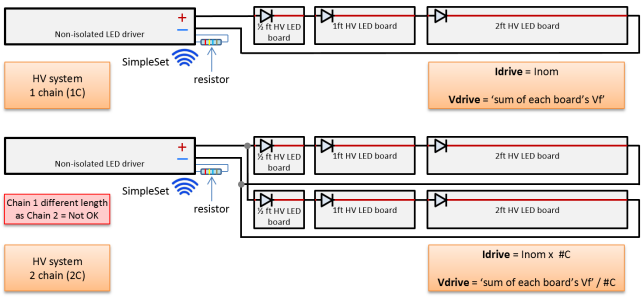
Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% I nom	Tc 25°C	>70	>70	>70	>70	65	60	35	35	30
	Tc nom 45°C	>70	>70	>70	>70	65	60	35	35	30
	Tc life 70°C	>70	>70	>70	55	50	50	30	25	25
I nom	Tc 25°C	>70	>70	>70	>70	65	60	35	35	30
	Tc nom 45°C	>70	>70	>70	>70	65	60	35	35	30
	Tc life 70°C	>70	>70	>70	55	50	50	30	25	25
I life 390 mA	Tc 25°C	>70	>70	>70	>70	65	60	35	35	30
	Tc nom 45°C	>70	>70	>70	>70	65	60	35	35	30
	Tc life 70°C	>70	>70	>70	55	50	50	30	25	25

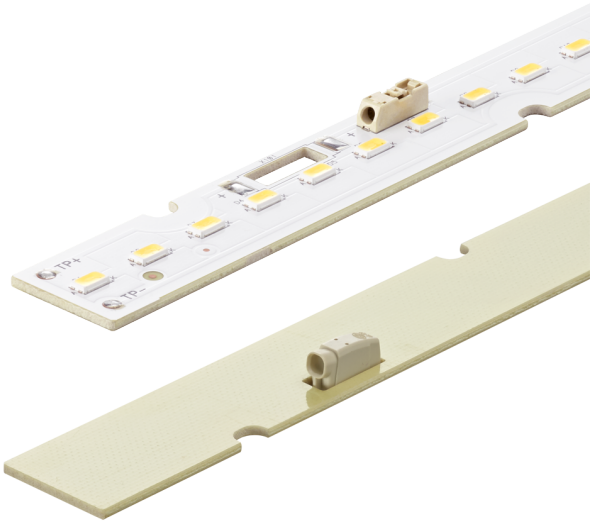
Lifetime

Parameter	Value	Unit
M70F50 nominal	>70000	hours
M70F50 life	>70000	hours

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

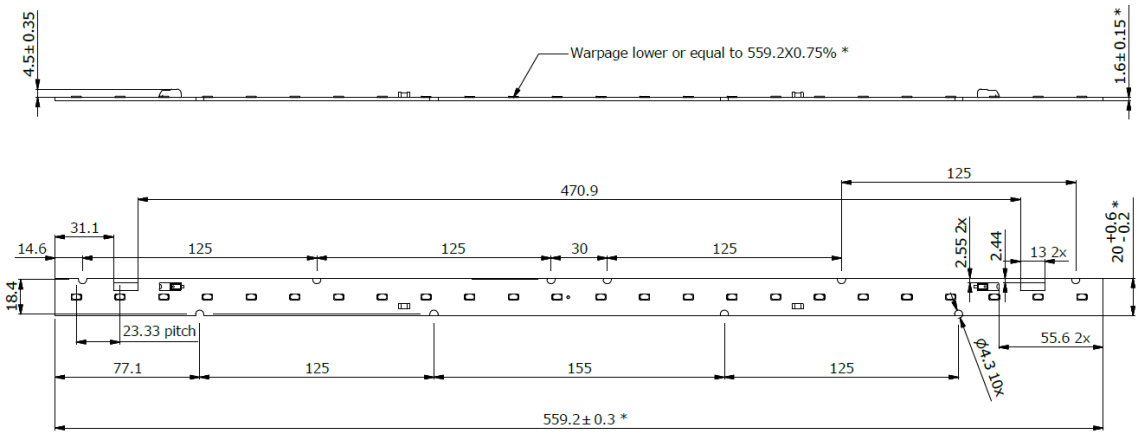


More information in the design-in guide of LED Linear modules.



Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	558.9	559.2	559.5	mm
Width	19.8	20	20.6	mm
Height excl. connector	1.45	1.6	1.75	mm
Height incl. connector	3.85	4.2	4.55	mm
Product mass		38		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		480	mA
Case temperature (Tc-max)		80	°C
Power at rated Vf-max and I-max		19.6	W
ESD (direct contact)		8	kV
ESD (air)		15	kV
Working voltage		350	V_{dc}
Voltage strength	1700		V_{ac}
Ambient temperature	-40		°C

Application information

Certificates and Standards
EN 62031:2008/A1:2013/A2:2015
IEC 62717
ENEC
ENEC+
CE

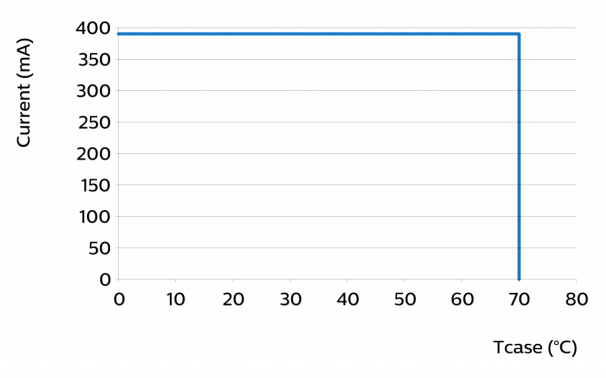
Environmental
RoHS/REACH

Zhaga	Compliant*

*Book 7, L56W2

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

Performance Window



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