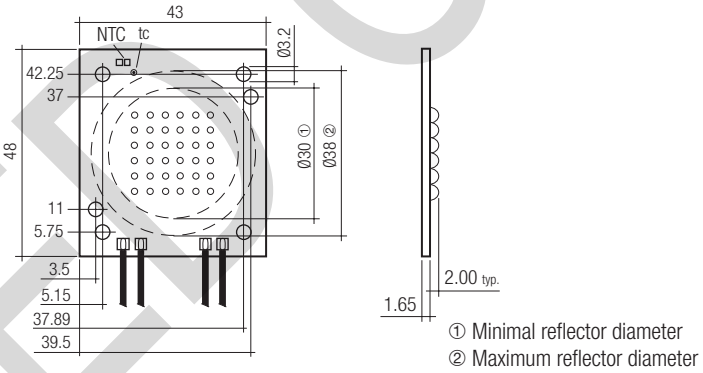
RoHS

TALEX(module SPOT P340-2

TALEX(module SPOT

Product description

- Spotlights
- Downlights
- High-flux LED module
- Narrow colour temperature tolerance band
- Compact design
- Excellent thermal management①
- NTC for temperature control
- High-power LED in chip-on-board technololgy
- Beam characteristic: 140°
- Uniform distribution of light
- Fixing holes for M3 screws
- Connection: Cable 300 mm
- Built-in LED module
- Cooling required



① Minimal reflector diameter
② Maximum reflector diameter

Technical data

Weight	15 g
Typ. power at 1,050 mA①⑥	40 W
Risk group (EN 62471:2008)	0

→

Standards, page 2

Colour temperatures and tolerances, page 5

Ordering data

Colour temperature	Colour	Type	Article number
3,000 K		**LED P340-2 3000K 48x43**	**89601150**
3,500 K		**LED P340-2 3500K 48x43**	**89601363**
4,000 K		**LED P340-2 4000K 48x43**	**89601151**
5,000 K		**LED P340-2 5000K 48x43**	**89601358**
2,700 K	Gold	**LED P340-2 GOLD 48x43**	**89601164**

Packaging: 20 pieces/carton

Specific technical data

Type	Min. luminous flux at 1,050 mA②③	Typ. luminous flux at 1,050 mA②③	Typ. forward current④⑤	Max. forward current④⑤	Min. forward voltage②⑥	Typ. forward voltage②⑥	Max. forward voltage②⑥	Colour rendering index CRI
LED P340-2 3000K 48x43	2,400 lm	2,700 lm	1,050 mA	1,400 mA	33.3 V	38 V	44.8 V	> 80
LED P340-2 3500K 48x43	2,420 lm	2,700 lm	1,050 mA	1,400 mA	33.3 V	38 V	44.8 V	> 80
LED P340-2 4000K 48x43	2,700 lm	3,000 lm	1,050 mA	1,400 mA	33.3 V	38 V	44.8 V	> 80
LED P340-2 5000K 48x43	3,100 lm	3,400 lm	1,050 mA	1,400 mA	33.3 V	38 V	44.8 V	> 70
LED P340-2 GOLD 48x43	2,300 lm	2,600 lm	1,050 mA	1,400 mA	33.3 V	38 V	44.8 V	90

① If the maximum temperature limits are exceeded, the life of the module will be greatly reduced or the module may be damaged. The temperature of the TALEX(module SPOT at the tc point in the thermally stable state by mean of a temperature sensor or temperature-sensitive sticker as per EN 60598-1. For the precise position of the tc point see the drawing above.

② At tc = 65 °C

③ Tolerance range for optical data: ±15 %.

④ Permitted current range see diagram on page 4. Exceeding the maximum operating current leads to an overload of the TALEX(module SPOT. This may in turn result in a significant reduction of lifetime or even in damage of the TALEX(module SPOT.

⑤ Max. permissible surge current: 2 A, duration max. 10 µs

⑥ Tolerance range for electrical data: ±15 %.

All values for ta = 25 °C.

For suitable converters please contact Tridonic Customer Service.

Standards
EN 62031
EN 62471

Thermal design and heat sink
The rated life of TALEX(products depends to a large extent on the temperature. If the permissible temperature limits are exceeded, the life of the TALEX(module SPOT will be greatly reduced or the TALEX(module SPOT may be destroyed.

Therefore the TALEX(module SPOT P340-2 needs to be mounted onto a heat sink.

Tridonic's excellent thermal design for the TALEX(module SPOT products provides the lowest thermal resistance and therefore allowing new compact designs without sacrificing quality, safety and life time.

tc point, ambient temperature and lifetime
The temperature at tc reference point is crucial for the light output and life time of a TALEX(product.

For TALEX(module SPOT P340-2 a tc temperature of 65 °C has to be complied in order to achieve an optimum between heat sink requirements, light output and life time.

Compliance with the maximum permissible reference temperature at the tc point must be checked under operating conditions in a thermally stable state. The maximum value must be determined under worst-case conditions for the relevant application.

Mounting instruction

TALEX(module SPOT from Tridonic which have to be installed on a heat sink have to be connected with heat-conducting paste or heat conducting adhesive film and fixed with M3 plastic screws.

The fixing/cooling surface must be cleaned before installing the TALEX(modules to remove all dirt, dust and grease.

None of the components of the TALEX(module SPOT (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.

For further information please refer to to the brochure entitled "TALEX(installation instructions and guidelines".

Temperature control
An NTC resistor is on the board of the TALEX(module SPOT P340-2 to control the tc temperature during the operation.
Exact position see drawing on page 1.
The details of the 220 kΩ NTC (order number B57431V2223J062) you can find in the data sheet of the manufacturer AVX (Nr. NB12QØØ224).

T	R_{25} = 220 kΩ, $B_{25/100}$ = 4,500 K	
	R_T/R_{25}	α
25 °C	1.0000	4.8 %/K
30 °C	0.78759	4.7 %/K
35 °C	0.62406	4.6 %/K
40 °C	0.49737	4.5 %/K
45 °C	0.39863	4.4 %/K
50 °C	0.32123	4.3 %/K
55 °C	0.26022	4.2 %/K
60 °C	0.21186	4.1 %/K
65 °C	0.17334	4.0 %/K
70 °C	0.14249	3.9 %/K
75 °C	0.11767	3.8 %/K
80 °C	0.097598	3.7 %/K
85 °C	0.081300	3.6 %/K

Typical heat sink surface

TALEX(module SPOT P340-2, 1,050 mA

ta	tc	$R_{th, hs-a}$	typical heat sink surface
25 °C	65 °C	0.96 K/W	693 cm²
30 °C	65 °C	0.82 K/W	813 cm²
40 °C	65 °C	0.54 K/W	1,241 cm²
50 °C	65 °C	0.25 K/W	2,620 cm²

TALEX(module SPOT P340-2, 1,400 mA

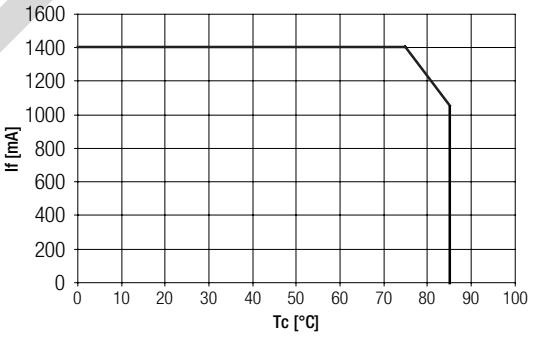
ta	tc	$R_{th, hs-a}$	typical heat sink surface
25 °C	65 °C	0.68 K/W	982 cm²
30 °C	65 °C	0.57 K/W	1,164 cm²
40 °C	65 °C	0.36 K/W	1,849 cm²
50 °C	65 °C	0.15 K/W	4,495 cm²

Notes
Values valid for: natural convection, heat sink material: aluminium ≥ 1 mm thick,
$R_{th, hs-a}$ = required thermal resistance of heat sink

The actual cooling surface can differ because of the material, the structural shape, outside influences and the installation situation. A thermal connection between TALEX(module SPOT and heat sink with heat-conducting paste or heat conducting adhesive film is absolutely necessary.
Additionally the TALEX(module SPOT has to be fixed on the heat sink with M3 plastic screws to optimise the thermal connection.

Thermal behaviour

storage temperature	-30 – 85 °C
operating temperature	-30 – 50 °C
tc max. (at typ. current)	85 °C



Matrix temperature

f(soldering time) for the modules

Temperature	Max. time without heat sink	Max. time with optimized heat sink
330 °C	15 s	–
340 °C	12 s	–
350 °C	10 s	–
360 °C	5 s	15 s
370 °C	3 s	12 s
380 °C	2 s	10 s
390 °C	1 s	5 s

The values apply for soldering without heat sink. To reduce the duration of soldering it is recommended to pre-heat the module at ta max., e.g. on a plate.

Lifetime

tc temperature in °C	luminous flux in %	lifetime in h
25	80	29,000
	70	47,000
	50	91,000
45	80	28,000
	70	45,000
	50	87,000
65	80	26,000
	70	42,000
	50	81,000
75	80	23,000
	70	35,000
	50	75,000
85	80	15,000
	70	22,000
	50	49,000

Electrical supply/choice of converter

TALEXmodule SPOT from Tridonic are not protected against overvoltages, overcurrents, overloads or short-circuit currents. Safe and reliable operation can only be guaranteed in conjunction with a converter which complies with the relevant standards. The use of TALEX converters from Tridonic in combination with TALEXmodule SPOT guarantees the necessary protection for safe and reliable operation.

If a converter other than Tridonic TALEXconverter is used, it must provide the following protection:

- Short-circuit protection
- Overload protection
- Overtemperature protection

TALEXmodule SPOT P340-2 must be supplied by a constant current converter.
Operation with a constant voltage converter will lead to an irreversible damage of the module.

Wrong polarity can damage the TALEXmodule SPOT P340-2.

EOS/ESD safety guidelines

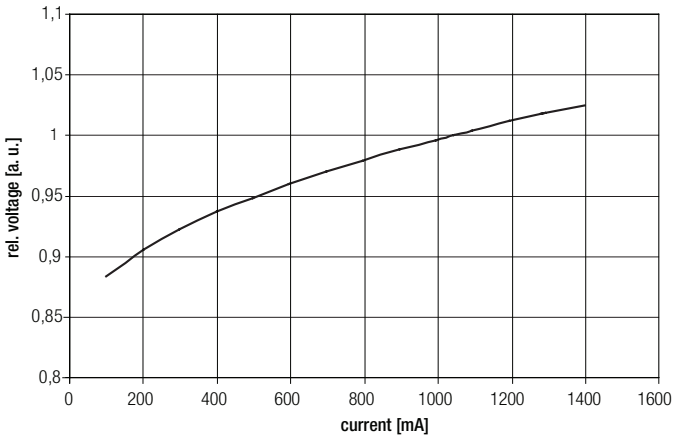
The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice. Please note the requirements set out in the document EOS / ESD guidelines (Guideline_EOS_ESD.pdf) at:
http://www.tridonic.com/com/en/technical-docs.asp

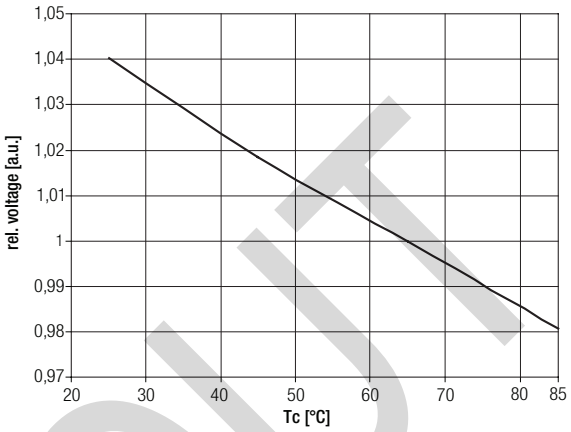
Wiring

Cable: AWG24; length 300 mm

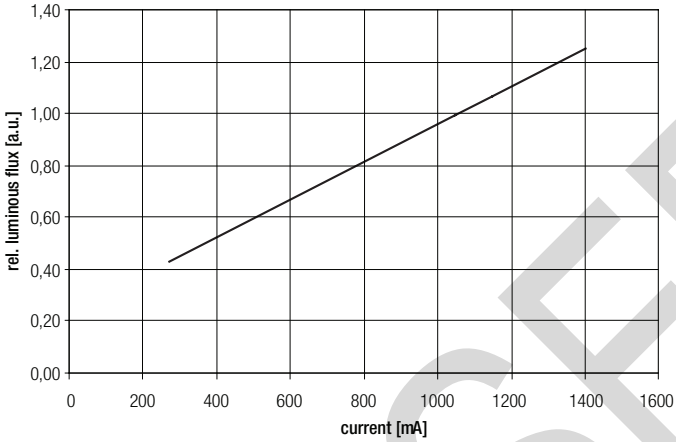
colour	red	black	grey	grey
function	+	-	NTC	NTC

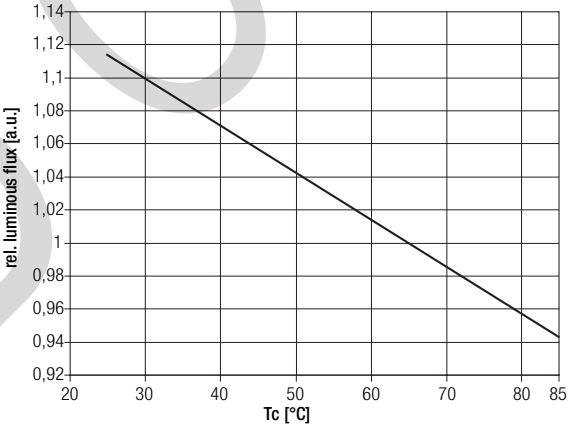
Relative forward voltage and relative luminous flux





— Relative forward voltage at tc = 65 °C





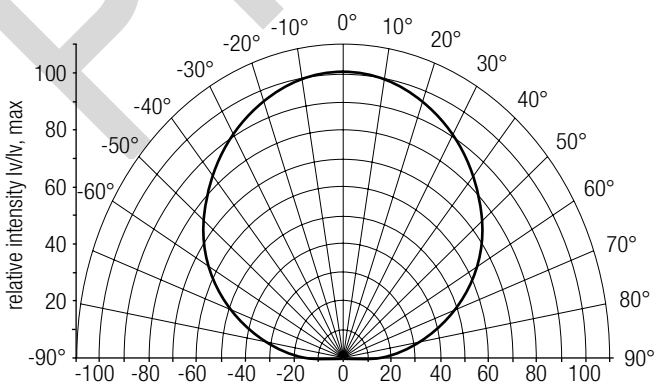
— Relative luminous flux at tc = 65 °C

The diagrams based on statistic values.
The real values can be different.

Optical characteristics TALEX(module SPOT P340-2

The optical design of the TALEX(module SPOT product line ensures optimum homogenity for the light distribution.

TALEX(module SPOT P340-2 140°: Light distribution

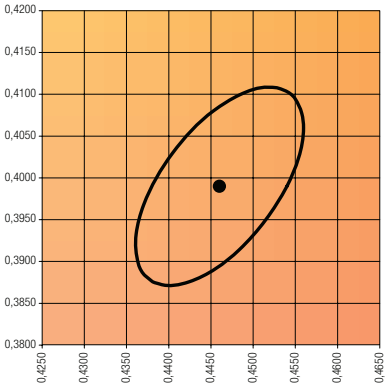


Coordinates and tolerances according to CIE 1964

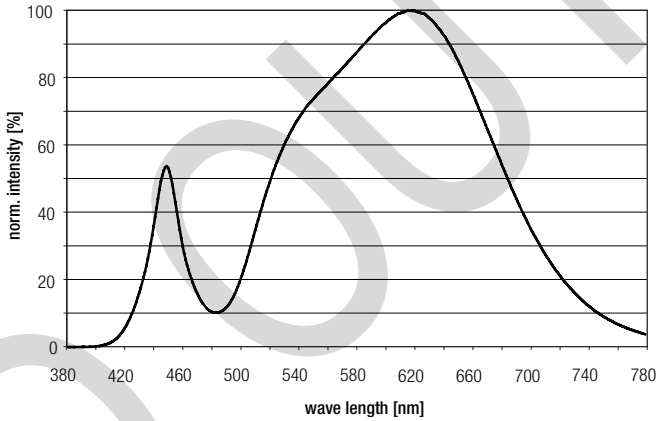
The specified colour coordinates are measured by a current impulse of 1,050 mA and a duration of 100 ms.
The ambient temperature of the measurement is ta = 25 °C.
The measurement tolerance of the colour coordinates are ± 0.01.

3,000 K

	x0	y0
Centre	0,4460	0,3990

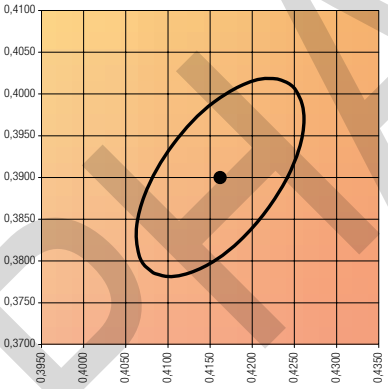


MacAdam ellipse: 5SDCM

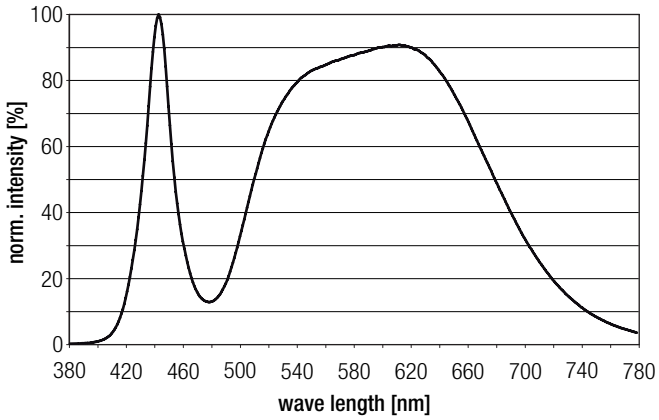


3,500 K

	x0	y0
Centre	0,4160	0,3900

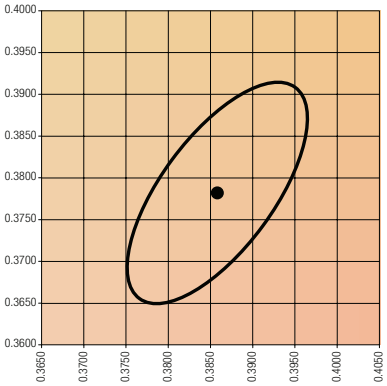


MacAdam ellipse: 5SDCM

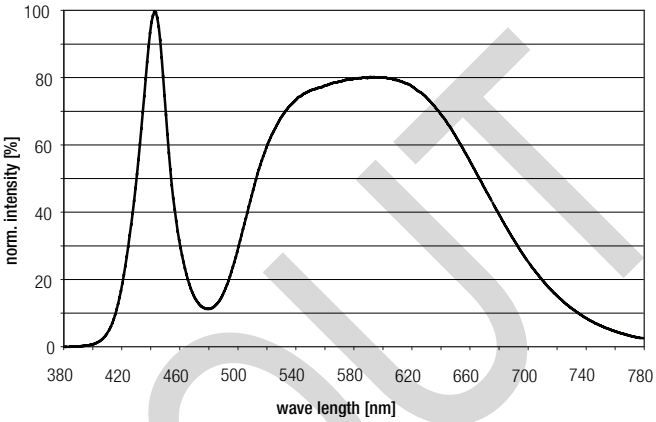


4,000 K

	x0	y0
Centre	0,3860	0,3780

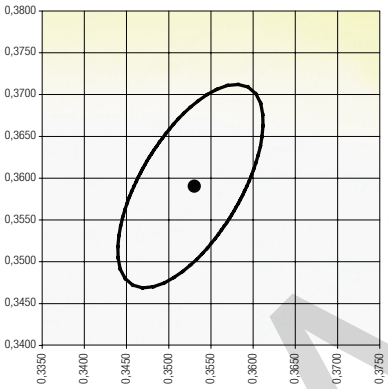


MacAdam ellipse: 5SDCM

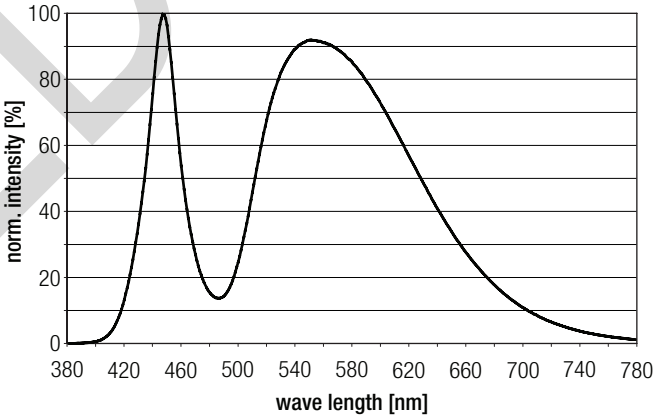


5,000 K

	x0	y0
Centre	0,3530	0,3590

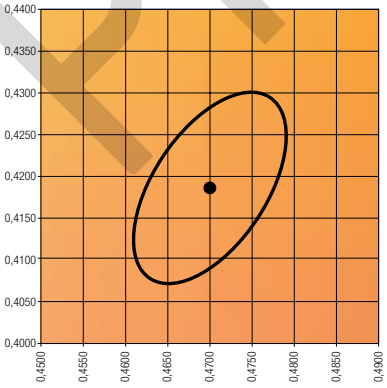


MacAdam ellipse: 5SDCM



Gold

	x0	y0
Centre	0,4700	0,4180



MacAdam ellipse: 5SDCM