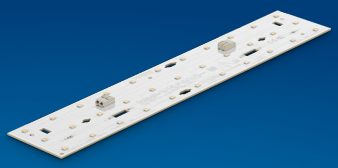
PHILIPS

Fortimo

LED

Fortimo LED Line 1ft MF 9xx 3R HV/LV5



Datasheet

Upgraded with the latest LED technology, the Fortimo LED Line 3R provides high quality white light on a well-known footprint. From three rows (3R) of LEDs, the modules provide a high energy efficiency whilst enabling three lumen ranges: LF (650lm/ft), MF (1100lm/ft) and HF (2000lm/ft). Combined with the wide range of CCT's and CRI's available, the product range is suitable in many indoor luminaire applications like retail, industry and office lighting.

Key features and benefits

- Latest LED technology providing an improved module efficiency
- Long life time: >50,000 hours
- High quality white light: CRI80 or CRI90
- Excellent color consistency of 3 SDCM
- Available color temperatures: 3000K / 3500K / 4000K / 5000K / 6500K
- Two module lengths: 1ft/280mm or 2ft/560mm
- Three lumen packages: LF (650lm/ft), MF (1100lm/ft) or HF (2000lm/ft)
- High overdrive possibilities
- High voltage (HV) or Low voltage (LV) designs: LF and MF versions are hybrid and can be used in both HV or LV
- Five year system warranty

March 2022

Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo LED Line 1ft MF 930 3R HV/LV5	8719514 391437 00	9290 029 25706	60
Fortimo LED Line 1ft MF 940 3R HV/LV5	8719514 391451 00	9290 029 25806	60

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED Line 1ft MF 9xx 3R HV/LV5	209	600	600	mA

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T_c (case temperature at T_c point)	40	80	80	°C

* Nominal value at which typical performance is specified

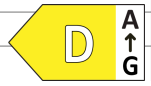
** Value at which life time is specified

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

Optical characteristics - table per color (CCT)

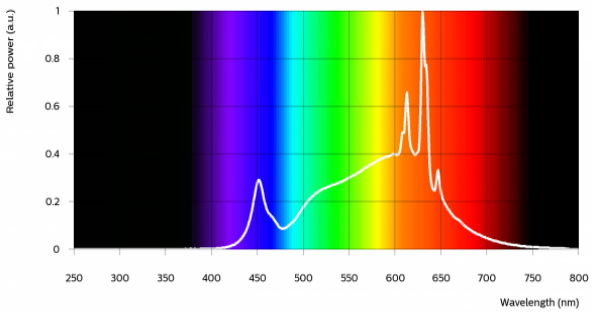
Fortimo LED Line 1ft MF 930 3R HV/LV5

Parameter	Min	Typ	Max	Unit
Luminous flux	1013	1030	1099	lm
Efficacy		162		lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.434, 0.403)		-
Color consistency			3	SDCM
CRI	90			
R9	50			
Photometric code		930/369		
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 167mA	Tc 25 °C	844	167
	Tc-nom 40 °C	830	165
	Tc-max 80 °C	782	157
I-nom 209mA	Tc 25 °C	1048	164
	Tc-nom 40 °C	1030	162
	Tc-max 80 °C	971	155
I-max 600mA	Tc 25 °C	2830	144
	Tc-nom 40 °C	2780	142
	Tc-max 80 °C	2616	135

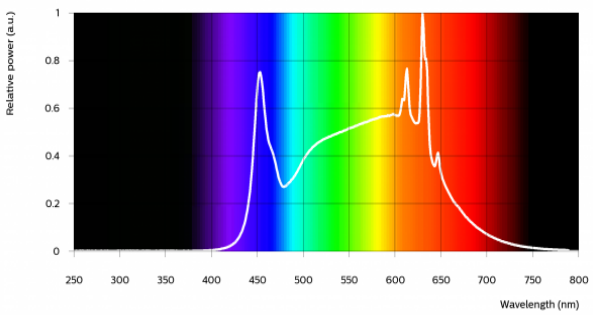


Fortimo LED Line 1ft MF 940 3R HV/LV5

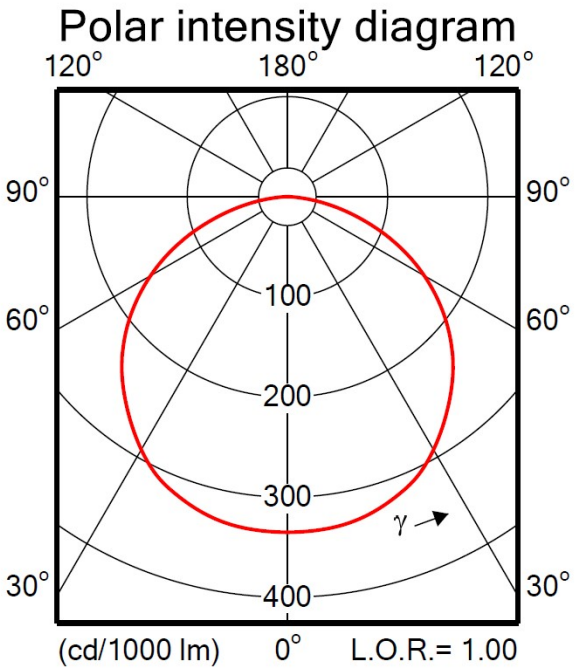
Parameter	Min	Typ	Max	Unit
Luminous flux	1083	1100	1169	lm
Efficacy		173		lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.380, 0.380)		-
Color consistency			3	SDCM
CRI	90			
R9	50			
Photometric code		940/369		
Photobiological safety			RG1 unlimited	

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 167mA	Tc 25 °C	902	178
	Tc-nom 40 °C	886	176
	Tc-max 80 °C	836	168
I-nom 209mA	Tc 25 °C	1119	175
	Tc-nom 40 °C	1100	173
	Tc-max 80 °C	1037	165
I-max 600mA	Tc 25 °C	3023	154
	Tc-nom 40 °C	2969	152
	Tc-max 80 °C	2794	145



Beam shape


Polar intensity diagram
120°
180°
120°
90°
90°
60°
60°
30°
30°
100
200
300
400
γ
(cd/1000 lm)
0°
L.O.R.= 1.00

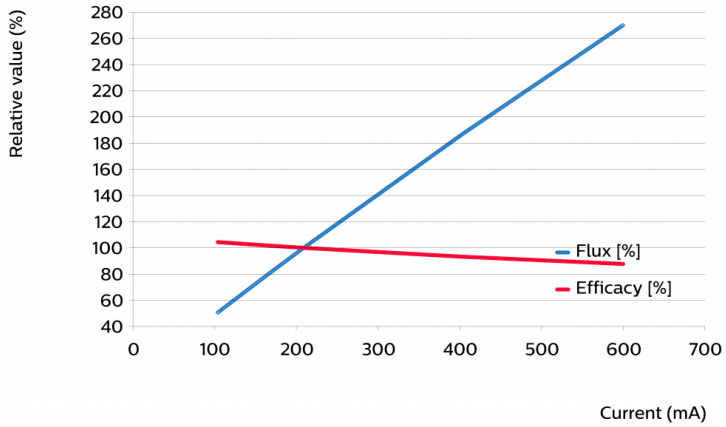
Electrical characteristics

Parameter	Min	Typ	Max	Unit
Forward voltage	29.3	30.4	31.0	V
Power consumption	6.12	6.35	6.48	W = kWh/1000h
Number of modules in series per chain			12	
Number of modules per chain			4	

Tuning information

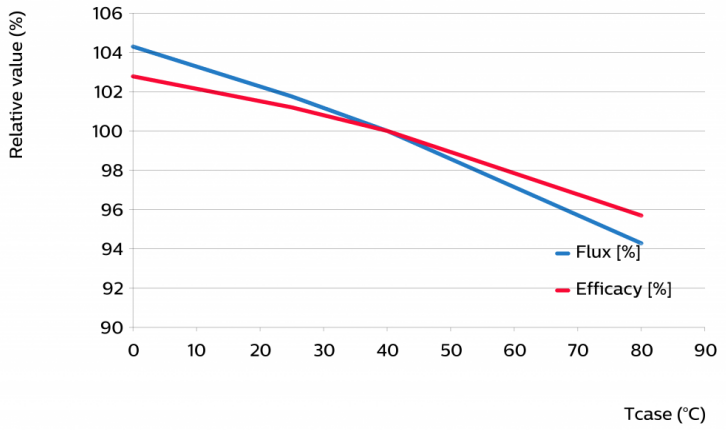
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
600	270	88
404	187	93
209	100	100
167	80	102
104	51	104



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

Tc [°C]	Flux [%]	Efficacy [%]
80	94	96
40	100	100
25	102	101
0	104	103



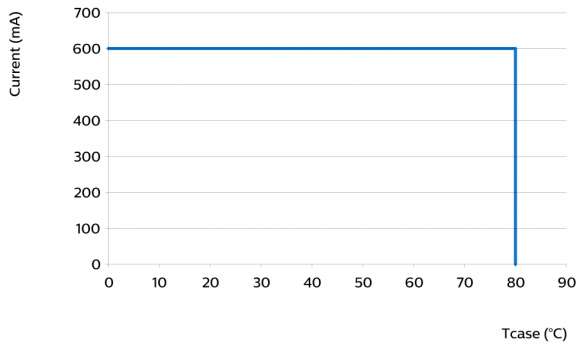
Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% Inom=167.2mA	Tc=25°C	>60	>60	>60	>60	>60	>60	>60	>60	>60
	Tc_nom=40°C	>60	>60	>60	>60	>60	>60	58	57	56
	Tc_life=80°C	>60	>60	>60	>60	>60	>60	38	37	37
Inom=209mA	Tc=25°C	>60	>60	>60	>60	>60	>60	>60	>60	>60
	Tc_nom=40°C	>60	>60	>60	>60	>60	>60	56	55	54
	Tc_life=80°C	>60	>60	>60	>60	>60	>60	37	36	35
Ilife=600mA	Tc=25°C	>60	>60	>60	>60	>60	>60	54	53	52
	Tc_nom=40°C	>60	>60	>60	>60	>60	>60	46	44	44
	Tc_life=80°C	>60	>60	>60	>60	>60	>60	30	29	29

Lifetime

Parameter	Value	Unit
M70F50 nominal	>60000	hours
M70F50 life	>60000	hours

Performance Window

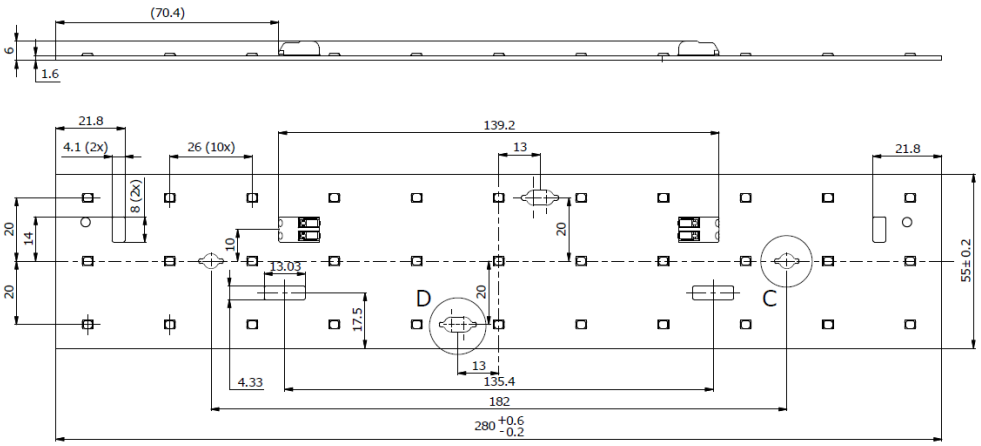


Wiring

Specification item	Value	Unit	Condition
Input wire cross-section	0.2…0.75	mm²	solid wire, stranded wire
	18…24	AWG	solid wire, stranded wire
Input wire strip length	7…9	mm	

Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	279.8	280	280.6	mm
Width	54.8	55	55.6	mm
Height PCB		1.6		mm
Height total		6		mm
Product mass		100		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		600	mA
Case temperature (Tc-max)		80	°C
ESD (direct contact)	8		kV
Working voltage		420	V_{dc}

Application information

Certificates and Standards
CE
ENEC
ENEC+

Environmental
RoHS/REACH

Application	
Dimming	Yes

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