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Micro Urban New hiLED

Introduction to Micro Urban New hiLED

LIGHTING FAMILY Micro Urban New hiLED

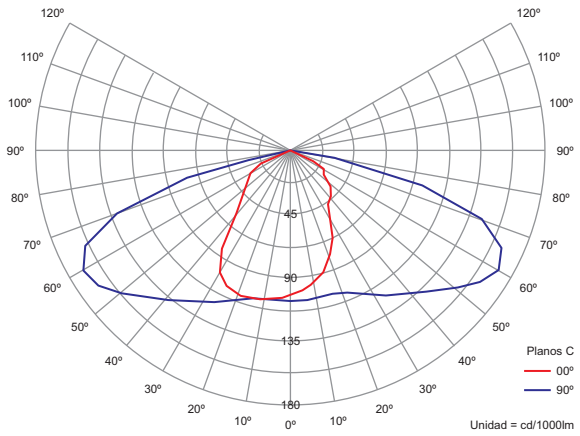
The new family of last generation LED Micro Urban New incorporates a High Power LED system of more than 125 lm / W, also innovative high purity lens glass (96%) and low absorption (less than 5%), which have a divergent-asymmetric geometry, generating a light beam of greater extension and uniformity.

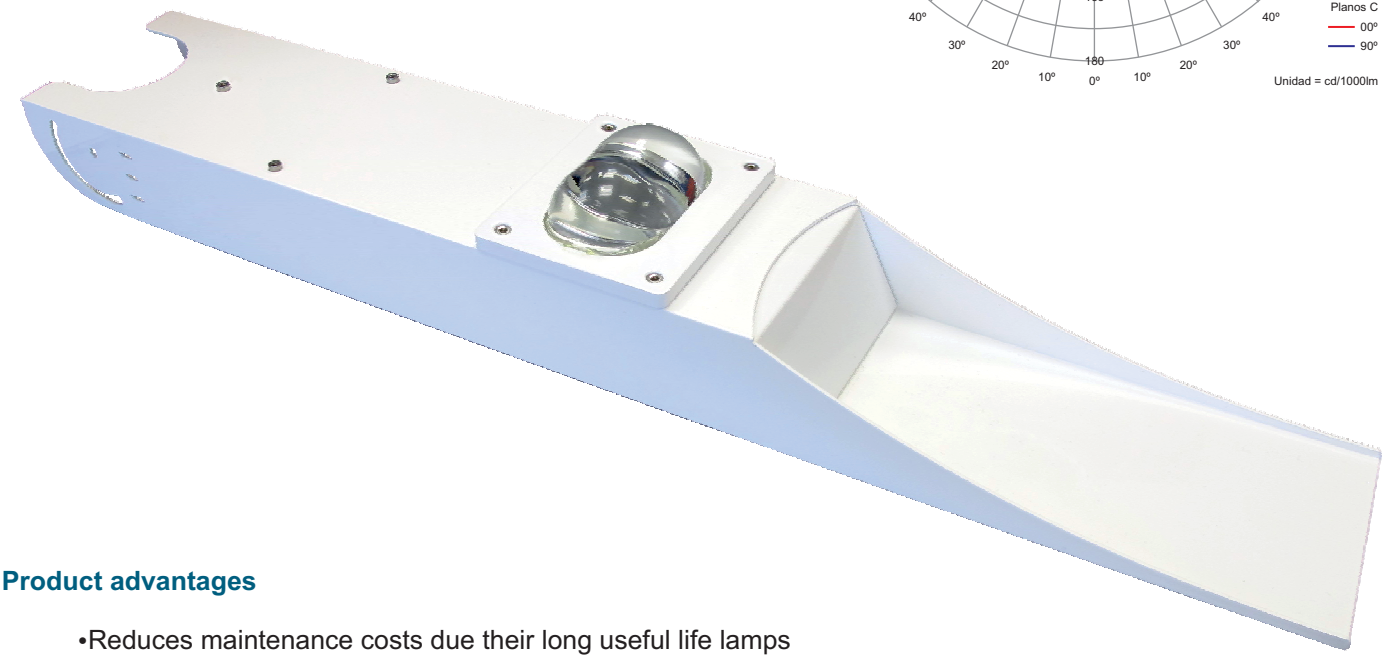
Its high light output, with the electronic management developed by hiLED allows various configurations of power adjustment, allowing to achieve energy and economic savings of high yield.

Its innovative design and manufacturing, plus the use of high quality materials and heat dissipation systems studied, resulting in a 10-year warranty.

Features:

- High light efficiency system
- Lamp's long useful life
- Minimal light lose
- High efficiency electrical power supply
- Uniform illumination
- High quality illumination with high CRI values
- Instant switch-on
- RoHs and European Directives compliance
- Excellent product warranty





Product advantages

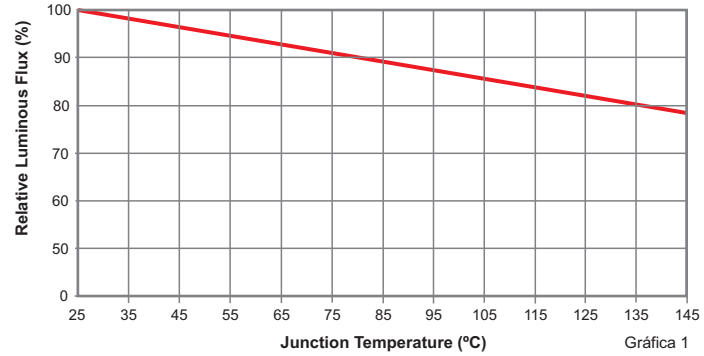
- Reduces maintenance costs due their long useful life lamps
- Reduced thermal resistance and operating temperature
- It respects the environment, by not working with noxious gases
- Is easy to combine with daylight and motion sensors, to allow greater energy savings
- Optimal light reflection for each scenario
- Easy to install
- Product 100% recyclable

Micro Urban New hiLED junction temperature

The junction temperature is the temperature at the point where a diode connected to its base. Maintaining a low junction temperature optimizes efficiency and reduces the lumen depreciation. The junction temperature is a key indicator for assessing the quality of an LED product and its ability to provide long life. Maintain the junction temperature as low as possible and within the manufacturer's specifications to maximize the performance potential of LED's.

EN 62031 rule of LED module say that in a lamp must be marked the critical temperature (Tc) and operating ambient temperature range (Ta) to which the lamp can operate without being adversely affected in their specifications: whole life, performance, etc. The really critical temperature in an LED, and the one which must be guaranteed with the thermal design of the lamp, is the junction temperature Tj. Perform this measurement is very complex having to be performed on a component level, however, it can be noted an accessible point where thermal control measure the critical temperature of operation (Tc), directly related to the junction temperature (Tj).

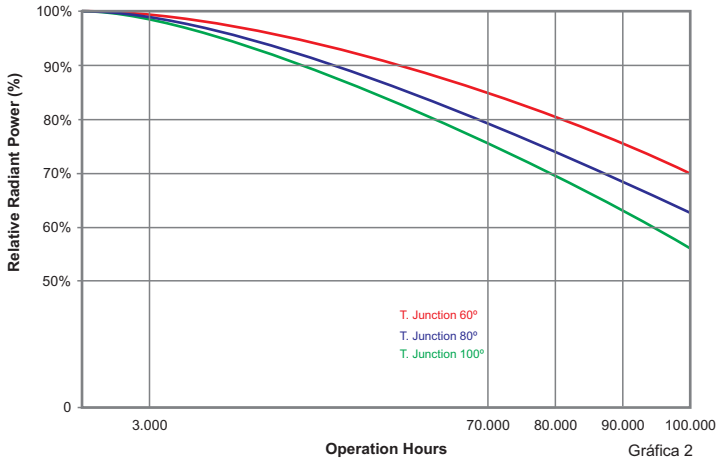
The patented design of the heat sink system used in lamps hiLED not allow the device to reach a junction temperature exceeds 60 º C (Tamb=25ºC), ensuring optimal performances values and useful lives periods.



Gráfica 1

The graph shows the variation of the luminous flux of the lamp according to the junction temperature. Shows how the luminous flux decreases linearly with increasing junction temperature. Keeping the junction temperature below 60 ° C, lighting lamps Micro Urban New ensure lighting performances high from 90% of the nominal flux of the device.

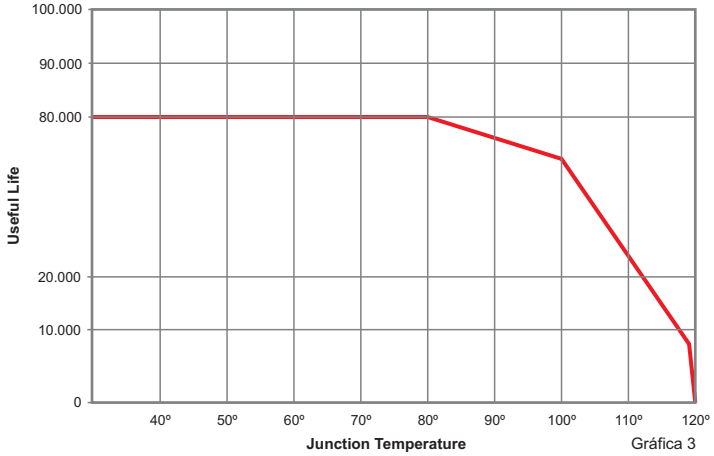
All LED devices bear this type of percentage decrease in luminous flux, therefore, a incorrect sizing from heat sink will generate low lighting performances.



Gráfica 2

It can be seen as improper sizing of heat sink that results in high junction temperatures, will also affect critically in the useful life of the lamp.

When the junction temperature raises above 80 °C LED devices usually suffer a large decrease in useful life, falling below the limit of 70.000 hours of useful life (main characteristic of this technology).



Gráfica 3

The light sources used by hiLED have been tested under IES LM80 standard "Measuring Lumen Maintenance of LED Light Sources". In Figure 3, data obtained in the studies ensures 70% lumen maintenance after 80.000 hours of useful life (for a junction temperature of 60°C)

IES LM 80 standard is a world reference in terms of checking the lumen maintenance, analysis of any device under this regulation is a prerequisite for hiLED product validation.

Micro Urban New hiLED lighting source

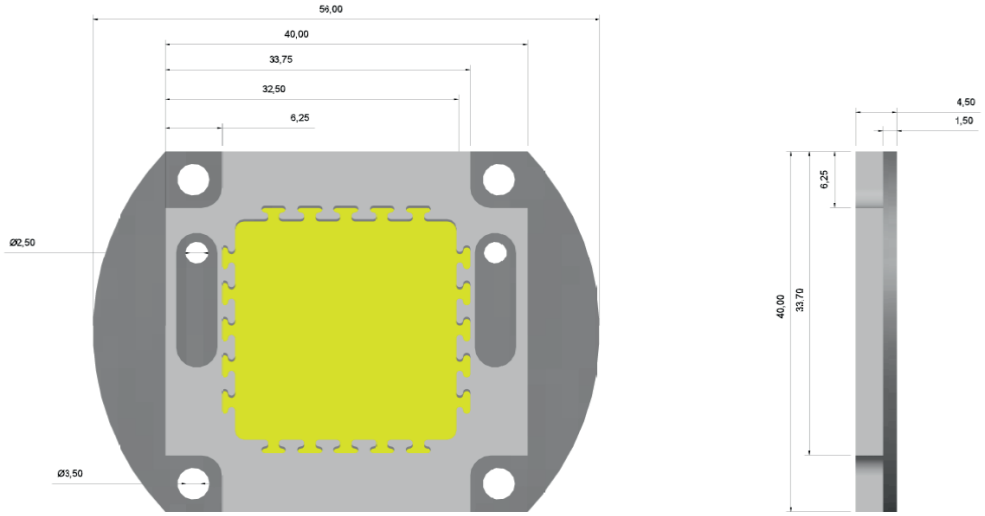
The design of hiLED's Micro Urban New lamp range is based on the use of light sources with technology "High Power LED". The light source is part of the lamp as an integrated or "built-in" element.

The use of light sources with higher performance lighting means less energy loss as heat, which is associated indirectly with the increasing of their useful life.

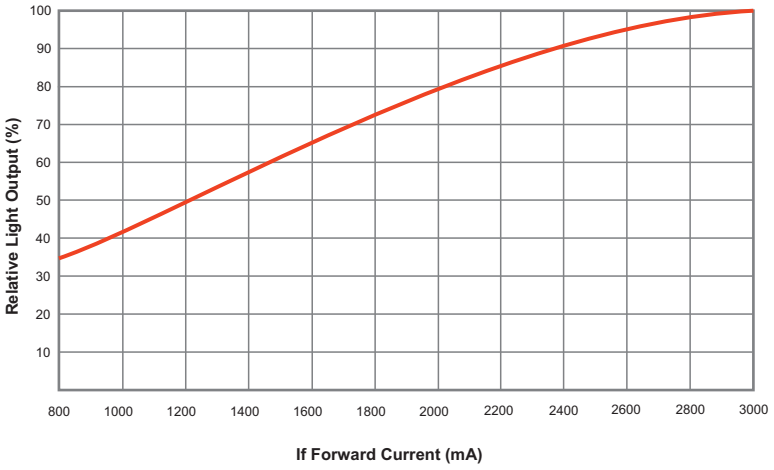
The configuration used in the light source, to the single fault-emitting diode, reallocates power from remaining diodes preventing overloads.

The module maximum power is 100W. However, in order to increase the durability and reliability of the product, the maximum power of the product will be 80W, achieving in this way that the High Power LED modules are not exposed to extreme situations, thereby ensuring optimize durability and properties.

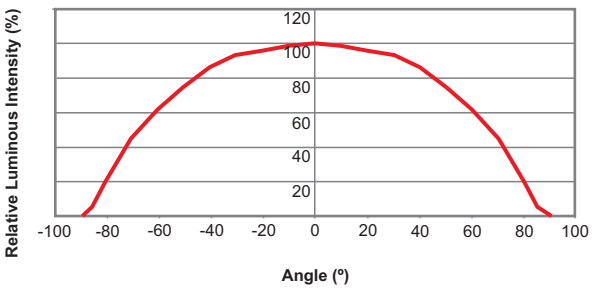
The use of a stable light source, allows us to ensure homogeneous colour temperatures with respect to variations in power, with colour temperature fluctuations lower than 5% for power extremes.



Relative luminous flux Vs Intensity (Emv = 25 ºC)



Light source luminous intensity distribution



Micro Urban New hiLED lighting source

LED Module (3.000 K)				
	Unit	Minimum Value	Characteristic Value	Maximum Value
Main Characteristics				
Luminous flux	lm	3.562		9.500
Colour temperatures	K	2.700	3.000	3.300
Working temperature	ºC	-30		85
Welding temperature	ºC			260
Welding time	s			5
CRI (Colour rendering index)		85		89

LED Module (4.500 K)				
	Unit	Minimum Value	Characteristic Value	Maximum value
Main Characteristics				
Luminous flux	lm	3.750		10.000
Colour temperatures	K	4.100	4.500	4.900
Working temperature	ºC	-30		85
Welding temperature	ºC			260
Welding time	s			5
CRI (Colour rendering index)		85		89

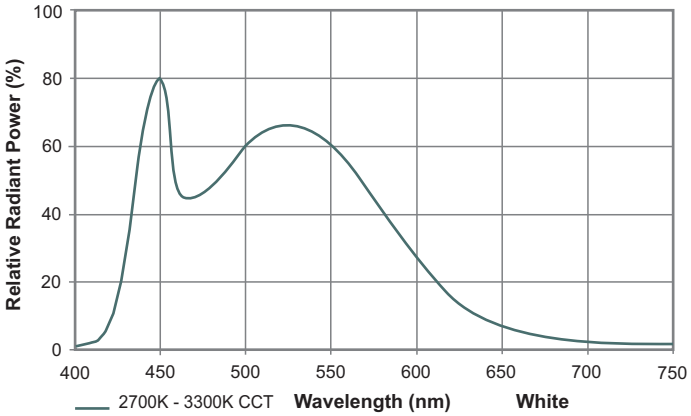
Micro Urban New hiLED light spectrum

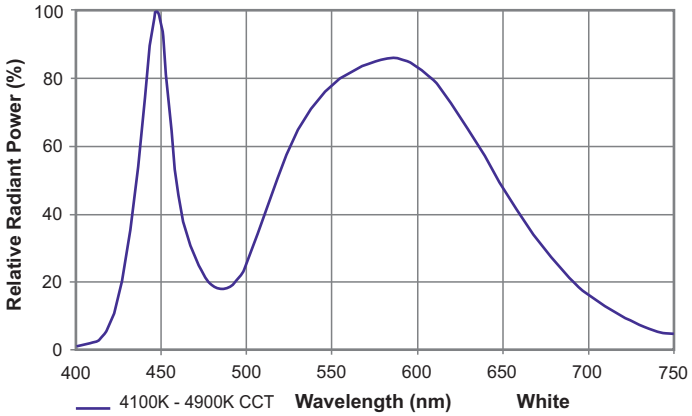
CRI (Colour rendering index)

The dominant wave length LED High Power module is at values close to 550 nm, value which focuses the spectrum of view human eye. This allows a high value of IRC (= 87), ensuring a CRI> 85 on technical specifications.

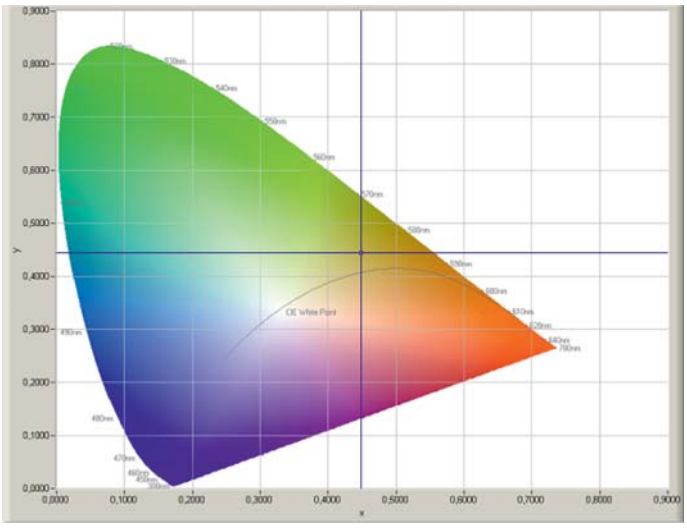
In the graphs reflected light spectra for different colour temperatures of product:

Relative distribution of luminous spectre.

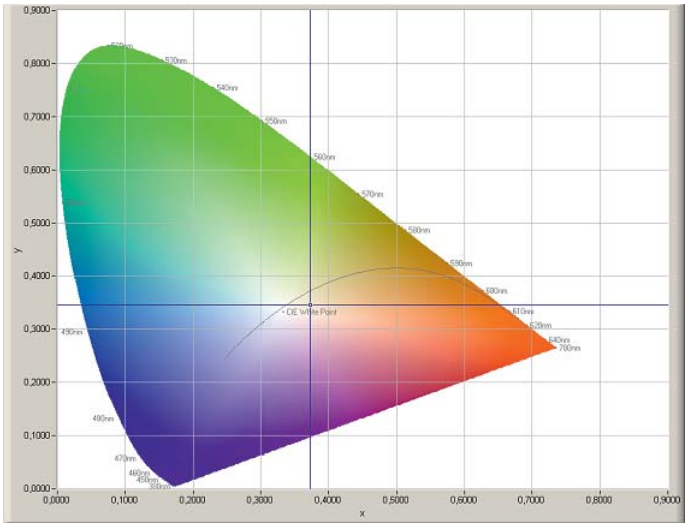




Chromaticity coordinates



3.000 K



4.500 K

Micro Urban New hiLED driver

With a high integration technology, the driver used by hiLED, ensured an excellent performance and low consumption (less than 5% of total consumption of the lamp). The group of advanced features allows optimize the performance of the lamps hiLED, improving energy consumption.

For an optimum performance and for keep the best operating parameters, the driver should work according to specifications reflected therein.

The driver's of all hiLED LED lamps have three power control systems integrated.

1.- Manual power adjustment. This system allows adjust the consumption of the device precisely, between the maximum and minimum value, with a simple manual operation.

2.- Thermal sensor system, whose function is to reduce the power of the device when the temperature difference between the device and its critical temperature (85 ° C) is below 5 ° C. This system is responsible for maintaining the lamps hiLED always below the work limits to ensure values of performance and optimum periods of life.

3.- Intelligent Control function, which allows program it by using three micro switches, the performance during the time of lit. The eight possible configurations of the micro switches define the desired according to the table shown below. This configuration can be modified by the user as often as required and according to different year seasons.

Position / Hours	A	B	C	D	E	F	G	H
	ON 1 2 3	ON 1 2 3	ON 1 2 3	ON 1 2 3	ON 1 2 3	ON 1 2 3	ON 1 2 3	ON 1 2 3
1ª hour	100%	100%	100%	100%	100%	100%	100%	100%
2ª hour	100%	100%	100%	100%	100%	100%	100%	100%
3ª hour	100%	100%	100%	100%	100%	100%	100%	100%
4ª hour	100%	50%	100%	100%	100%	100%	100%	100%
5ª hour	100%	50%	50%	100%	100%	100%	100%	100%
6ª hour	100%	50%	50%	100%	100%	100%	100%	50%
7ª hour	100%	50%	50%	100%	100%	80%	50%	50%
8ª hour	100%	50%	50%	50%	50%	80%	50%	50%
9ª hour	100%	50%	50%	50%	50%	80%	50%	50%
10ª hour	100%	50%	50%	50%	50%	60%	50%	50%
11ª hour	100%	50%	50%	50%	50%	60%	50%	50%
12ª hour	100%	50%	50%	100%	50%	60%	50%	50%
13ª hour	100%	50%	50%	100%	50%	60%	50%	50%
14ª hour	100%	50%	50%	100%	50%	60%	50%	50%
15ª hour	100%	50%	50%	100%	50%	60%	50%	50%

Micro Urban New hiLED luminarie

Urban Villa V2 hiLED				
	Unit	Minimum Value	Characteristic Value	Maximum Value
Geometric characteristics				
Dimensions	mm		714 x 120 x 60	
Weight	Kg		3,6	
Operating parameters				
Working voltage	V	28		37
Working intensity	mA	800		3.000
Working power	W	30		80
Working environment temperature	ºC	-20		50
Operational critical temperature	ºC		85	
Working moisture	%	10		95
Protection level			IP66 / IK08	
Welding temperature	ºC		260	
Temperature achieved at the junction	ºC			60
Power supply characteristics				
Efficiency		0.93		0.99
Power factor		0.95		0.99
Input voltage	VAC	170		265
Rated power	A	0,2		0,5
Protection temperature	ºC		85	
Operating frecuency	Hz	50		60
Photometric data				
Half-life	h		>80.000	
Colour temperature neutral white	K	2.700	3.000	3.300
Colour temperature cold white	K	4.100	4.500	4.900
CRI (Colour rendering index)	Ra	85		89

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Micro Urban New hiLED luminarie

The lighting family Micro Urban New hiLED is an ideal solution for residential installations, urban and road lighting. Adapting to the different types of existing anchor on the market and with an easy installation.

• Light raw materials	Body in die-cast aluminum with black polyester paint. Clamping screws in stainless steel.
• Luminary	hiLED's Micro Urban New lamps range
• Power supply	Electronic dimmable
• Protection against electric shock	Class I and Class II (Optional)
• System consumption	Adjustable since 30 to 80 watts
• Overall light performance	95 %
• Emission to the upper hemisphere	< 1 %
• Useful life	70.000 h L80 B10 tª=25ºC
• Luminary protection degree	IP 66 / IK09

In compliance with the following European Directives:

European Directive 2014/35/EC (LVD), of 26 February 2014 on the approximation of the laws of the Member States relating to electromagnetic compatibility.

European Directive 2014/30/EC (EMC) of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (codified version).

The Micro Urban New hiLED luminaries have passed the tests for the following UNE rules:

UNE EN 60598-1:2009 + A1 (2007) + A2 (2009)

UNE EN 60598-2-3:2003 + A1 (2011)

UNE EN 61000-3-2:2006 + A1 + A2 (2009)

UNE EN 61347-1:2008

UNE EN 61347-2-13:2007

UNE EN 61547:2009

UNE EN 55015:2006 + A1 (2007) + A2 (2009)

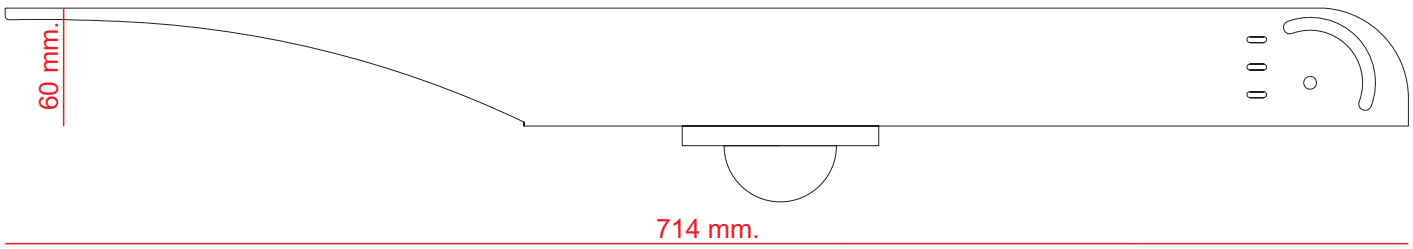
UNE EN 62031:2008

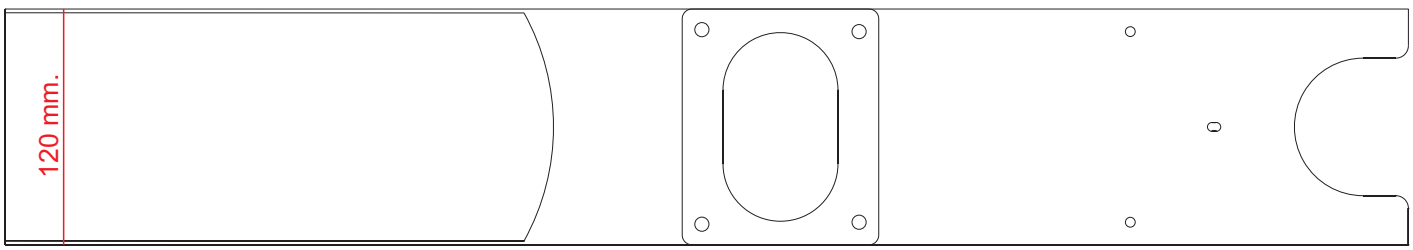
UNE EN 62471:2009

UNE EN 61000-3-3

UNE EN 62493:2011

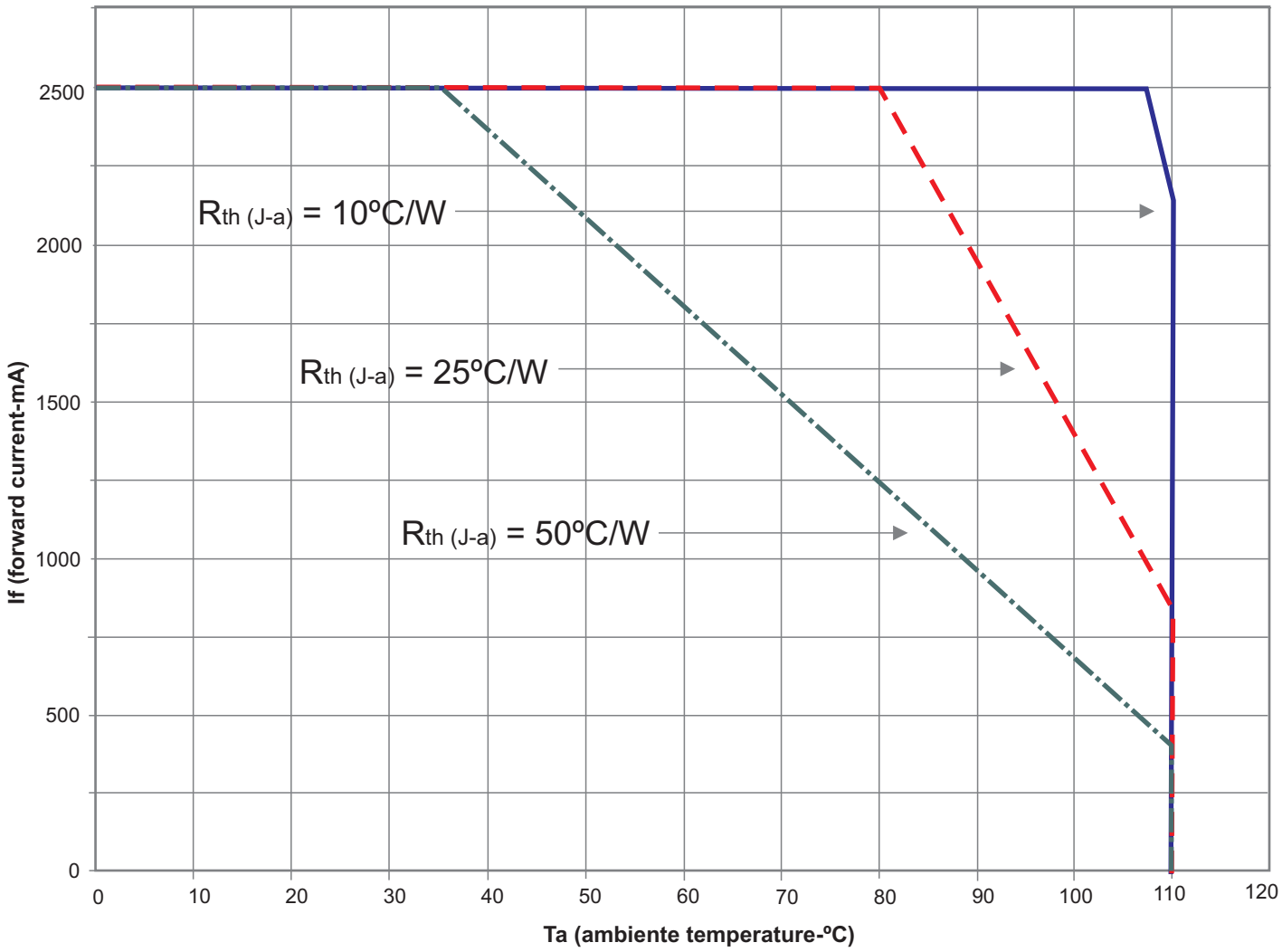
UNE EN 62384





Micro Urban New hiLED lighting source

Thermal design



Starting temperature (ºC)		Starting thermal resistance (ºC/W)		Finishing temperature (ºC)		Finishing thermal resistance (ºC/W)	
T1	25.2	R1	0.24	T1'	25.3	R1'	0.55
T2	27.1	R2	0.21	T2'	46.5	R2'	0.24
T3	26.6	R3	0.22	T3'	31.8	R3'	0.45