

PHILIPS

Fortimo

LED

Fortimo LED Strip 1ft MF
HE FC HV6



Datasheet

Fortimo LED Strip 1ft MF HE FC HV6

The High Efficiency (HE) range of modules in our popular Fortimo LED Strip product family offers high efficiency while maintaining the premium quality. The modules are available in well-known strip form factor with 20mm width. This performance is validated on module level in real application conditions and allows for luminaires to achieve high energy savings. Offered in Mid Flux (1100 lumen/ft), this product is positioned for a broad range of applications from office to retail.

Key features and benefits

- EU Energy label 'B'
- State of the art LED module efficiency of up to 212 lm/W (4000K)
- Long life-time: > 100,000 hours
- Good color rendering (CRI80) and color consistency (3 SDCM)
- Available in the popular Fortimo LED Strip form factor (20 mm wide), with lengths of 1 and 2 foot
- Choice of color temperatures (3000 & 4000)
- Compliant with Zhaga standards
- Five year system warranty

October 2024



Ordering data

Commercial product name	12NC	Box quantity
Fortimo LED Strip 1ft MF 830 HE FC HV6	9290 039 97706	110
Fortimo LED Strip 1ft MF 840 HE FC HV6	9290 039 98506	110

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED Strip 1ft MF HE FC HV6	240	600	600	mA

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T _c (case temperature at T _c point)	45	65	85	°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

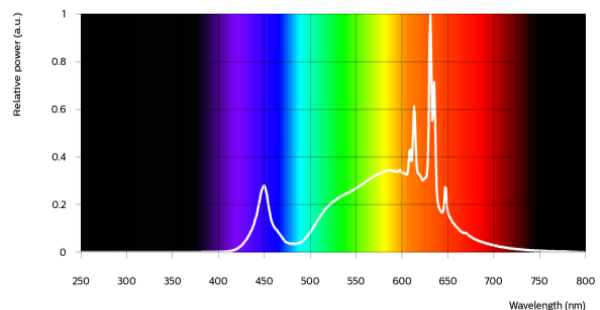
Optical characteristics - table per color (CCT)

Fortimo LED Strip 1ft MF 830 HE FC HV6

Parameter	Typical @ Tc = 25 °C	Typical @ Tc = 45 °C	Average @ Tc = 45 °C	Unit
Luminous flux	1052	1029	1040	lm
Efficacy	202	202	204	lm/W
Correlated color temperature (CCT)	3000	3000	3000	K
Color coordinates (CIEx, CIEy)	(0.434, 0.403)	(0.435, 0.400)	(0.435, 0.400)	-
Color consistency	3	3	3	SDCM
CRI	80	80	80	
R9	0	0	0	
Radiation angle	120	120	120	deg
Photobiological safety	RG1 unlimited	RG1 unlimited	RG1 unlimited	
Energy label				

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

Operation window	830	lm	lm/W
Min	Typ @Tc = 25 °C	1040	208
	Typ @Tc = 45 °C	1010	202
	Avg @Tc = 45 °C	1020	204
Nominal	Typ @Tc = 25 °C	1052	202
	Typ @Tc = 45 °C	1029	202
	Avg @Tc = 45 °C	1040	204
Max	Typ @Tc = 25 °C	1120	215
	Typ @Tc = 45 °C	1100	213
	Avg @Tc = 45 °C	1100	213

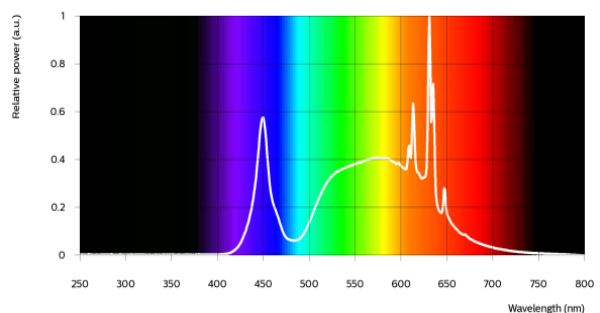


Fortimo LED Strip 1ft MF 840 HE FC HV6

Parameter	Typical @ Tc = 25 °C	Typical @ Tc = 45 °C	Average @ Tc = 45 °C	Unit
Luminous flux	1124	1100	1112	lm
Efficacy	216	212	218	lm/W
Correlated color temperature (CCT)	4000	4000	4000	K
Color coordinates (CIEx, CIEy)	(0.383, 0.380)	(0.385, 0.379)	(0.385, 0.379)	-
Color consistency	3	3	3	SDCM
CRI	80	80	80	
R9	0	0	0	
Radiation angle	120	120	120	deg
Photobiological safety	RG1 unlimited	RG1 unlimited	RG1 unlimited	
Energy label				

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

Operation window	840	lm	lm/W
Min	Typ @Tc = 25 °C	1120	224
	Typ @Tc = 45 °C	1090	218
	Avg @Tc = 45 °C	1090	218
Nominal	Typ @Tc = 25 °C	1124	216
	Typ @Tc = 45 °C	1100	212
	Avg @Tc = 45 °C	1112	218
Max	Typ @Tc = 25 °C	1160	223
	Typ @Tc = 45 °C	1140	221
	Avg @Tc = 45 °C	1140	221



Electrical characteristics

Fortimo LED Strip 1ft MF 830 HE FC HV6

Parameter	Min	Typ	Max	Unit
Forward voltage	20.8	21.4	21.6	V
Power consumption	5.0	5.1	5.2	W = kWh/1000h
Number of modules in series per chain			16	
Number of modules in parallel			4	

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

Fortimo LED Strip 1ft MF 840 HE FC HV6

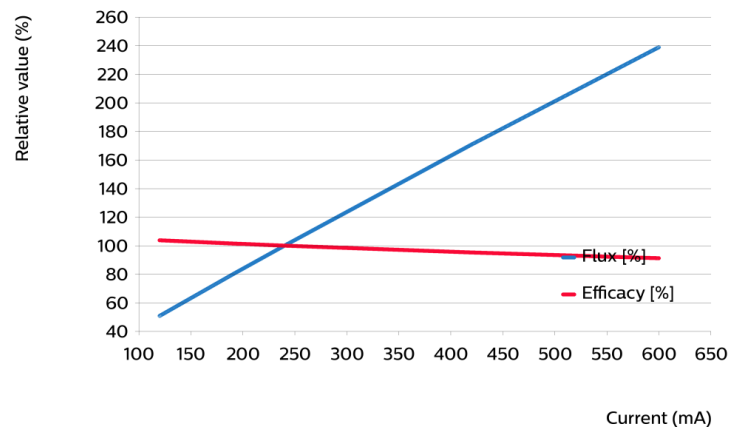
Parameter	Min	Typ	Max	Unit
Forward voltage	20.8	21.4	21.6	V
Power consumption	5.0	5.2	5.2	W = kWh/1000h
Number of modules in series per chain			16	
Number of modules in parallel			4	

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

Tuning information

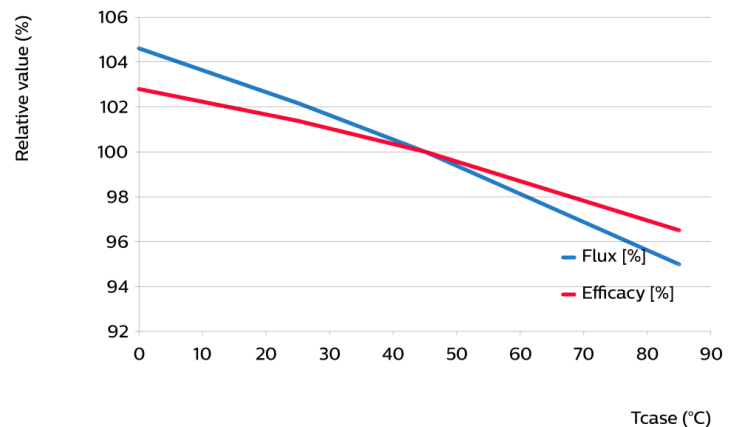
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
600	239	91
420	171	95
240	100	100
192	81	101
120	51	104



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

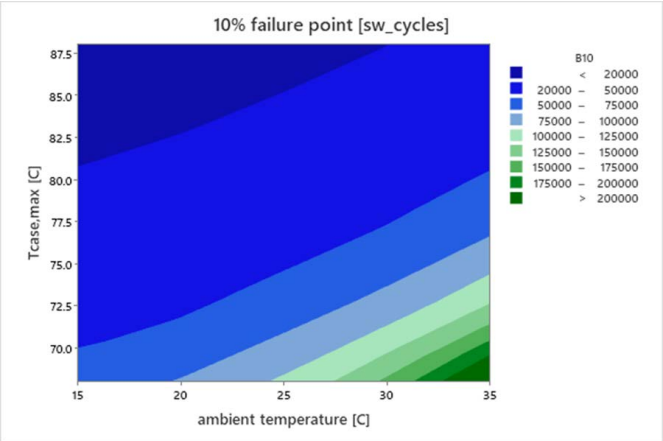
Tc [°C]	Flux [%]	Efficacy [%]
85	95	96
45	100	100
25	102	101
0	105	103



Lifetime

Parameter	Value	Unit
M70F50 nominal	100000	hours
M70F50 life	100000	hours

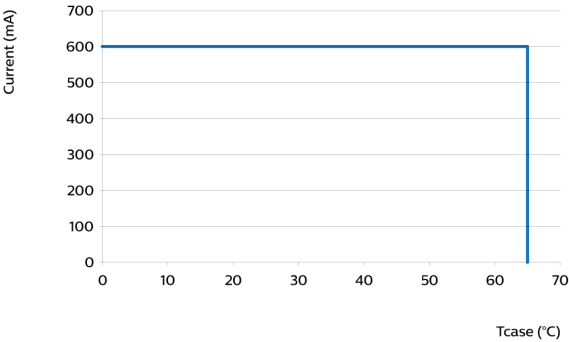
*See appendix 1 for additional graphs



Lumen maintenance

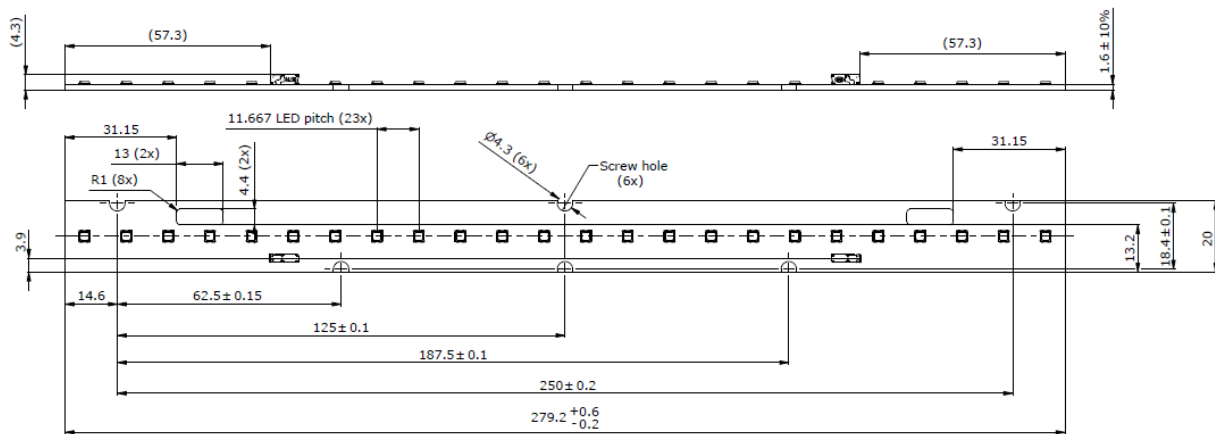
Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% Inom=192mA	Tc=25°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc_nom=45°C	>100	>100	>100	>100	>100	>100	92	88	87
	Tc_life=65°C	>100	>100	>100	>100	>100	>100	74	71	70
Inom=240mA	Tc=25°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc_nom=45°C	>100	>100	>100	>100	>100	>100	88	85	83
	Tc_life=65°C	>100	>100	>100	>100	>100	>100	71	68	67
Ilife=600mA	Tc=25°C	>100	>100	>100	>100	>100	>100	92	88	87
	Tc_nom=45°C	>100	>100	>100	>100	>100	>100	73	70	69
	Tc_life=65°C	>100	>100	>100	>100	>100	>100	59	57	56

Performance Window



Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	279	279.2	279.8	mm
Width	19.8	20	20.2	mm
Height PCB	1.44	1.6	1.76	mm
Height total		4.3		mm



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		600	mA
Case temperature (Tc-max)		85	°C
ESD (direct contact)	8		kV
Working voltage		350	V _{dc}

Application information

Certificates and Standards

CB
CE
ENEC
ENEC+

Application

Dimming	Yes
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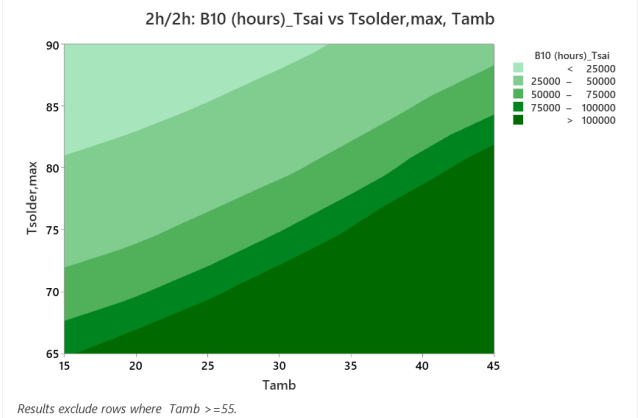
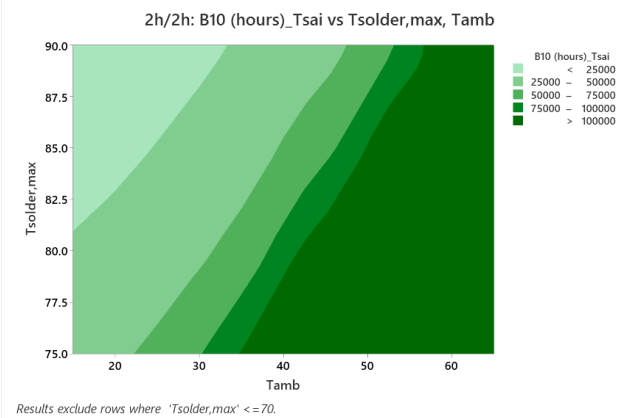
Appendix 1

Graphs showing the reliability predictions. Amount of burning hours to failures.

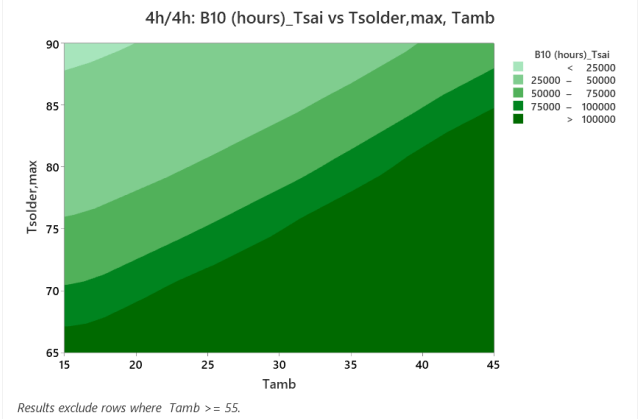
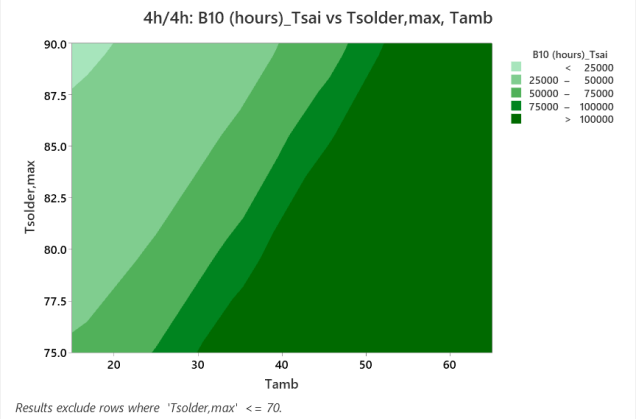
High Solder Temperatures

Low Ambient Temperatures

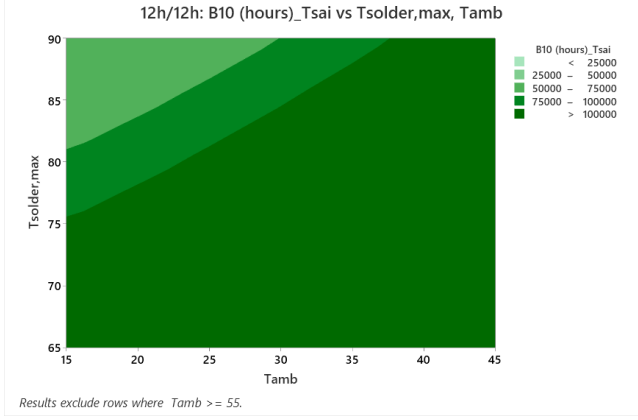
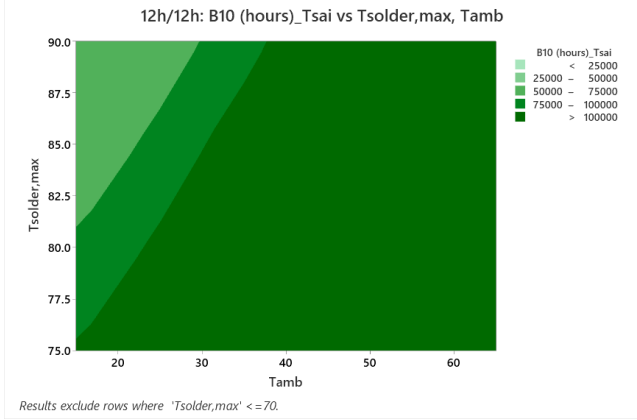
Cycling 2h/2h



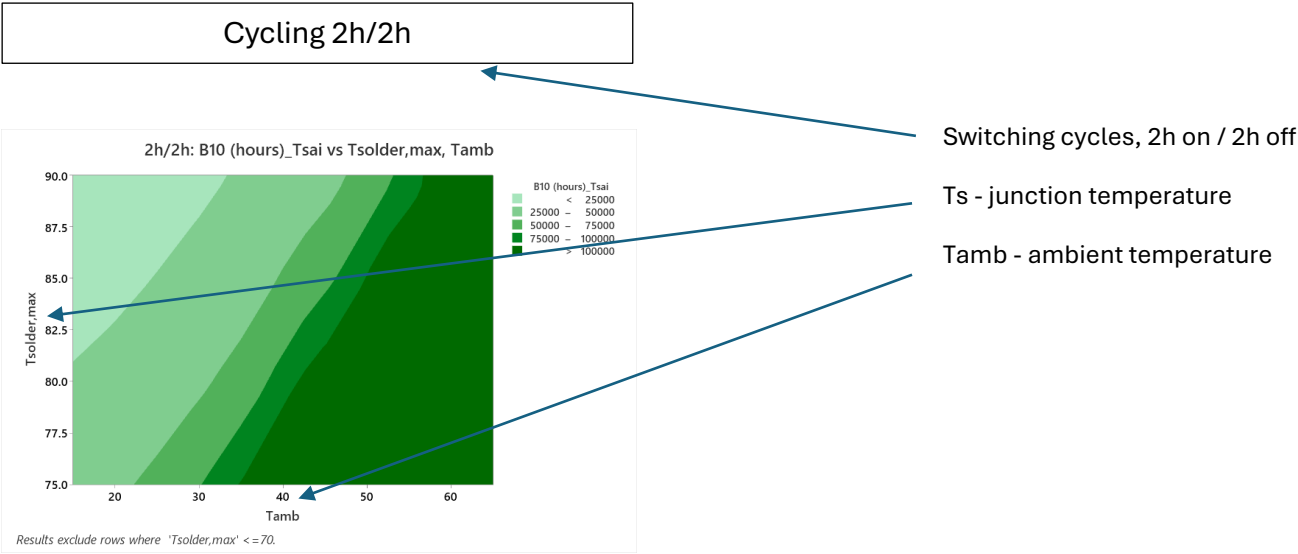
Cycling 4h/4h



Cycling 12h/12h



Legend



Example:

$M_{70} F_{10}$ – is understood as the length of time during which 10% of a population of LED lamps of the same type have failed by either parametric or abrupt failure modes (producing less than 70% of their initial luminous flux or no luminous flux)