

PHILIPS

Fortimo

LED

Fortimo LED Strip 2ft MF
HE FC HV6



Datasheet

Fortimo LED Strip 2ft 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 214 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



indirect



instant



Ordering data

Commercial product name	12NC	Box quantity
Fortimo LED Strip 2ft MF 830 HE FC HV6	9290 039 98606	120
Fortimo LED Strip 2ft MF 840 HE FC HV6	9290 039 98706	120

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED Strip 2ft 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)

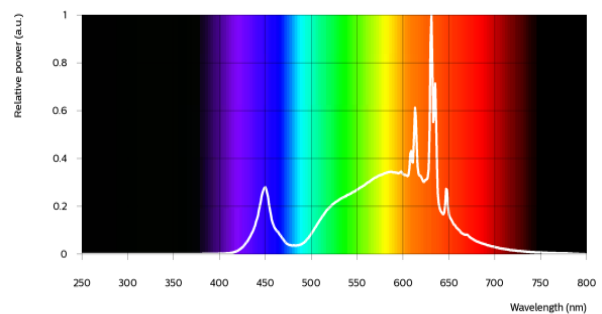
Fortimo LED Strip 2ft MF 830 HE FC HV6

Parameter	Typical @ Tc = 25 °C	Typical @ Tc = 45 °C	Average @ Tc = 45 °C	Unit
Luminous flux	2104	2058	2080	lm
Efficacy	202	200	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	2070	207
	Typ @Tc = 45 °C	2030	203
	Avg @Tc = 45 °C	2030	203
Nominal	Typ @Tc = 25 °C	2104	202
	Typ @Tc = 45 °C	2058	200
	Avg @Tc = 45 °C	2080	204
Max	Typ @Tc = 25 °C	2250	216
	Typ @Tc = 45 °C	2200	213
	Avg @Tc = 45 °C	2200	213

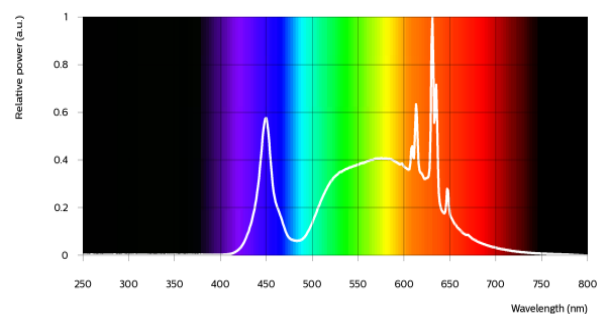


Fortimo LED Strip 2ft MF 840 HE FC HV6

Parameter	Typical @ Tc = 25 °C	Typical @ Tc = 45 °C	Average @ Tc = 45 °C	Unit
Luminous flux	2248	2200	2224	lm
Efficacy	216	214	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				



Operation window	840	lm	lm/W
Min	Typ @Tc = 25 °C	2230	223
	Typ @Tc = 45 °C	2190	219
	Avg @Tc = 45 °C	2190	219
Nominal	Typ @Tc = 25 °C	2248	216
	Typ @Tc = 45 °C	2200	214
	Avg @Tc = 45 °C	2224	218
Max	Typ @Tc = 25 °C	2320	223
	Typ @Tc = 45 °C	2270	220
	Avg @Tc = 45 °C	2270	220



Electrical characteristics

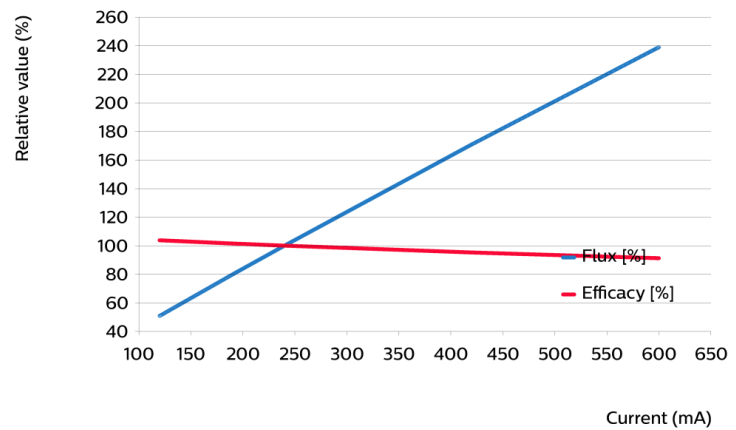
Parameter	Min	Typ	Max	Unit
Forward voltage	41.5	42.7	43.1	V
Power consumption	10.0	10.3	10.3	W = kWh/1000h
Number of modules in series per chain			8	
Number of modules in parallel			4	

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

Tuning information

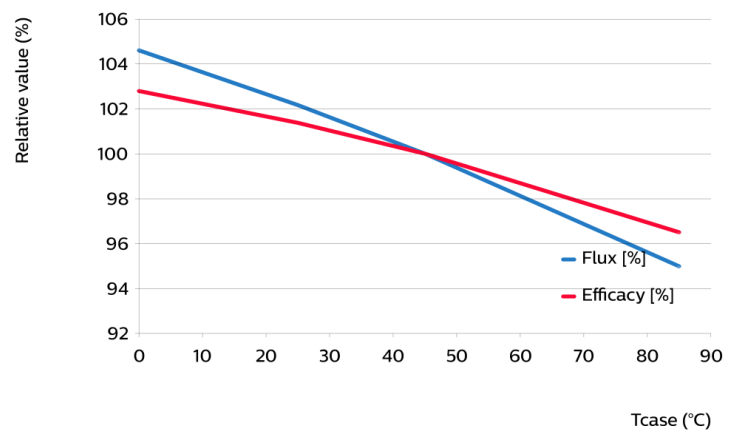
Flux and efficacy versus current (at Tc nominal)

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)

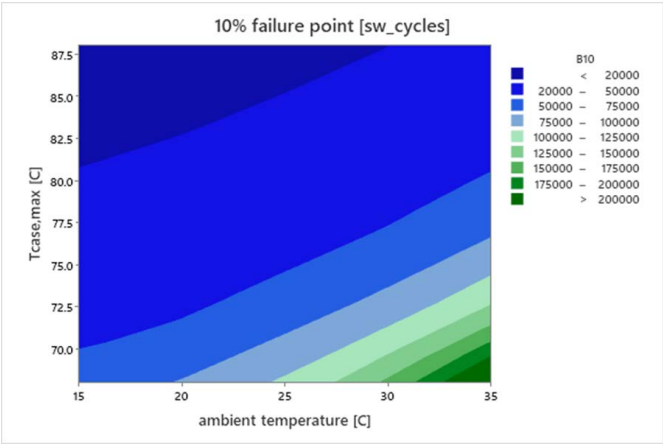
Tc [°C]	Flux [%]	Efficacy [%]
85	95	96
45	100	100
25	102	101
0	105	103



Lifetime

Parameter	Value	Unit
M70F50 nominal	100000	hours
M70F50 life	100000	hours

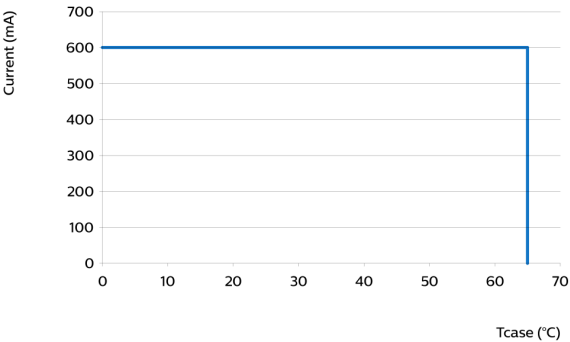
*See Appendix 1 for additional graphs



Lumen maintenance

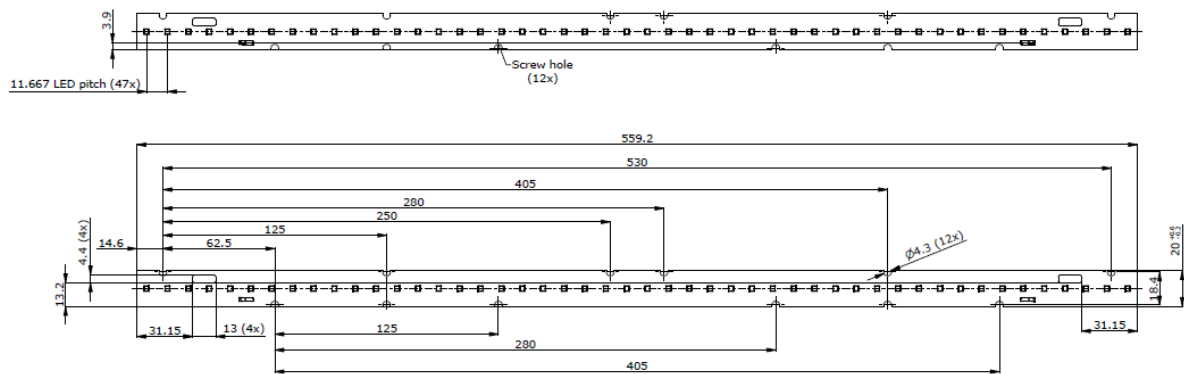
Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% Inom=192mA	Tc=25°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc_nom=45°C	>100	>100	>100	>100	>100	>100	92	89	88
	Tc_life=65°C	>100	>100	>100	>100	>100	>100	74	72	70
Inom=240mA	Tc=25°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc_nom=45°C	>100	>100	>100	>100	>100	>100	88	85	84
	Tc_life=65°C	>100	>100	>100	>100	>100	>100	71	69	68
Ilife=600mA	Tc=25°C	>100	>100	>100	>100	>100	>100	92	90	89
	Tc_nom=45°C	>100	>100	>100	>100	>100	>100	73	71	70
	Tc_life=65°C	>100	>100	>100	>100	>100	>100	59	57	57

Performance Window



Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	558.9	559.2	559.5	mm
Width	19.8	20	20.6	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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28/10/2024

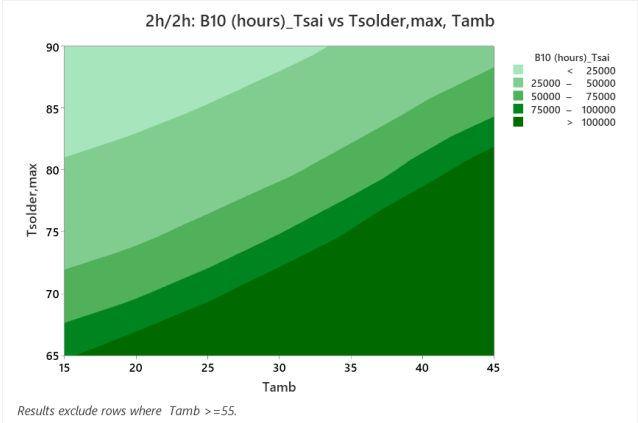
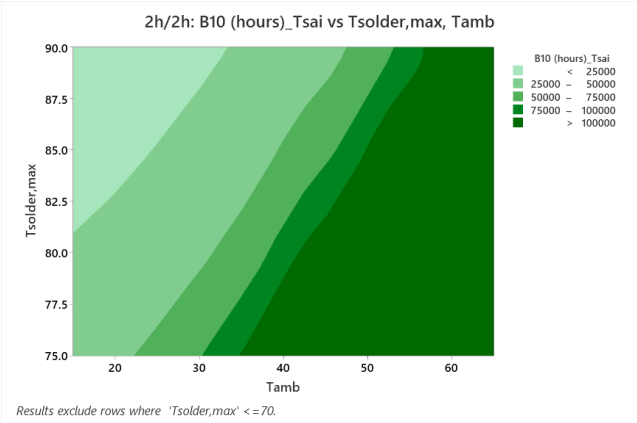
Appendix 1

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

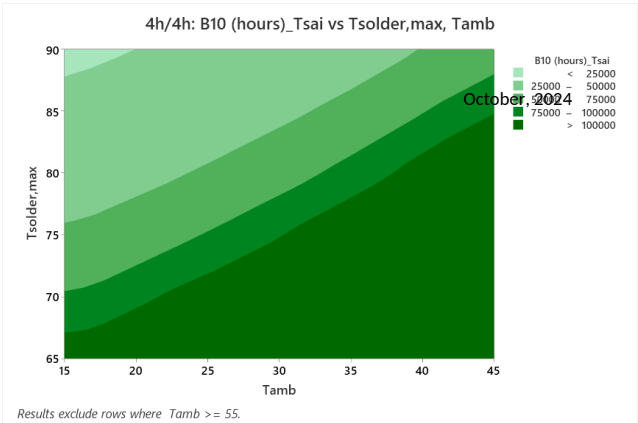
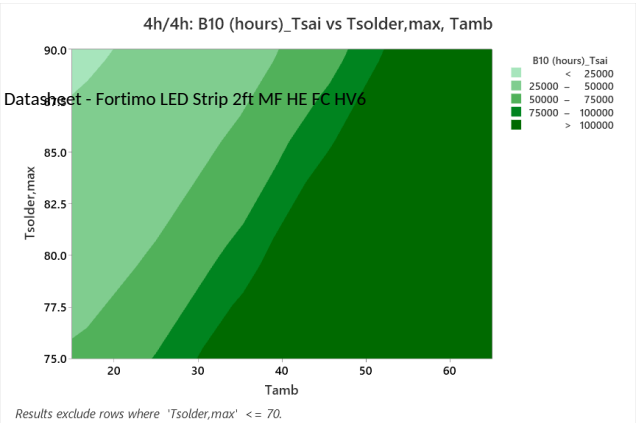
High Solder Temperatures

Low Ambient Temperatures

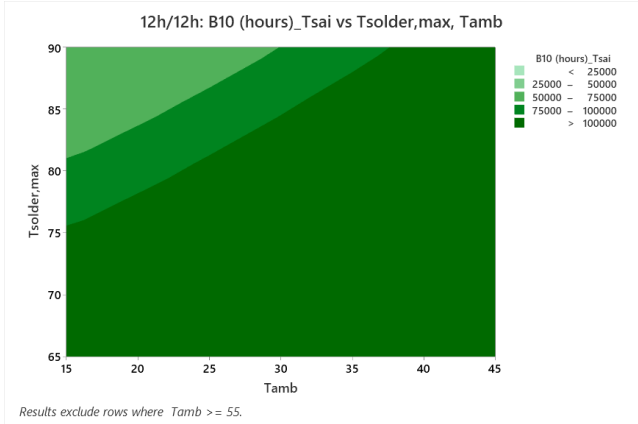
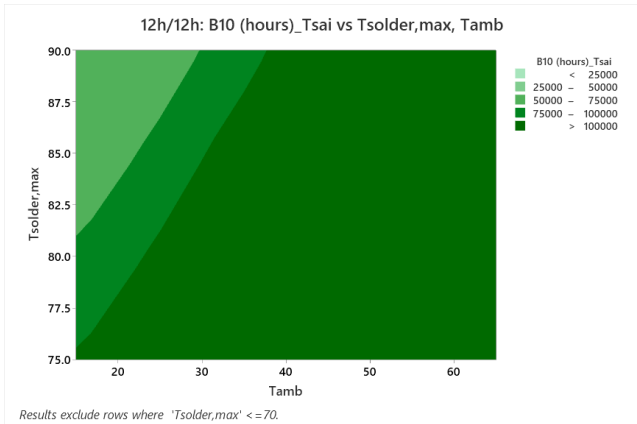
Cycling 2h/2h



Cycling 4h/4h



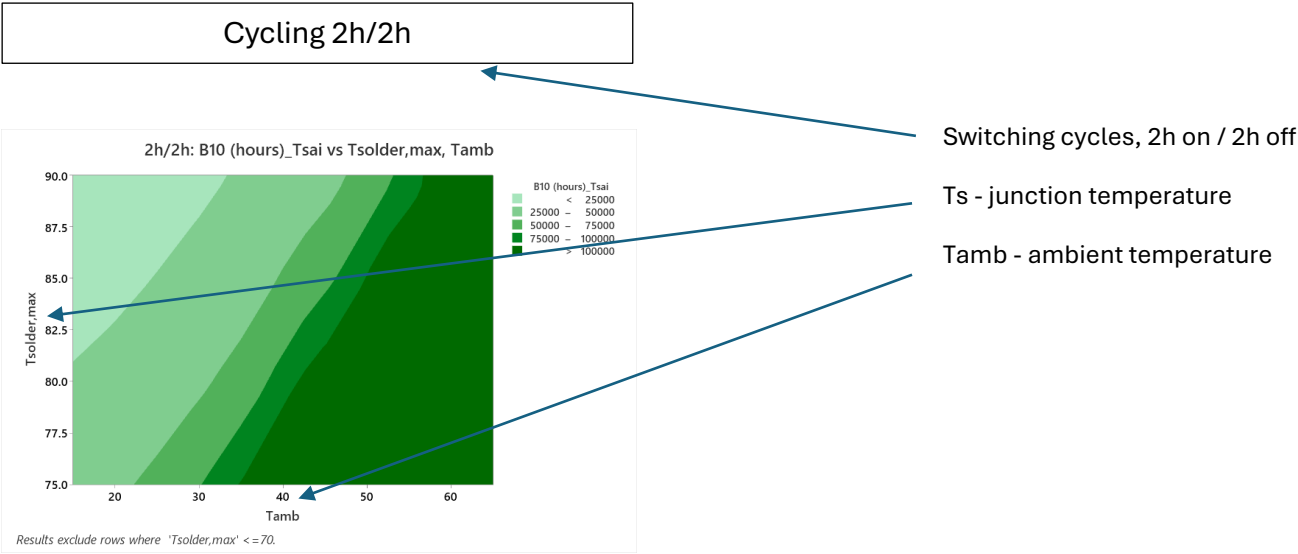
Cycling 12h/12h



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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)