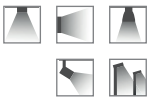
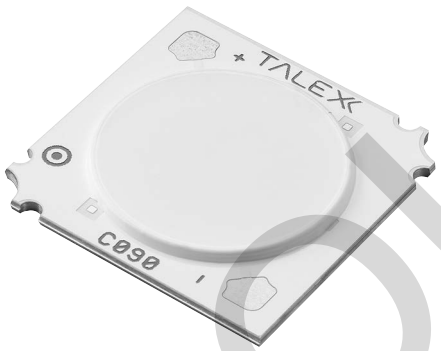


TALEXmodule SLE G4 17mm R SNC

TALEXmodule SLE ESSENCE

Product description

- For general lighting application
- Typ. luminous flux category: 2,000/3,000 lm
- High efficacy up to 145 lm/W for the LED module at tp = 25 °C
- Small LES (light emitting surface) diameter enables narrow beam angle for spotlights
- Excellent thermal management by COB technology
- Uniform radiation with Dam&Fill technology
- Cooling required
- Flexible operating modes



Standards, page 4
Colour temperatures and tolerances, page 8 and 9

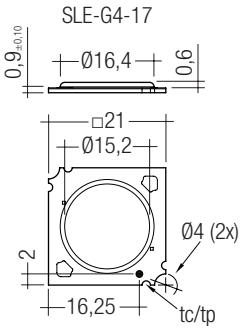
CE RoHS

TALEXmodule SLE G4 17mm R SNC

TALEXmodule SLE ESSENCE

Technical data

Beam characteristic	115°
Ambient temperature ta	-30 ... +75 °C
tp_rated temperature①	65 °C
Max. tc point temperature①	up to 100 °C
Risk group (EN 62471:2008)	1
Type of protection	IP00



Dimensions in mm

Ordering data

Type	Article number	Colour temperature	Connection cable	Packaging	Weight per pc.
SLE G4 17mm 2000lm 830 R SNC	**28000971**	3,000 K	no	25 pc(s).	0.001 kg
SLE G4 17mm 2000lm 840 R SNC	**28000972**	4,000 K	no	25 pc(s).	0.001 kg
SLE G4 17mm 2000lm 850 R SNC	**28000973**	5,000 K	no	25 pc(s).	0.001 kg
SLE G4 17mm 3000lm 830 R SNC	**28000976**	3,000 K	no	25 pc(s).	0.001 kg
SLE G4 17mm 3000lm 840 R SNC	**28000977**	4,000 K	no	25 pc(s).	0.001 kg
SLE G4 17mm 3000lm 850 R SNC	**28000978**	5,000 K	no	25 pc(s).	0.001 kg

Specific technical data

Type	Photometric code	Forward current③④⑤	Luminous flux at tp = 25 °C②	Luminous flux at tp = 65 °C②	Power consumption⑦	Min. forward voltage at tp = 65 °C	Max. forward voltage at tp = 25 °C	Luminous efficacy module at tp = 25 °C	Luminous efficacy module at tp = 65 °C	Colour rendering index CRI	Energy classification
SLE G4 17mm 2000lm 830 R SNC	831/349	500 mA	2,475 lm	2,200 lm	17.9 W	33.3 V	39.4 V	135 lm/W	122 lm/W	82	A+
SLE G4 17mm 2000lm 840 R SNC	841/349	500 mA	2,600 lm	2,300 lm	17.9 W	33.3 V	39.4 V	141 lm/W	128 lm/W	82	A+
SLE G4 17mm 2000lm 850 R SNC	850/459	500 mA	2,660 lm	2,360 lm	17.9 W	33.3 V	39.4 V	145 lm/W	131 lm/W	82	A+
SLE G4 17mm 3000lm 830 R SNC	831/349	900 mA	4,225 lm	3,720 lm	33.5 W	34.5 V	40.7 V	126 lm/W	112 lm/W	82	A+
SLE G4 17mm 3000lm 840 R SNC	841/349	900 mA	4,370 lm	3,850 lm	33.5 W	34.5 V	40.7 V	130 lm/W	116 lm/W	82	A+
SLE G4 17mm 3000lm 850 R SNC	850/459	900 mA	4,480 lm	3,945 lm	33.5 W	34.5 V	40.7 V	133 lm/W	119 lm/W	82	A+

① If the max. temperature limits are exceeded, the life of the system will be greatly reduced or the system may be damaged. The temperature of the TALEXmodule at the tp-point is to be measured in the thermally stable state with a temperature sensor or temperature-sensitive sticker as per EN 60598-1. For the precise position of the tp point see the drawing above.

② Tolerance range for optical data: ±10 %.

③ Exceeding the max. operating current leads to an overload on the TALEXmodule. This may in turn result in a significant reduction in life-time or even destruction of the TALEXmodule.

④ Max. permissible surge current for SLE G4 17mm 2000lm xxx R SNC: 1.92 A, duration max. 10 ms. Max. permissible surge current for SLE G4 17mm 3000lm xxx R SNC: 2.88 A, duration max. 10 ms.

⑤ Max. permissible repetitive peak current for SLE G4 17mm 2000lm xxx R SNC: 960 mA. Max. permissible repetitive peak current for SLE G4 17mm 3000lm xxx R SNC: 1,440 mA.

⑥ All values at tp = 65 °C.

1. Standards

EN 62031
EN 62471
EN 61547
EN 55015
IEC 62717

1.1 Photometric code

Key for photometric code, e. g. 830 / 349

1st digit		2nd + 3rd digit	4th digit	5th digit	6th digit	
Code	CRI	Colour temperature in Kelvin x 100	McAdam initial	McAdam after 25% of the life-time (max.6000h)	Luminous flux after 25% of the life-time (max.6000h)	
					Code	Luminous flux
7	70 – 79				7	≥ 70 %
8	80 – 89				8	≥ 80 %
9	≥90				9	≥ 90 %

2. Thermal details

2.1 tp point, ambient temperature and life-time

The temperature at tp reference point is crucial for the light output and life-time of a TALEX product.
The operating temperature of a TALEX product is crucial for the light output, the product life-time but also for the product safety.
The thermal limits can be checked at the tp/tc point and at tr.
In chapter 5.3 the lumen maintenance is shown in relation to the temperature at tp.
tp,rated shows the temperature at which the rated values are reached.
tc shows the thermal limit for safety reason und must never be exceeded under normal conditions.
For the interchangeablity with other Zhaga products, $t_{r,max}$ is specified directly at the thermal interface to the heatsink of the luminaire.

For TALEXmodule SLE G4 R SNC a tp temperature of 65 °C has to be complied in order to achieve an optimum between heat sink requirements, light output and life-time.

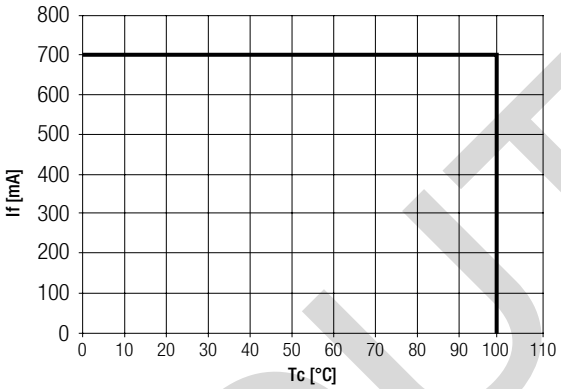
Compliance with the maximum permissible reference temperature at the tp point must be checked under operating conditions in a thermally stable state. The maximum value must be determined under worst-case conditions for the relevant application.

2.2 Thermal behaviour

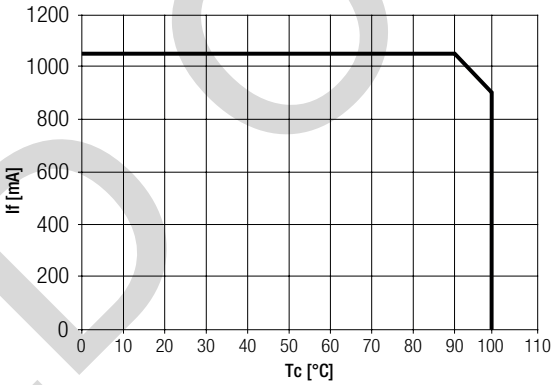
storage temperature	-30 ... +80 °C
operating temperature ta	-30 ... +75 °C
tp (at typ. current)	65 °C
tc temperature as a function of the current	acc. to the derating curves

2.3 Derating curves

SLE G4 17mm 2000lm xxx R SNC



SLE G4 17mm 3000lm xxx R SNC



2.4 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 SLE G4 R SNC will be greatly reduced or the TALEX(module SLE G4 R SNC may be destroyed.

Therefore the TALEX(module SLE G4 R SNC needs to be mounted onto a heat sink which does not exceed the value for $R_{th,max}$.

Tridonic's excellent thermal design for the TALEX(module SLE G4 R SNC products provides the lowest thermal resistance and therefore allowing new compact designs without sacrificing quality, safety and life-time.

2.5 Heat sink values

SLE G4 17mm 2000lm xxx R SNC

ta	tp	Operating current	$R_{th, hs-a}$	Cooling area
25 °C	65 °C	500 mA	3.34 K/W	200 cm²
30 °C	65 °C	500 mA	2.91 K/W	229 cm²
40 °C	65 °C	500 mA	2.04 K/W	326 cm²
50 °C	65 °C	500 mA	1.18 K/W	565 cm²

SLE G4 17mm 3000lm xxx R SNC

ta	tp	Operating current	$R_{th, hs-a}$	Cooling area
25 °C	65 °C	900 mA	1.70 K/W	392 cm²
30 °C	65 °C	900 mA	1.47 K/W	453 cm²
40 °C	65 °C	900 mA	1.02 K/W	654 cm²
50 °C	65 °C	900 mA	0.57 K/W	1.177 cm²

Thermal resistance $R_{th, j-p}$

Luminous flux	$R_{th, j-p}$
2,000 lm	1.10 K/W
3,000 lm	0.87 K/W
5,000 lm	0.65 K/W

Notes
The actual cooling can differ because of the material, the structural shape, outside influences and the installation situation. A thermal connection between TALEX(module SLE G4 R SNC and heat sink with heat-conducting paste or heat conducting adhesive film is absolutely necessary.
Additionally the TALEX(module SLE G4 R SNC has to be fixed on the heat sink with M3 screws to optimise the thermal connection.
Use of thermal interface material with thermal conductivity of $l > 1$ W/mK and layer thickness of interface material with max. 50 µm or a similar interface material where the quotient of layer thickness and thermal conductivity $b < 50$ µmmK/W.

3. Installation / wiring

3.1 Electrical supply/choice of LED Driver

TALEX(module SLE G4 R SNC 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 LED Driver which complies with the relevant standards. The use of TALEX(LED Drivers from Tridonic in combination with TALEX(module SLE G4 R SNC guarantees the necessary protection for safe and reliable operation.

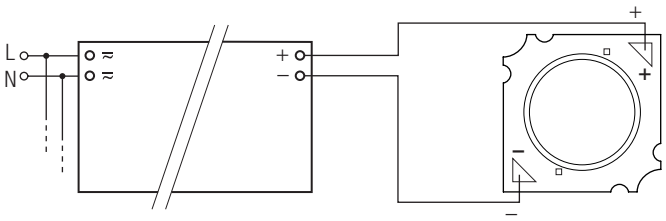
TALEX(module SLE G4 R SNC are basic isolated up to 75 V against ground and can be mounted directly on earthed metal parts of the luminaire. If the max. output voltage of the LED Driver (also against earth) is above 75 V, an additional isolation between LED module and heat sink is required (for example by isolated thermal pads) or by a suitable luminaire construction.
At voltages > 60 V an additional protection against direct touch (test finger) to the light emitting side of the module has to be guaranteed. This is typically achieved by means of a non removable light distributor over the module.

If a LED Driver other than Tridonic TALEX(converter is used, it must provide the following protection:
- Short-circuit protection
- Overload protection
- Overtemperature protection

TALEX(module SLE G4 R SNC must be supplied by a constant current LED Driver.
Operation with a constant voltage LED Driver will lead to an irreversible damage of the module.

Wrong polarity can damage the TALEX(module SLE G4 R SNC.

3.2 Wiring example



TALEX(driver LC...

3.3 Wiring type and cross section

The wiring has to be solid cable with a cross section of 0.5 to 0.75 mm² or with stranded wire with soldered ends with a cross section of 0.5 mm².

3.4 Mounting instruction

TALEXmodule SLE G4 R SNC 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 screws.

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

None of the components of the TALEXmodule SLE G4 R SNC (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.

Max. torque for fixing: 0.5 Nm.

The TALEXmodule SLE G4 R SNC modules are mounted with 2 screws per module. In order not to damage the modules only rounded head screws and an additional plastic flat washer should be used.

For further information please refer to to the brochure entitled "Technical Design-In-Guide SLE GEN4".

Chemical substance may harm the LED module. Chemical reactions could lead to colour shift, reduced luminous flux or a total failure of the module caused by corrosion of electrical connections.

Materials which are used in LED applications (e.g. sealings, adhesives) must not produce dissolver gas. They must not be condensation curing based, acetate curing based or contain sulfur, chlorine or phthalate. Avoid corrosive atmosphere during usage and storage.

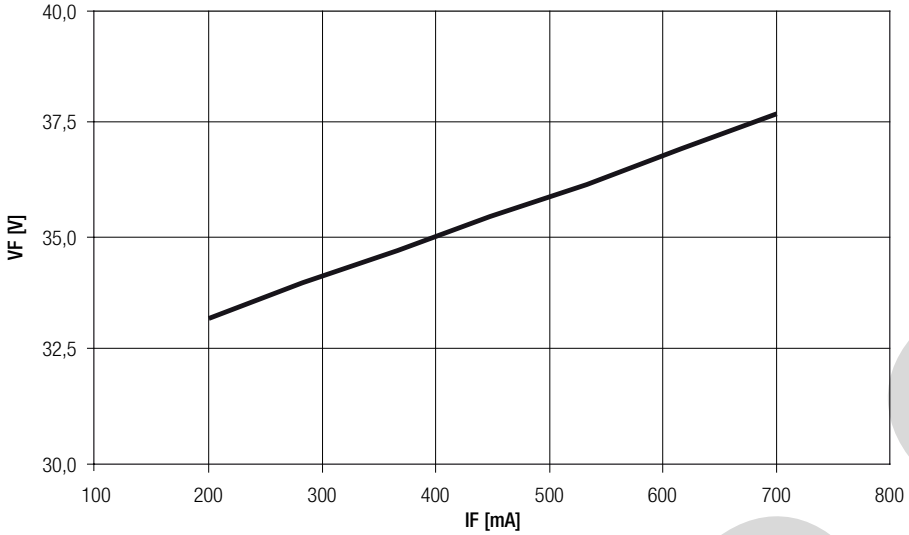
3.5 EOS/ESD safety guidelines

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/esd-protection

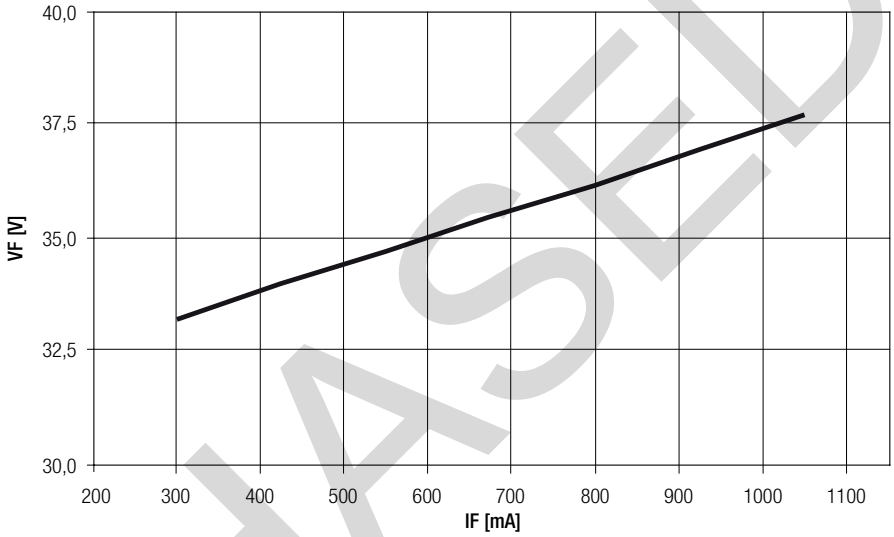
4. Electrical values

4.1 Forward voltage vs. forward current

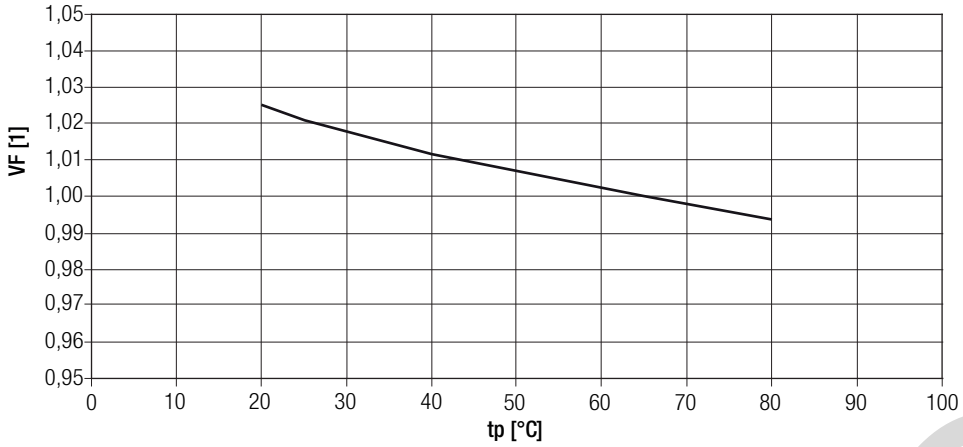
2000 lm:



3000 lm:



4.1 Forward voltage vs. tp temperature



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

5. Photometric characteristics

Coordinates and tolerances according to CIE 1931

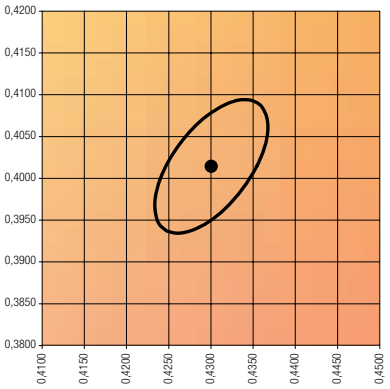
The specified colour coordinates are measured integral after a settling time of 100 ms. The current impuls depends on the module type.

Module type	Current impulse
SLE G4 17mm 2000lm xxx R SNC	500 mA
SLE G4 17mm 3000lm xxx R SNC	900 mA

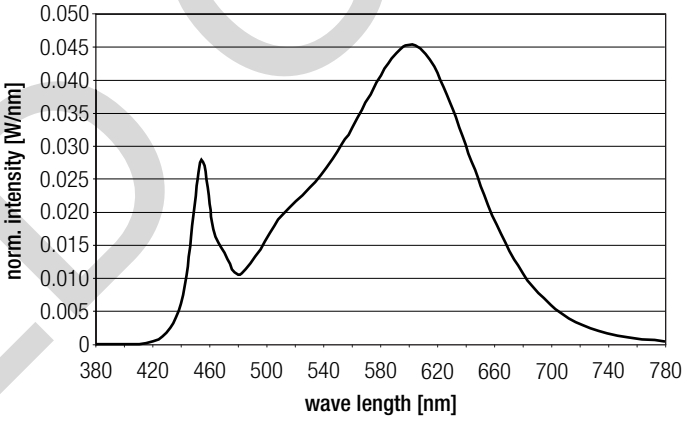
The ambient temperature of the measurement is ta = 25 °C.
The measurement tolerance of the colour coordinates are ± 0.01.

3,000 K

	x0	y0
Centre	0.4300	0.4016

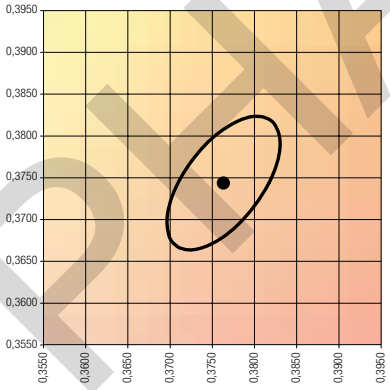


MacAdam ellipse: 3SDCM

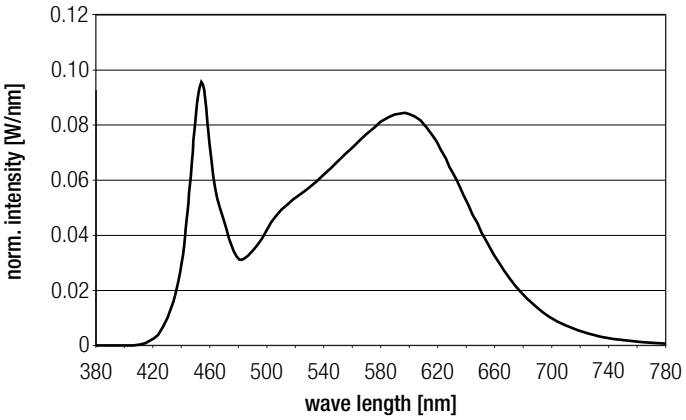


4,000 K

	x0	y0
Centre	0.3761	0.3740

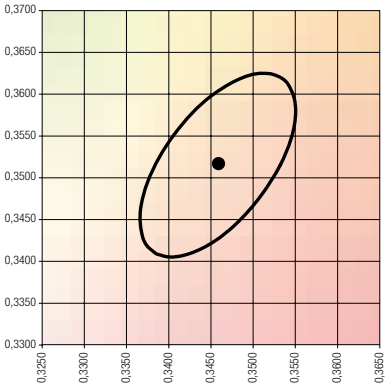


MacAdam ellipse: 3SDCM

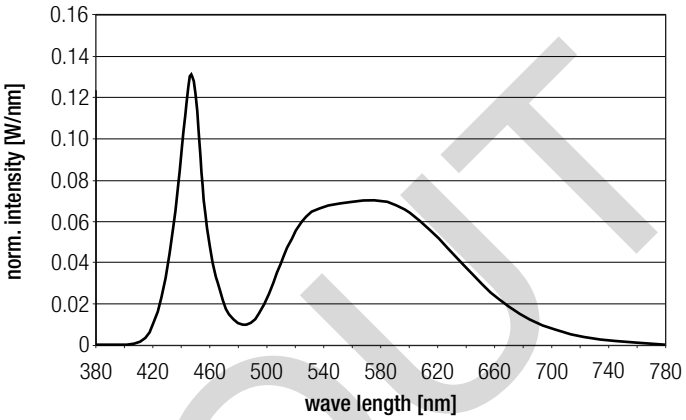


5,000 K

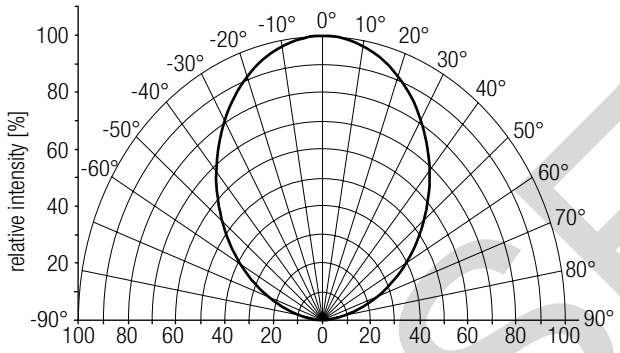
	x0	y0
Centre	0.3451	0.3516



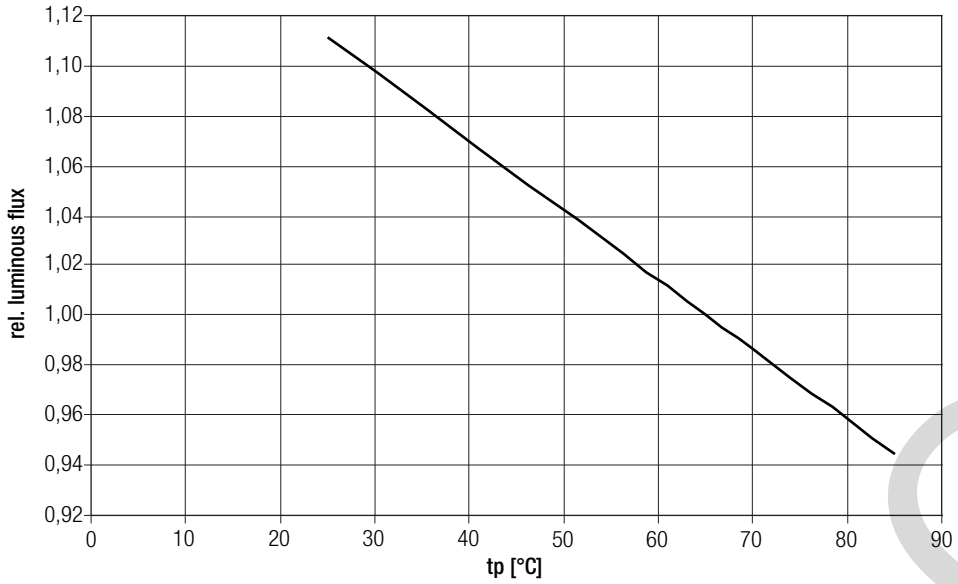
MacAdam ellipse: 4SDCM



5.2 Light distribution



5.3 Relative luminous flux vs. tp temperature



5.4 Relative luminous flux vs. forward current