



TALEXmodule SLE G4 EXC TALEXmodule SLE EXCITE

Product description

- For spotlights and downlights
- LES19 and LES23 modules Zhaga certified
- TIM variants for easy and fast assembly
- Housing with Snap-On feature for easy reflector mounting
- Luminous flux up to 6,110 lm at $t_p = 65^\circ\text{C}$
- High efficacy up to 133 lm/W for the LED module at $t_p = 25^\circ\text{C}$
- High system efficacy up to 116 lm/W at $t_p = 65^\circ\text{C}$
- High colour consistency (MacAdam 3)
- Small LES (light emitting surface) diameter enables small beam angle for spotlights
- Excellent thermal management by COB technology
- Uniform radiation with Dam&Fill technology
- Fixing holes for M3 screws
- Integrated LED module
- Cooling required
- Flexible operating modes
- 5-year guarantee



Standards, page 5

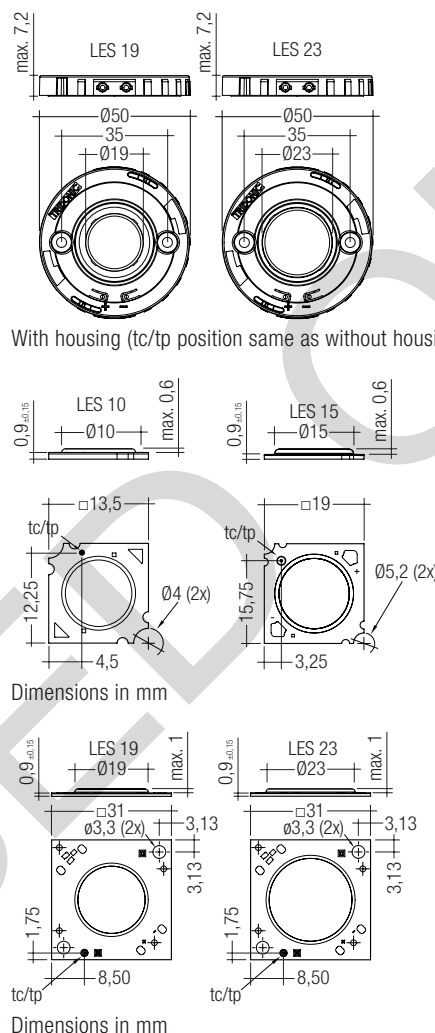
Colour temperatures and tolerances, page 11



TALEXmodule SLE G4 EXC TALEXmodule SLE EXCITE

Technical data

Beam characteristic	115°
Ambient temperature range	-25 ... +50 °C
tp rated	65 °C
tc ^①	up to 100 °C
Max. DC forward current for LES10 [®]	500 mA
Max. DC forward current for LES15 [®]	700 mA
Max. DC forward current for LES19 [®]	1,400 mA
Max. DC forward current for LES23 [®]	1,750 mA
Max. permissible LF current ripple for LES10	720 mA
Max. permissible LF current ripple for LES15	1,200 mA
Max. permissible LF current ripple for LES19	1,680 mA
Max. permissible LF current ripple for LES23	2,400 mA
Max. permissible peak current for LES10	1,440 mA / max. 10 ms
Max. permissible peak current for LES15	2,400 mA / max. 10 ms
Max. permissible peak current for LES19	3,360 mA / max. 10 ms
Max. permissible peak current for LES23	4,800 mA / max. 10 ms
Max. permissible output voltage of LED Driver for LES10 [®]	50 V
Max. permissible output voltage of LED Driver for LES15 [®]	75 V
Max. permissible output voltage of LED Driver for LES19 [®]	75 V
Max. permissible output voltage of LED Driver for LES23 [®]	75 V
Insulation test voltage for LES10	0.5 kV
Insulation test voltage for LES15	1.15 kV
Insulation test voltage for LES19	1.15 kV
Insulation test voltage for LES23	1.15 kV
ESD classification	severity level 4
Risk group (EN 62471:2008)	1
Type of protection	IP00



Ordering data

Type	Article number	Colour temperature	Housing	Thermal interface material	Con- nection cable	Packaging	Weight per pc.
SLE G4 10mm 1200lm 927 R EXC	28000991	2,700 K	no	no	no	36 pc(s).	0.001 kg
SLE G4 10mm 1200lm 930 R EXC	28000992	3,000 K	no	no	no	36 pc(s).	0.001 kg
SLE G4 10mm 1200lm 940 R EXC	28000993	4,000 K	no	no	no	36 pc(s).	0.001 kg
SLE G4 15mm 2000lm 930 R EXC	89601964	3,000 K	no	no	no	20 pc(s).	0.001 kg
SLE G4 15mm 2000lm 940 R EXC	89601965	4,000 K	no	no	no	20 pc(s).	0.001 kg
SLE G4 15mm 2000lm 930 C EXC	89601949	3,000 K	no	no	yes	20 pc(s).	0.004 kg
SLE G4 15mm 2000lm 940 C EXC	89601950	4,000 K	no	no	yes	20 pc(s).	0.004 kg
SLE G4 19mm 3000lm 930 C EXC	89601953	3,000 K	no	no	yes	20 pc(s).	0.009 kg
SLE G4 19mm 3000lm 940 C EXC	89601954	4,000 K	no	no	yes	20 pc(s).	0.009 kg
SLE G4 23mm 5000lm 930 C EXC	89601956	3,000 K	no	no	yes	20 pc(s).	0.009 kg
SLE G4 23mm 5000lm 940 C EXC	89601957	4,000 K	no	no	yes	20 pc(s).	0.009 kg
SLE G4 19mm 3000lm 930 H EXC	89601932	3,000 K	yes	no	no	50 pc(s).	0.009 kg
SLE G4 19mm 3000lm 940 H EXC	89601933	4,000 K	yes	no	no	50 pc(s).	0.009 kg
SLE G4 23mm 5000lm 930 H EXC	89601935	3,000 K	yes	no	no	50 pc(s).	0.009 kg
SLE G4 23mm 5000lm 940 H EXC	89601936	4,000 K	yes	no	no	50 pc(s).	0.009 kg
SLE G4 19mm 3000lm 930 H EXC TIM	89601968	3,000 K	yes	yes	no	50 pc(s).	0.009 kg
SLE G4 19mm 3000lm 940 H EXC TIM	89601969	4,000 K	yes	yes	no	50 pc(s).	0.009 kg
SLE G4 23mm 5000lm 930 H EXC TIM	89601972	3,000 K	yes	yes	no	50 pc(s).	0.009 kg
SLE G4 23mm 5000lm 940 H EXC TIM	89601973	4,000 K	yes	yes	no	50 pc(s).	0.009 kg

Specific technical data

Type ^②	Photo-metric code	Forward current	Luminous flux at tp = 25 °C ^③	Luminous flux at tp = 65 °C ^④	Power consumption ^⑤ ⑥	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	Luminous efficacy system at tp = 65 °C ^⑥	Colour rendering index CRI
SLE 10mm 1200lm – Operating mode HE at 350 mA											
SLE G4 10mm 1200lm 927 EXC	927/3x9	350 mA	1,050 lm	920 lm	12.7 W	33.7 V	39.5 V	81 lm/W	72 lm/W	65 lm/W	90
SLE G4 10mm 1200lm 930 EXC	930/3x9	350 mA	1,080 lm	960 lm	12.7 W	33.7 V	39.5 V	83 lm/W	76 lm/W	68 lm/W	90
SLE G4 10mm 1200lm 940 EXC	940/3x9	350 mA	1,180 lm	1,050 lm	12.7 W	33.7 V	39.5 V	91 lm/W	83 lm/W	75 lm/W	90
SLE 10mm 1200lm – Operating mode H0 at 500 mA											
SLE G4 10mm 1200lm 927 EXC	927/3x9	500 mA	1,360 lm	1,190 lm	19.0 W	34.9 V	41.4 V	70 lm/W	63 lm/W	57 lm/W	90
SLE G4 10mm 1200lm 930 EXC	930/3x9	500 mA	1,410 lm	1,240 lm	19.0 W	34.9 V	41.4 V	73 lm/W	65 lm/W	59 lm/W	90
SLE G4 10mm 1200lm 940 EXC	940/3x9	500 mA	1,540 lm	1,350 lm	19.0 W	34.9 V	41.4 V	79 lm/W	71 lm/W	64 lm/W	90
SLE 15mm 2000lm – Operating mode HE at 350 mA											
SLE G4 15mm 2000lm 930 EXC	930/3x9	350 mA	1,370 lm	1,310 lm	11.6 W	31.0 V	36.0 V	116 lm/W	113 lm/W	102 lm/W	90
SLE G4 15mm 2000lm 940 EXC	940/3x9	350 mA	1,460 lm	1,390 lm	11.6 W	31.0 V	36.0 V	124 lm/W	120 lm/W	108 lm/W	90
SLE 15mm 2000lm – Operating mode NM											
SLE G4 15mm 2000lm 930 EXC	930/3x9	500 mA	1,900 lm	1,800 lm	17.3 W	32.2 V	37.4 V	109 lm/W	104 lm/W	94 lm/W	90
SLE G4 15mm 2000lm 940 EXC	940/3x9	500 mA	2,000 lm	1,910 lm	17.3 W	32.2 V	37.4 V	114 lm/W	110 lm/W	99 lm/W	90
SLE 15mm 2000lm – Operating mode H0 at 700 mA											
SLE G4 15mm 2000lm 930 EXC	930/3x9	700 mA	2,530 lm	2,390 lm	25.3 W	33.8 V	39.2 V	98 lm/W	94 lm/W	85 lm/W	90
SLE G4 15mm 2000lm 940 EXC	940/3x9	700 mA	2,680 lm	2,510 lm	25.3 W	33.8 V	39.2 V	104 lm/W	99 lm/W	89 lm/W	90
SLE 19mm 3000lm – Operating mode HE at 500 mA											
SLE G4 19mm 3000lm 930 EXC	930/3x9	500 mA	1,950 lm	1,860 lm	16.4 W	30.7 V	35.6 V	117 lm/W	113 lm/W	102 lm/W	90
SLE G4 19mm 3000lm 940 EXC	940/3x9	500 mA	2,220 lm	2,120 lm	16.4 W	30.7 V	35.6 V	133 lm/W	129 lm/W	116 lm/W	90
SLE 19mm 3000lm – Operating mode NM											
SLE G4 19mm 3000lm 930 EXC	930/3x9	1,050 mA	3,740 lm	3,570 lm	37.6 W	33.4 V	38.8 V	98 lm/W	95 lm/W	85 lm/W	90
SLE G4 19mm 3000lm 940 EXC	940/3x9	1,050 mA	4,280 lm	4,000 lm	37.6 W	33.4 V	38.8 V	112 lm/W	106 lm/W	96 lm/W	90
SLE 19mm 3000lm – Operating mode H0 at 1,400 mA											
SLE G4 19mm 3000lm 930 EXC	930/3x9	1,400 mA	4,740 lm	4,270 lm	52.6 W	35.1 V	40.7 V	89 lm/W	81 lm/W	73 lm/W	90
SLE G4 19mm 3000lm 940 EXC	940/3x9	1,400 mA	5,450 lm	4,790 lm	52.6 W	35.1 V	40.7 V	102 lm/W	91 lm/W	82 lm/W	90
SLE 23mm 5000lm – Operating mode HE at 700 mA											
SLE G4 23mm 5000lm 930 EXC	930/3x9	700 mA	2,780 lm	2,650 lm	22.9 W	30.5 V	35.4 V	120 lm/W	116 lm/W	104 lm/W	90
SLE G4 23mm 5000lm 940 EXC	940/3x9	700 mA	2,980 lm	2,840 lm	22.9 W	30.5 V	35.4 V	128 lm/W	124 lm/W	112 lm/W	90
SLE 23mm 5000lm – Operating mode NM											
SLE G4 23mm 5000lm 930 EXC	930/3x9	1,400 mA	5,150 lm	4,900 lm	49.3 W	32.9 V	38.2 V	103 lm/W	99 lm/W	89 lm/W	90
SLE G4 23mm 5000lm 940 EXC	940/3x9	1,400 mA	5,540 lm	5,270 lm	49.3 W	32.9 V	38.2 V	111 lm/W	107 lm/W	96 lm/W	90
SLE 23mm 5000lm – Operating mode H0 at 1,750 mA											
SLE G4 23mm 5000lm 930 EXC	930/3x9	1,750 mA	6,240 lm	5,830 lm	63.8 W	34.0 V	39.4 V	96 lm/W	91 lm/W	82 lm/W	90
SLE G4 23mm 5000lm 940 EXC	940/3x9	1,750 mA	6,710 lm	6,110 lm	63.8 W	34.0 V	39.4 V	104 lm/W	96 lm/W	86 lm/W	90

^① See Derating curves in data sheet section 2.3.

^② Max. DC forward current varies over the temperature of the LED module. See derating curves in data sheet section 2.3.

^③ The detailed explanation, see data sheet section 3.1.

^④ Tolerance range for optical and electrical data: ±10 %.

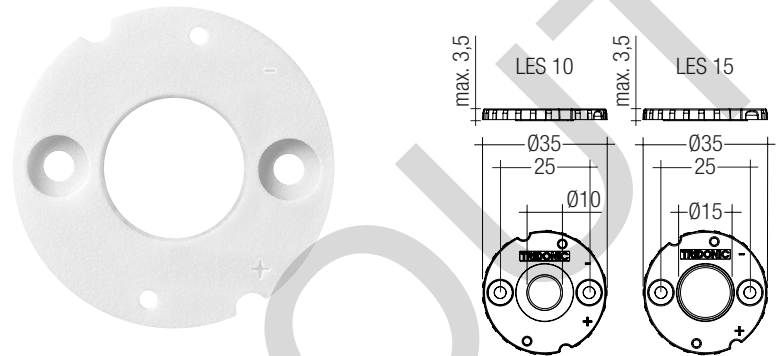
^⑤ Assumed efficiency for the LED Driver is 0.9.

^⑥ All values at tp = 65 °C.

^⑦ HE ... high efficiency, NM ... nominal mode, H0 ... high output.

Product description

- Housing for LES 10 / LES 15
- Diameter: 35 mm
- Material: Lexan Resin 943



Ordering data

Type	Article number	Packaging bag	Weight per pc.
SLE G4 housing for LES 10	28001038	100 pc(s).	0.002 kg
SLE G4 housing for LES 15	28001039	100 pc(s).	0.002 kg

1. Standards

EN 62031
EN 62471
IEC 62717
IEC 61000-4-2

Type	Article number	UL mark
SLE G4 15mm 2000lm 930 R EXC	89601964	yes
SLE G4 15mm 2000lm 940 R EXC	89601965	yes
SLE G4 15mm 2000lm 930 C EXC	89601949	yes
SLE G4 15mm 2000lm 940 C EXC	89601950	yes
SLE G4 19mm 3000lm 930 C EXC	89601953	yes
SLE G4 19mm 3000lm 940 C EXC	89601954	yes
SLE G4 23mm 5000lm 930 C EXC	89601956	yes
SLE G4 23mm 5000lm 940 C EXC	89601957	yes
SLE G4 19mm 3000lm 930 H EXC	89601932	yes
SLE G4 19mm 3000lm 940 H EXC	89601933	yes
SLE G4 23mm 5000lm 930 H EXC	89601935	yes
SLE G4 23mm 5000lm 940 H EXC	89601936	yes

1.1 Glow wire test

according to EN 62031 with increased temperature of 960 °C passed.

1.2 Photometric code

Key for photometric code, e. g. 830 / 369

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

1.3 Energy classification

Type	Forward current	Energy classification
SLE G4 10mm 1200lm 927 EXC	350 mA	A
	500 mA	A
SLE G4 10mm 1200lm 930 EXC	350 mA	A
	500 mA	A
SLE G4 10mm 1200lm 940 EXC	350 mA	A
	500 mA	A
SLE G4 15mm 2000lm 930 EXC	350 mA	A+
	500 mA	A+
	700 mA	A+
	350 mA	A+
SLE G4 15mm 2000lm 940 EXC	500 mA	A+
	700 mA	A+
	500 mA	A+
SLE G4 19mm 3000lm 930 EXC	1,050 mA	A+
	1,400 mA	A
	500 mA	A+
SLE G4 19mm 3000lm 940 EXC	1,050 mA	A+
	1,400 mA	A+
	700 mA	A+
SLE G4 23mm 5000lm 930 EXC	1,400 mA	A+
	1,750 mA	A+
	700 mA	A+
SLE G4 23mm 5000lm 940 EXC	1,400 mA	A+
	1,750 mA	A+

2. Thermal details

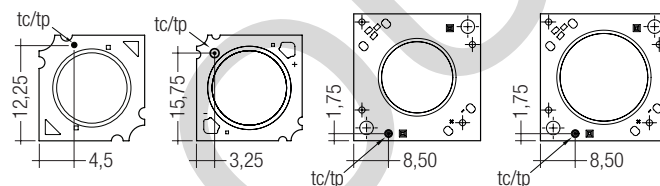
2.1 tp point, ambient temperature and life-time

The temperature at tp reference point is crucial for the light output and life-time of a TALEX product.

For TALEX module SLE G4 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.

To check the tc / tp temperature, the temperature sensor has to be mounted on the PCB at the marked position as stated in the drawing.



2.2 Storage and humidity

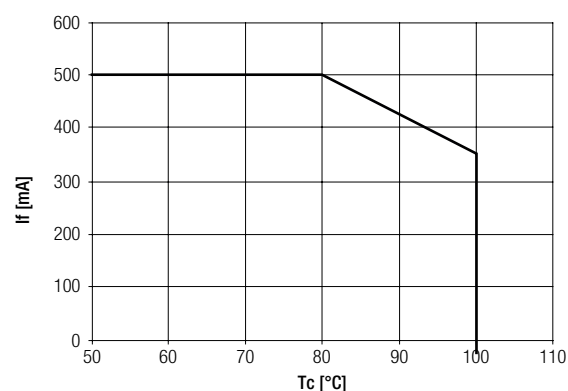
storage temperature	-30 ... +80 °C
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Operation only in non condensing environment.

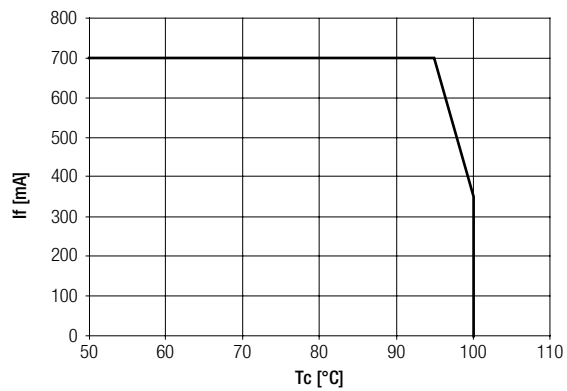
Humidity during processing of the module should be between 30 to 70 %.

2.3 Derating curves

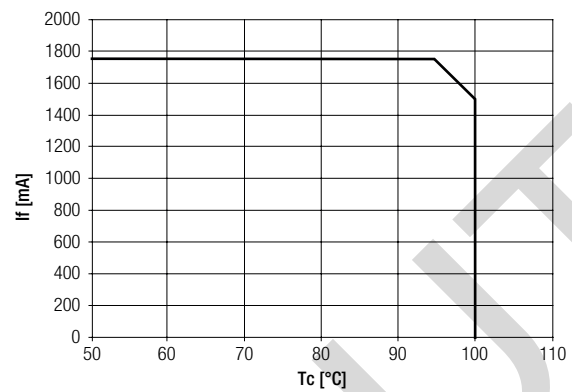
SLE G4 10mm 1200lm 9xx EXCITE



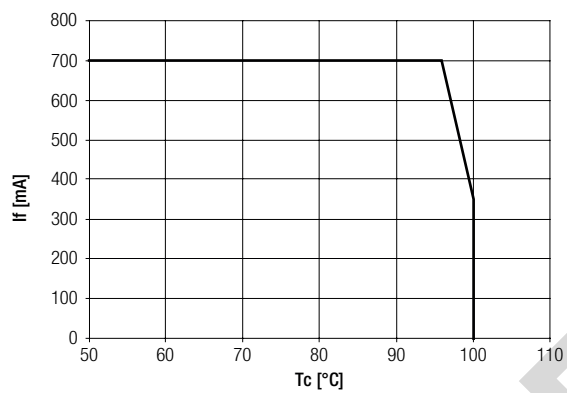
SLE G4 15mm 2000lm 930 EXCITE



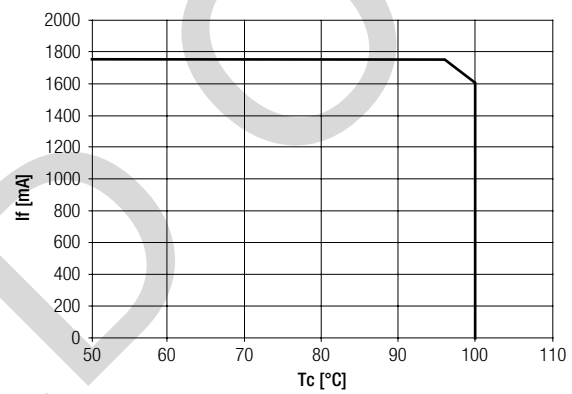
SLE G4 23mm 5000lm 930 EXCITE



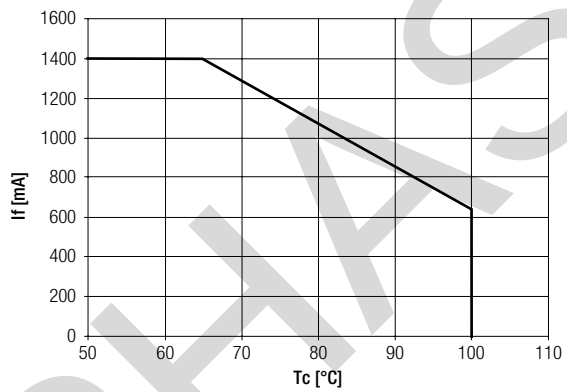
SLE G4 15mm 2000lm 940 EXCITE



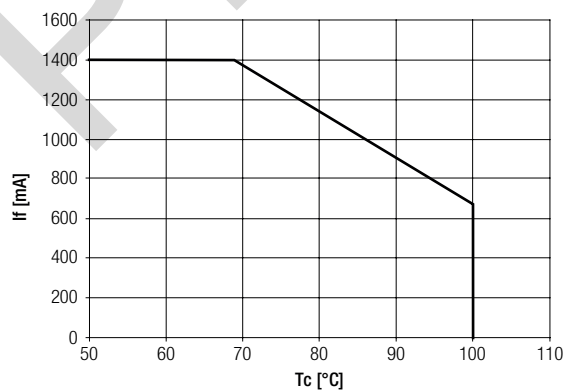
SLE G4 23mm 5000lm 940 EXCITE



SLE G4 19mm 3000lm 930 EXCITE



SLE G4 19mm 3000lm 940 EXCITE



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 TALEXmodule SLE G4 will be greatly reduced or the TALEXmodule SLE G4 may be destroyed.

2.5 Heat sink values

SLE G4 10mm 1200lm 9xx EXCITE

ta	tp	Operating current	R _{th, hs-a}
25 °C	65 °C	350 mA	3.94 K/W
30 °C	65 °C	350 mA	3.41 K/W
40 °C	65 °C	350 mA	2.36 K/W
50 °C	65 °C	350 mA	1.31 K/W
25 °C	65 °C	500 mA	2.43 K/W
30 °C	65 °C	500 mA	2.09 K/W
40 °C	65 °C	500 mA	1.41 K/W
50 °C	65 °C	500 mA	0.74 K/W

SLE G4 15mm 2000lm 9x0 EXCITE

ta	tp	Operating current	R _{th, hs-a}
25 °C	65 °C	350 mA	4.54 K/W
30 °C	65 °C	350 mA	3.96 K/W
40 °C	65 °C	350 mA	2.79 K/W
50 °C	65 °C	350 mA	1.62 K/W
25 °C	65 °C	500 mA	2.92 K/W
30 °C	65 °C	500 mA	2.53 K/W
40 °C	65 °C	500 mA	1.77 K/W
50 °C	65 °C	500 mA	1.00 K/W
25 °C	65 °C	700 mA	1.83 K/W
30 °C	65 °C	700 mA	1.58 K/W
40 °C	65 °C	700 mA	1.09 K/W
50 °C	65 °C	700 mA	0.60 K/W

SLE G4 19mm 3000lm 9x0 EXCITE

ta	tp	Operating current	R _{th, hs-a}
25 °C	65 °C	500 mA	3.18 K/W
30 °C	65 °C	500 mA	2.77 K/W
40 °C	65 °C	500 mA	1.94 K/W
50 °C	65 °C	500 mA	1.11 K/W
25 °C	65 °C	1,050 mA	1.21 K/W
30 °C	65 °C	1,050 mA	1.04 K/W
40 °C	65 °C	1,050 mA	0.61 K/W
50 °C	65 °C	1,050 mA	0.37 K/W
25 °C	65 °C	1,400 mA	0.77 K/W
30 °C	65 °C	1,400 mA	0.66 K/W
40 °C	65 °C	1,400 mA	0.43 K/W
50 °C	65 °C	1,400 mA	0.20 K/W

SLE G4 23mm 5000lm 9x0 EXCITE

ta	tp	Operating current	R _{th, hs-a}
25 °C	65 °C	700 mA	2.27 K/W
30 °C	65 °C	700 mA	1.97 K/W
40 °C	65 °C	700 mA	1.37 K/W
50 °C	65 °C	700 mA	0.76 K/W
25 °C	65 °C	1,400 mA	0.91 K/W
30 °C	65 °C	1,400 mA	0.78 K/W
40 °C	65 °C	1,400 mA	0.52 K/W
50 °C	65 °C	1,400 mA	0.25 K/W
25 °C	65 °C	1,750 mA	0.64 K/W
30 °C	65 °C	1,750 mA	0.54 K/W
40 °C	65 °C	1,750 mA	0.35 K/W
50 °C	65 °C	1,750 mA	0.15 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 TALEXmodule SLE G4 and heat sink with heat-conducting paste or heat conducting adhesive film is absolutely necessary.

Additionally the TALEXmodule SLE G4 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 $\lambda > 1 \text{ W/mK}$ and layer thickness of interface material with max. 50 µm or a similar interface material where the quotient of layer thickness and thermal conductivity $b < 50 \text{ µmmK/W}$.

The SLE G4 TIM modules will be delivered with thermal interface foil of type Tgard 3000.

The bottom side of the thermal pad is glued to the module, the upper side is not adhesive. This makes it easier to position the module when it is connected to the heat sink.



The thermal pad is an integral part of the "TIM" module and must not be confused with a protective foil. The thermal pad must not be pulled off!

For further information about the thermal interface foil please refer to the datasheet of the product Tgard 3000.

3. Installation / wiring

3.1 Electrical supply/choice of LED Driver

TALEXmodule SLE G4 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 TALEXmodule SLE G4 guarantees the necessary protection for safe and reliable operation.

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

- Short-circuit protection
- Overload protection
- Overtemperature protection



TALEXmodule SLE G4 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 TALEXmodule SLE G4.

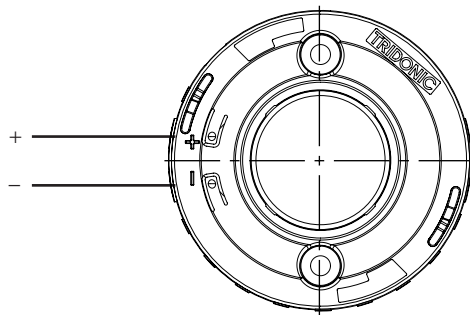


TALEXmodule SLE G4 are basic isolated up to 75 V (for LES10: 50 V) against ground and can be mounted directly on earthed metal parts of the luminaire. If the max. output voltage of the LED Driver (also against earth) is above 75 V (for LES10: above 50 V), an additional isolation between LED module and 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.

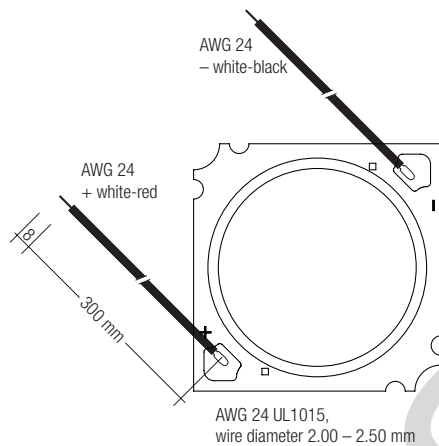
3.2 Wiring

Wiring with housing (LES19 and LES23)

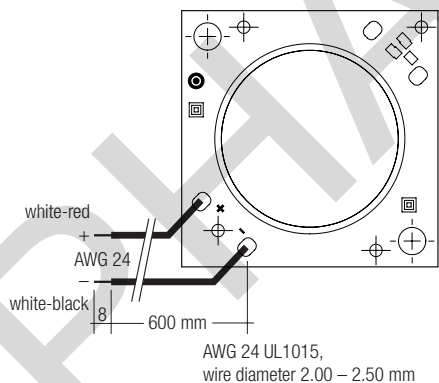


Wiring without housing

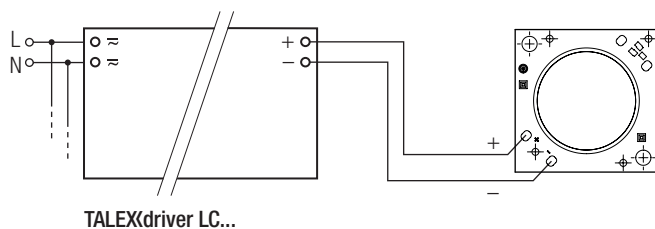
LES10 and LES15



LES19 and LES23



Wiring example

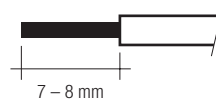


3.3 Wiring type and cross section

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. For the push-wire connection you have to strip the insulation (7 – 8 mm).

Removing wires by lightly pressing on the push button.

wire preparation:



3.4 Mounting instruction



TALEXmodule SLE G4 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 (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.



Max. torque for fixing: 0.5 Nm.

The LED 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 LED modules without housing.

For further information please refer 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.

For further information for EOS/ESD safety guidelines and the ESD classification please refer to the brochure entitled <http://www.tridonic.com/esd-protection>.

4. Life-time

4.1 Life-time, lumen maintenance and failure rate

The light output of an LED Module decreases over the life-time, this is characterized with the L value. L70 means that the LED module will give 70 % of its initial luminous flux. This value is always related to the number of operation hours and therefore defines the life-time of an LED module.

As the L value is a statistical value and the lumen maintenance may vary over the delivered LED modules. The B value defines the amount of modules which are below the specific L value, e.g. L70B10 means 10 % of the LED modules are below 70 % of the initial luminous flux, respectively 90 % will be above 70 % of the initial value. In addition the percentage of failed modules (fatal failure) is characterized by the C value.

The F value is the combination of the B and C value. That means for F degradation and complete failures are considered, e.g. L70F10 means 10 % of the LED modules may fail or be below 70 % of the initial luminous flux.

4.2 Lumen maintenance

SLE G4 10mm 1200lm 9xx EXCITE

Operating current	tp temperature	L90 / F10	L90 / F50	L80 / F10	L80 / F50	L70 / F10	L70 / F50
350 mA	65 °C	45,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	75 °C	33,000 h	50,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	85 °C	25,000 h	38,000 h	53,000 h	> 60,000 h	> 60,000 h	> 60,000 h
500 mA	65 °C	34,000 h	51,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	75 °C	25,000 h	38,000 h	53,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	85 °C	19,000 h	29,000 h	40,000 h	> 60,000 h	> 60,000 h	> 60,000 h

SLE G4 15mm 2000lm 9x0 EXCITE

Operating current	tp temperature	L90 / F10	L90 / F50	L80 / F10	L80 / F50	L70 / F10	L70 / F50
350 mA	65 °C	55,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	75 °C	41,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	85 °C	31,000 h	47,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
500 mA	65 °C	49,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	75 °C	36,000 h	54,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	85 °C	27,000 h	41,000 h	58,000 h	> 60,000 h	> 60,000 h	> 60,000 h
700 mA	65 °C	40,000 h	≥ 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	75 °C	30,000 h	44,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	85 °C	22,000 h	33,000 h	47,000 h	> 60,000 h	> 60,000 h	> 60,000 h

SLE G4 19mm 3000lm 9x0 EXCITE

Operating current	tp temperature	L90 / F10	L90 / F50	L80 / F10	L80 / F50	L70 / F10	L70 / F50
500 mA	65 °C	57,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	75 °C	42,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	85 °C	32,000 h	48,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
1,050 mA	65 °C	42,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	75 °C	31,000 h	46,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	85 °C	23,000 h	35,000 h	50,000 h	> 60,000 h	> 60,000 h	> 60,000 h
1,400 mA	65 °C	32,000 h	48,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h

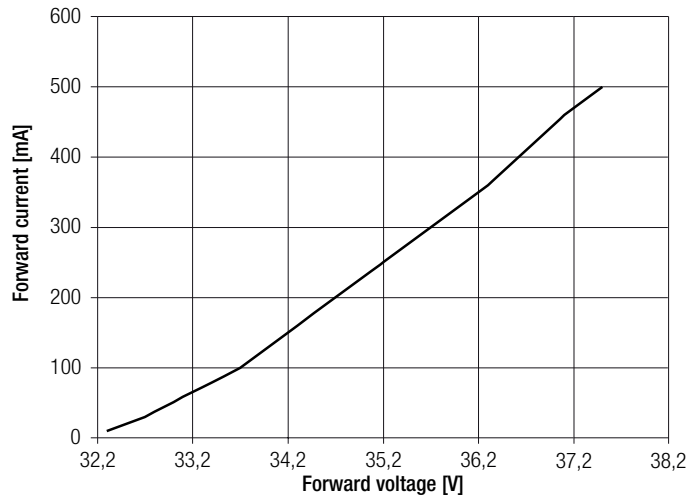
SLE G4 23mm 5000lm 9x0 EXCITE

Operating current	tp temperature	L90 / F10	L90 / F50	L80 / F10	L80 / F50	L70 / F10	L70 / F50
700 mA	65 °C	58,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	75 °C	43,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	85 °C	32,000 h	49,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
1,400 mA	65 °C	45,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	75 °C	33,000 h	50,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	85 °C	25,000 h	38,000 h	53,000 h	> 60,000 h	> 60,000 h	> 60,000 h
1,750 mA	65 °C	38,000 h	58,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	75 °C	29,000 h	43,000 h	> 60,000 h	> 60,000 h	> 60,000 h	> 60,000 h
	85 °C	22,000 h	32,000 h	46,000 h	> 60,000 h	> 60,000 h	> 60,000 h

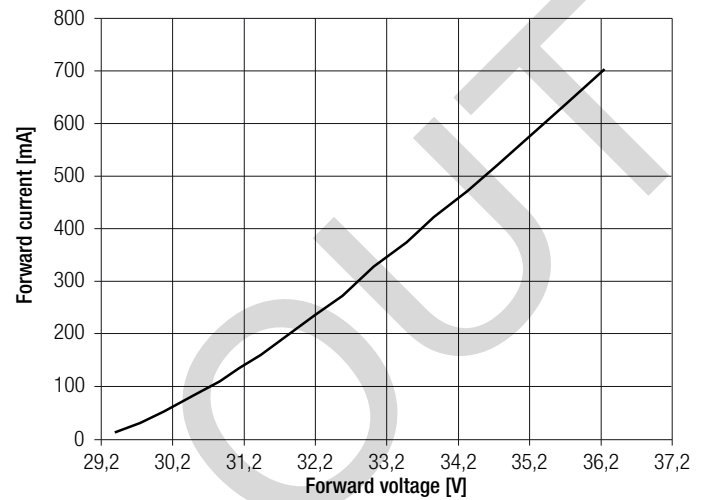
5. Electrical values

5.1 Typ. forward voltage vs. forward current at $t_p = 65^\circ\text{C}$

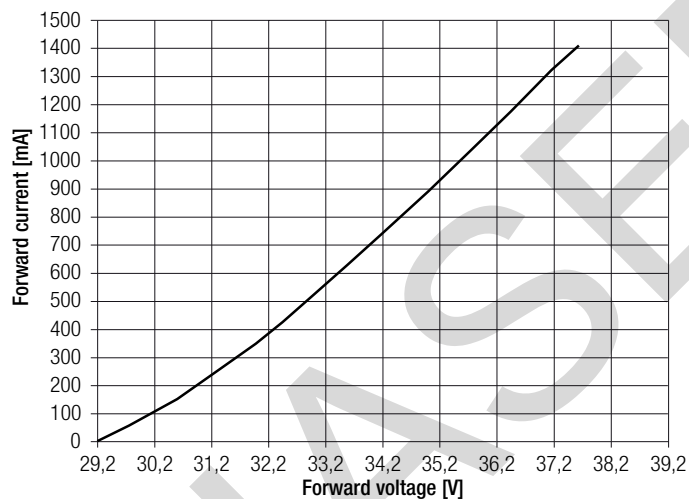
SLE G4 10mm 1200lm 9xx EXCITE



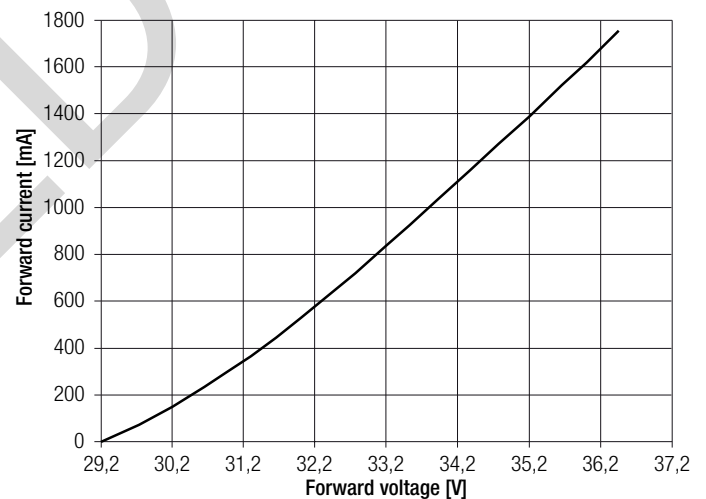
SLE G4 15mm 2000lm 9x0 EXCITE



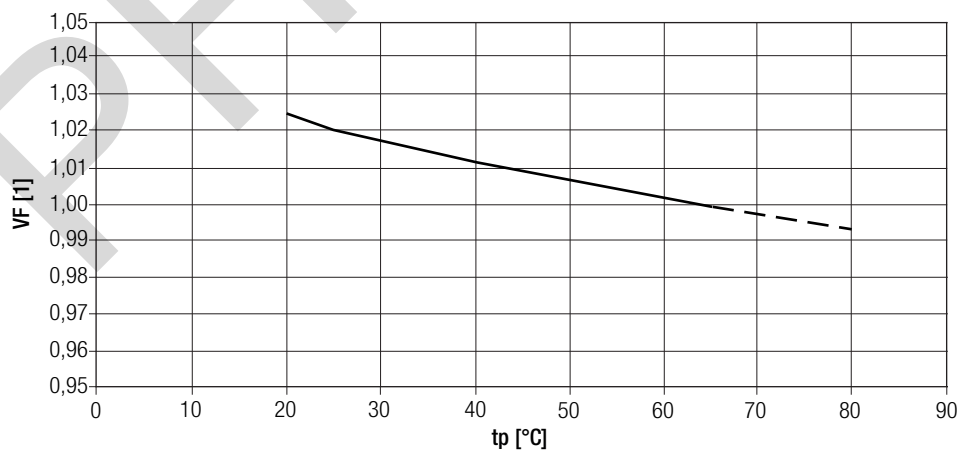
SLE G4 19mm 3000lm 9x0 EXCITE



SLE G4 23mm 5000lm 9x0 EXCITE



5.2 Forward voltage vs. t_p temperature



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

6. Photometric characteristics

6.1 Coordinates and tolerances according to CIE 1931

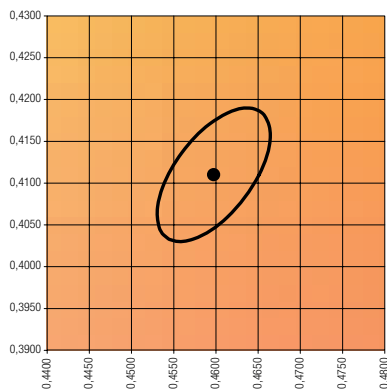
The specified colour coordinates are measured integral after a settling time of 100 ms. The current impulse depends on the module type.

Module type	Current impulse
TALEXmodule SLE G4 10mm 1200lm 9xx EXC	350 mA
TALEXmodule SLE G4 15mm 2000lm 9x0 EXC	500 mA
TALEXmodule SLE G4 19mm 3000lm 9x0 EXC	1,050 mA
TALEXmodule SLE G4 23mm 5000lm 9x0 EXC	1,400 mA

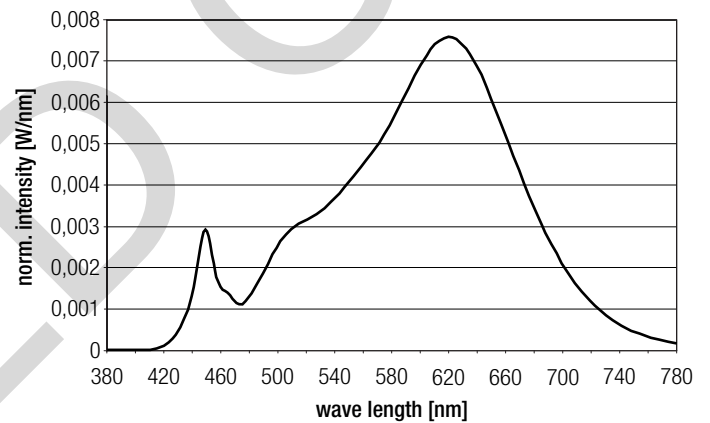
The ambient temperature of the measurement is $t_a = 25^\circ\text{C}$.
The measurement tolerance of the colour coordinates are ± 0.01 .

2,700 K

	x0	y0
Centre	0.4599	0.4106

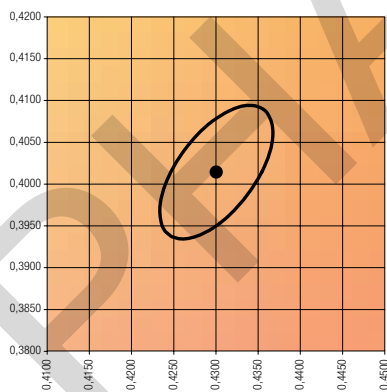


MacAdam ellipse: 3SDCM

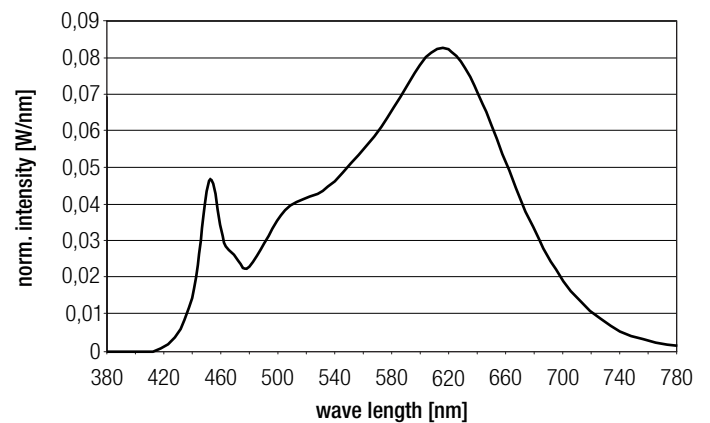


3,000 K

	x0	y0
Centre	0.4300	0.4016

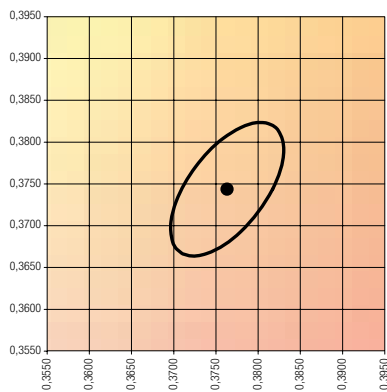


MacAdam ellipse: 3SDCM

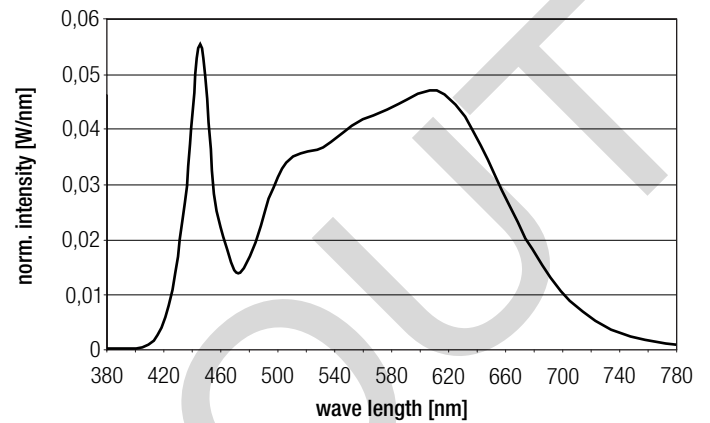


4,000 K

	x0	y0
Centre	0.3761	0.3740

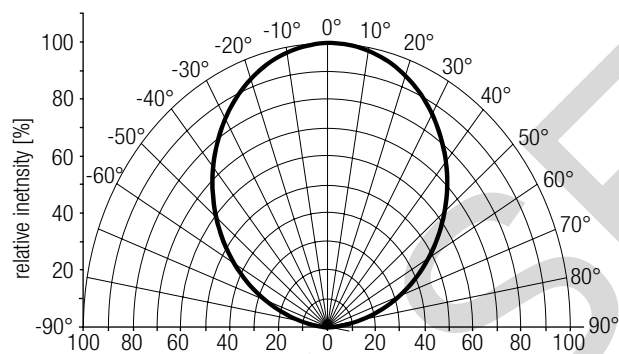


MacAdam ellipse: 3SDCM



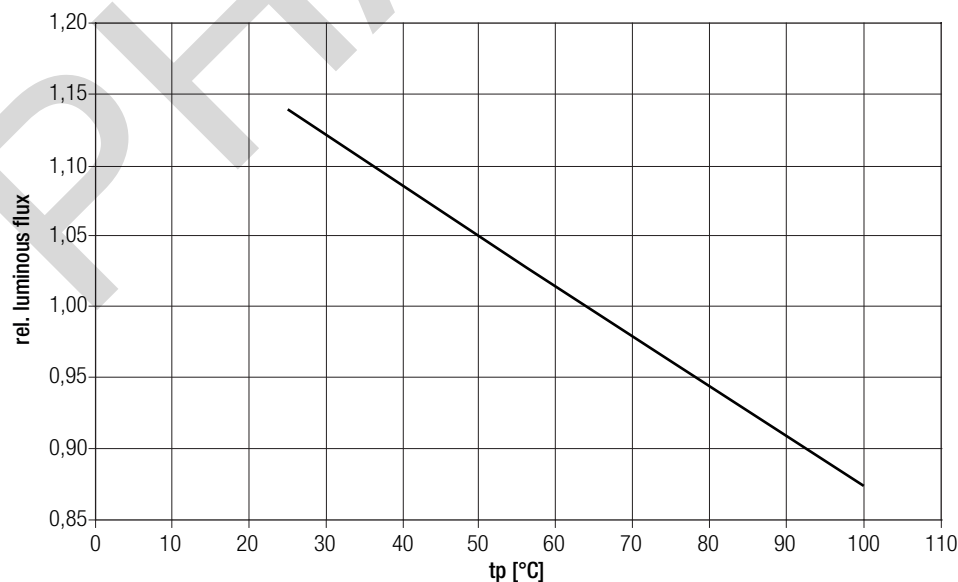
6.2 Light distribution

The optical design of the TALEX module SLE product line ensures optimum homogeneity for the light distribution.



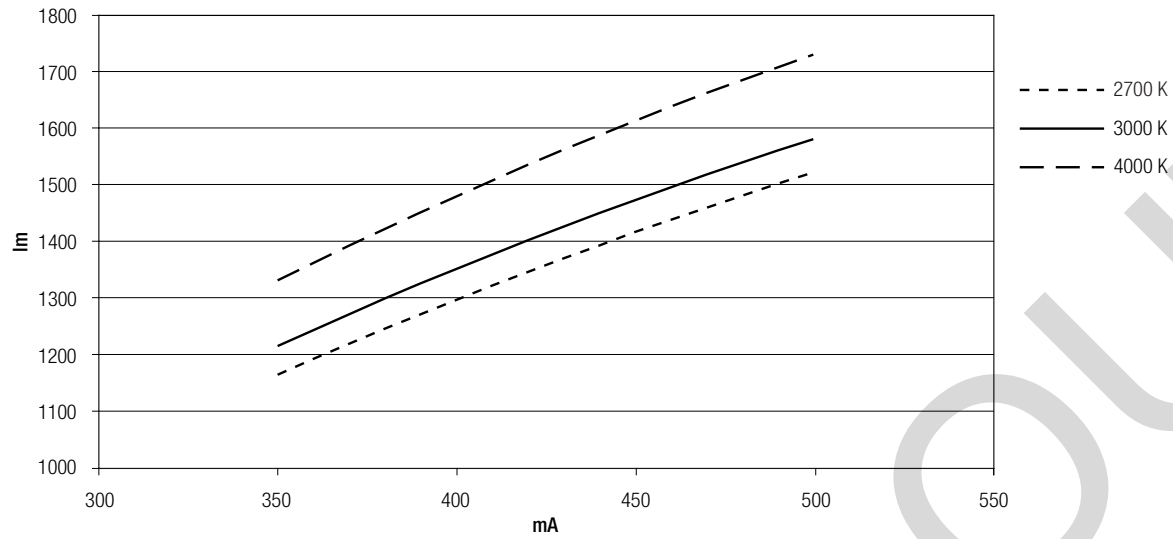
For further information see Design-in Guide, 3D data and photometric data on www.tridonic.com or on request.

6.3 Relative luminous flux vs. tp temperature

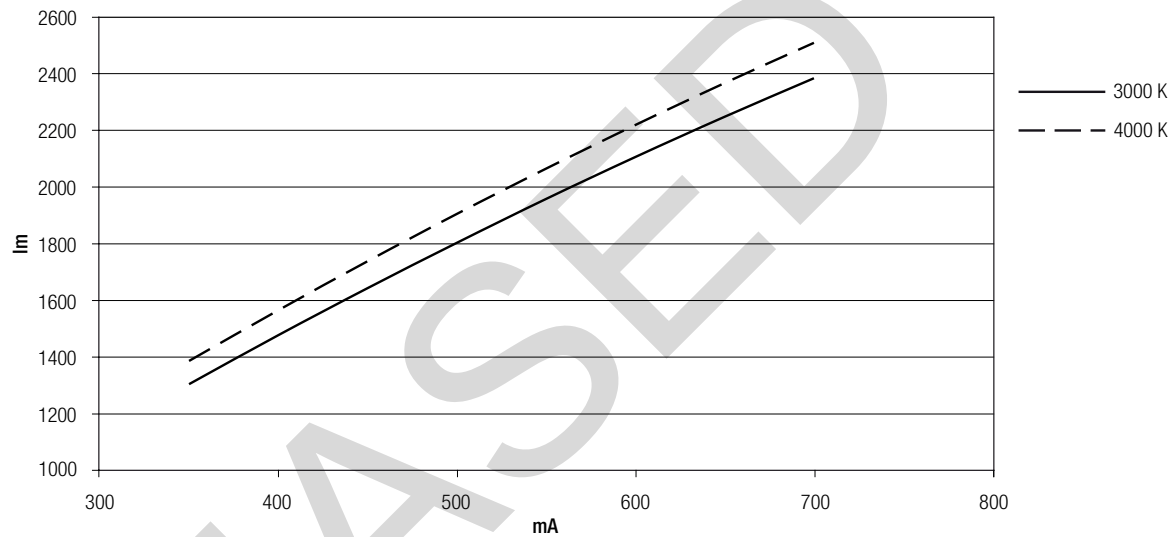


6.4 Relative luminous flux vs. operating current

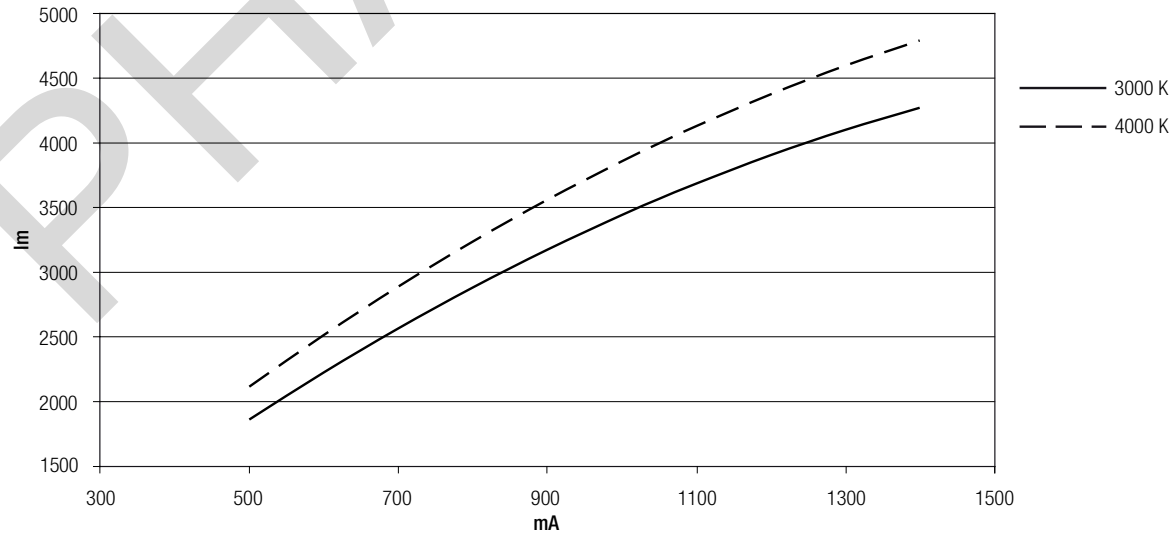
SLE G4 10mm 1200lm 9xx EXCITE at $t_p = 65^\circ\text{C}$



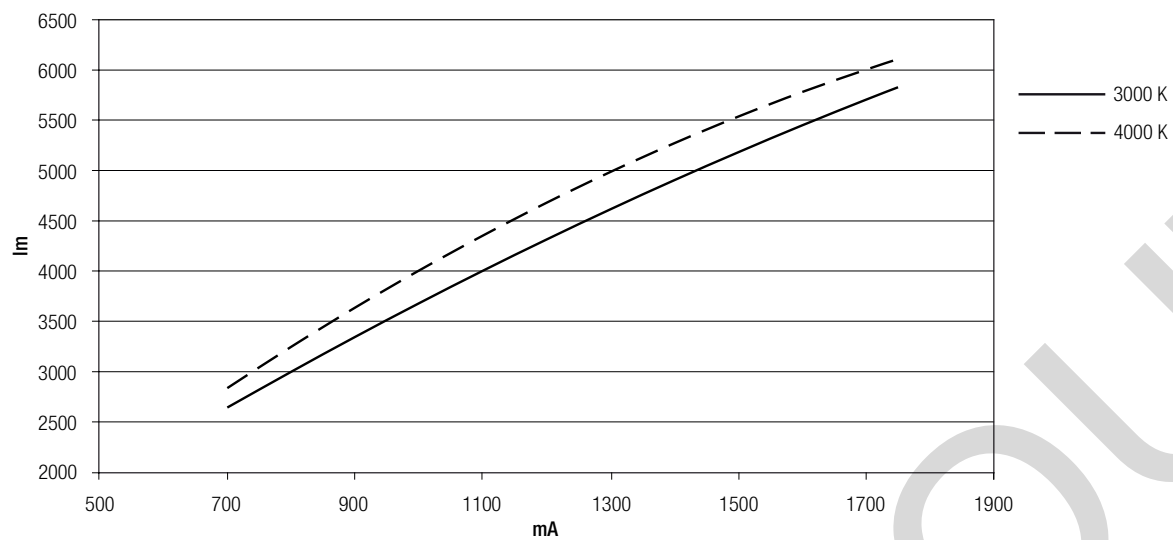
SLE G4 15mm 2000lm 9x0 EXCITE at $t_p = 65^\circ\text{C}$



SLE G4 19mm 3000lm 9x0 EXCITE at $t_p = 65^\circ\text{C}$



SLE G4 23mm 5000lm 9x0 EXCITE at $t_p = 65\text{ }^{\circ}\text{C}$



ZHAGA relevant technical data

Specific technical data

Type	Photo-metric code	Forward current	Luminous flux at $t_p = 25\text{ °C}^{①}$	Luminous flux at $t_p = 65\text{ °C}^{②}$	Power consumption module ^③	Min. forward voltage at $t_p = 65\text{ °C}$	Max. forward voltage at $t_p = 25\text{ °C}$	Luminous efficacy module at $t_p = 25\text{ °C}$	Luminous efficacy module at $t_p = 65\text{ °C}$	Luminous efficacy system at $t_p = 65\text{ °C}^{②}$	Colour rendering index CRI
SLE G4 19mm 3000lm 930 EXC	930/3x9	1,050 mA	3,740 lm	3,570 lm	37.6 W	33.4 V	38.8 V	98 lm/W	95 lm/W	85 lm/W	90
SLE G4 19mm 3000lm 940 EXC	940/3x9	1,050 mA	4,280 lm	4,000 lm	37.6 W	33.4 V	38.8 V	112 lm/W	106 lm/W	96 lm/W	90
SLE G4 23mm 5000lm 930 EXC	930/3x9	1,400 mA	5,150 lm	4,900 lm	49.3 W	32.9 V	38.2 V	103 lm/W	99 lm/W	89 lm/W	90
SLE G4 23mm 5000lm 940 EXC	940/3x9	1,400 mA	5,540 lm	5,270 lm	49.3 W	32.9 V	38.2 V	111 lm/W	107 lm/W	96 lm/W	90

① Tolerance range for optical and electrical data: $\pm 10\%$.

② Assumed efficiency for the LED Driver is 0.9.

③ All values at $t_p = 65\text{ °C}$.

Heat sink values, thermal power values and thermal resistance values

Type	Forward current	Luminous flux category	$P_{th, rear, max}$	$R_{th, rear, max}$ at $t_a = 25\text{ °C}$
SLE G4 19mm 3000lm 930 EXC	1,050 mA	C30	28.0 W	1.45 K/W
SLE G4 19mm 3000lm 940 EXC	1,050 mA	C30	36.9 W	1.14 K/W
SLE G4 23mm 5000lm 930 EXC	1,400 mA	C40	29.0 W	1.71 K/W
SLE G4 23mm 5000lm 940 EXC	1,400 mA	C40	38.1 W	1.31 K/W

Dimensions

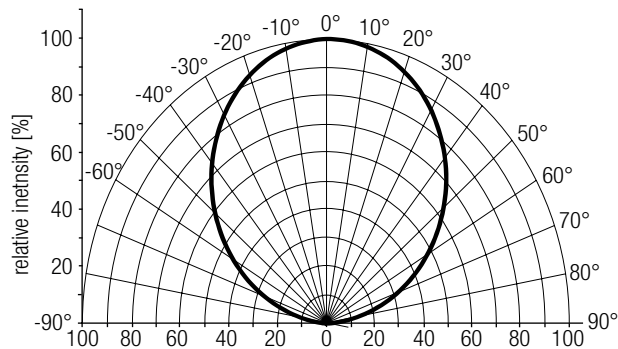
	SLE G4 19mm	SLE G4 23mm
Casing dimensions	$50 \pm 0.15\text{ mm}$	$50 \pm 0.15\text{ mm}$
LES diameter	max. 19.17 mm	max. 23.2 mm
OCA classification	OCA C	OCA D

ZHAGA relevant technical data

Optical characteristics TALEX module SLE G4

The optical design of the TALEX module SLE G4 product line ensures optimum homogeneity for the light distribution.

Light distribution



Rational symmetry of luminous intensity SLE G4 19mm 3000lm 930 EXC

Polar angle	C slices	max. deviation from average curve
- 60° bis + 60°	all	± 1.60 %
- 75° bis - 62.5° und + 62.5° bis + 75°	0° bis + 45° und + 135° bis + 165°	± 2.72 %
- 75° bis - 62.5° und + 62.5° bis + 75°	+ 60° bis + 120°	NA

Rational symmetry of luminous intensity SLE G4 23mm 5000lm 930 EXC

Polar angle	C slices	max. deviation from average curve
- 60° bis + 60°	all	± 2.27 %
- 75° bis - 62.5° und + 62.5° bis + 75°	0° bis + 45° und + 135° bis + 165°	± 3.16 %
- 75° bis - 62.5° und + 62.5° bis + 75°	+ 60° bis + 120°	NA

Partial luminous flux for flux zones SLE G4 19mm 3000lm 930 EXC

CIE cumulative flux zone	γ – angle	Minimum of relative partial flux	Maximum des relativ anteiligen Lichtstromes
FC1	0° – 41.4°	47 %	48 %
FC2 – FC1	41.4° – 60°	32 %	32 %
FC3 – FC2	60° – 75.5°	17 %	17 %
FC4 – FC3	75.5° – 90°	3 %	4 %

Partial luminous flux for flux zones SLE G4 23mm 5000lm 930 EXC

CIE cumulative flux zone	γ – angle	Minimum of relative partial flux	Maximum des relativ anteiligen Lichtstromes
FC1	0° – 41.4°	47 %	47 %
FC2 – FC1	41.4° – 60°	32 %	32 %
FC3 – FC2	60° – 75.5°	17 %	17 %
FC4 – FC3	75.5° – 90°	3 %	4 %

Rational symmetry of luminous intensity SLE G4 19mm 3000lm 940 EXC

Polar angle	C slices	max. deviation from average curve
- 60° bis + 60°	all	± 2.68 %
- 75° bis - 62.5° und + 62.5° bis + 75°	0° bis + 45° und + 135° bis + 165°	± 28.71 %
- 75° bis - 62.5° und + 62.5° bis + 75°	+ 60° bis + 120°	NA

Rational symmetry of luminous intensity SLE G4 23mm 5000lm 940 EXC

Polar angle	C slices	max. deviation from average curve
- 60° bis + 60°	all	± 1.75 %
- 75° bis - 62.5° und + 62.5° bis + 75°	0° bis + 45° und + 135° bis + 165°	± 11.46 %
- 75° bis - 62.5° und + 62.5° bis + 75°	+ 60° bis + 120°	NA

Partial luminous flux for flux zones SLE G4 19mm 3000lm 940 EXC

CIE cumulative flux zone	γ – angle	Minimum of relative partial flux	Maximum of relative partial flux
FC1	0° – 41.4°	50 %	51 %
FC2 – FC1	41.4° – 60°	34 %	34 %
FC3 – FC2	60° – 75.5°	16 %	16 %
FC4 – FC3	75.5° – 90°	1 %	1 %

Partial luminous flux for flux zones SLE G4 23mm 5000lm 940 EXC

CIE cumulative flux zone	γ – angle	Minimum of relative partial flux	Maximum of relative partial flux
FC1	0° – 41.4°	50 %	51 %
FC2 – FC1	41.4° – 60°	34 %	34 %
FC3 – FC2	60° – 75.5°	15 %	15 %
FC4 – FC3	75.5° – 90°	1 %	1 %