

Finger LED Module, SQ64 Series

- Gen 2, premium class typical efficacy up to 192 lm/W
- Accurate initial colour consistency (SDCM) of MacAdam 3-step
- Easy connection with push-in connectors
- Form factor allows pair combinations
- Long lifetime



700 mA, 11.2 V

LED provided by
SAMSUNG



	Nominal colour temp. [K]	Luminous flux (Φ _v)			Forward voltage			Luminous efficacy			CCT			CRI [Ra]
		T _c = 35 °C			T _c = 35 °C			T _c = 35 °C			T _c = 35 °C			
		Min. [lm]	Typ. [lm]	Max. [lm]	Min. [V]	Typ. [V]	Max. [V]	Min. [lm/W]	Typ. [lm/W]	Max. [lm/W]	Min. [K]	Typ. [K]	Max. [K]	
<i>Nominal @ 700 mA</i>														
SI-B8V102250WW	3000	1245	1385	1540	10.3	11.2	12.2	160	178	197	2905	2993	3083	> 80
SI-B8U102250WW	3500	1265	1405	1561	10.3	11.2	12.2	162	180	200	3298	3408	3526	> 80
SI-B8T102250WW	4000	1305	1450	1610	10.3	11.2	12.2	167	186	206	3757	3898	4045	> 80
SI-B8R102250WW	5000	1346	1495	1661	10.3	11.2	12.2	173	192	213	4744	4920	5103	> 80
SI-B8P102250WW	6500	1305	1450	1610	10.3	11.2	12.2	167	186	206	6087	6347	6623	> 80
<i>Maximum @ 2400 mA</i>														

Measurement tolerance: Luminous flux ±7%, CRI ±3.0, Voltage ±0.3V, Power consumption ±0.3W

Electrical specifications

	FIN-SQ64C		
	Min.	Nom.	Max.
<i>at T_c = 35 °C</i>			
Operating Current [mA]	-	700	2400
Operating Voltage* [V]	10.3	11.2	12.2
Power Consumption* [W]	7.2	7.8	8.5

*] At I_f = 700 mA, direct current supply only

Max. permissible peak current	4800 mA (Duty 1/10 pulse width 10ms)
IP rating	IP00

Colour specification

Colour consistency at initial time	3 MacAdam steps
Colour Rendering Index	> 80 Ra

Operating Conditions and Characteristics

Tip point (performance measurements)	T _c = 35 °C
Max. temperature at T _c point	90 °C
Operating temperature range	-20...+50 °C
Storage temperature	-30...+80 °C
Life time (L70B50)	>50 000 h, at T _c = 80 °C

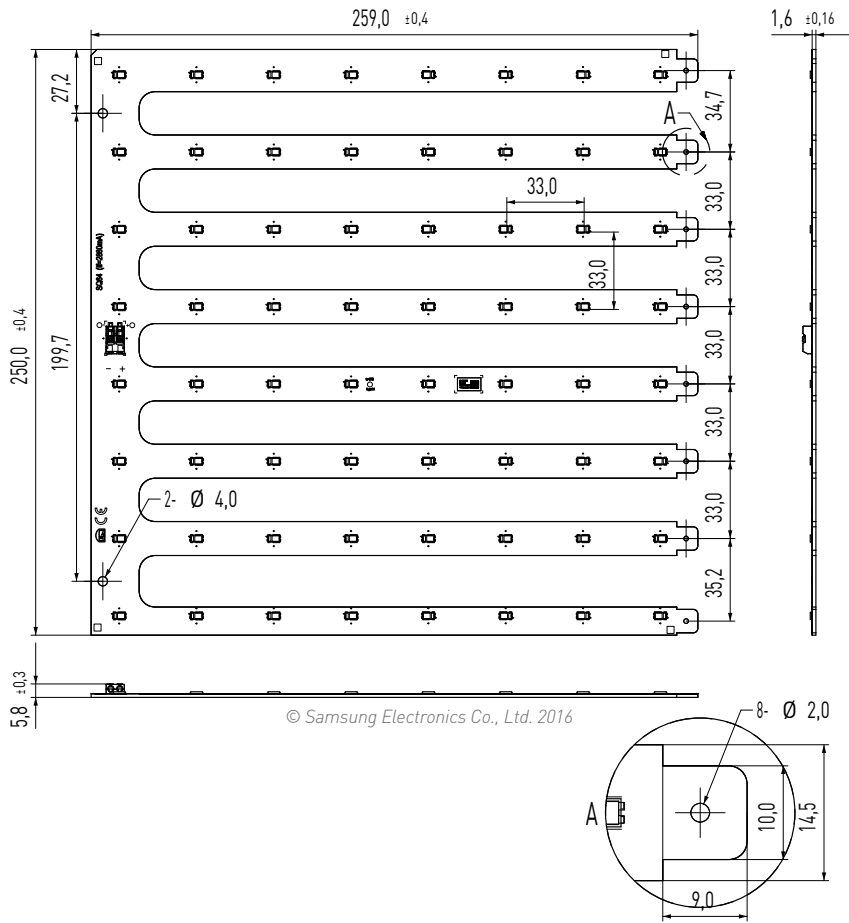
Connections and Mechanical Data

Wire size	0.2 - 0.75 mm ² [24 - 18 AWG]
Terminal strip length	7.5 - 8.5 mm
Connector	Reworkable poke-in connector
PCB material	Copper, solder mask, epoxy

Conformity & Standards

Photobiological safety of lamps and lamp systems	IEC/EN 62471, TR IEC/EN 62778
Led modules for general lighting - safety specifications	IEC/EN 62031

Compliant with relevant EU directives, CE marked, ROHS/REACH compliant



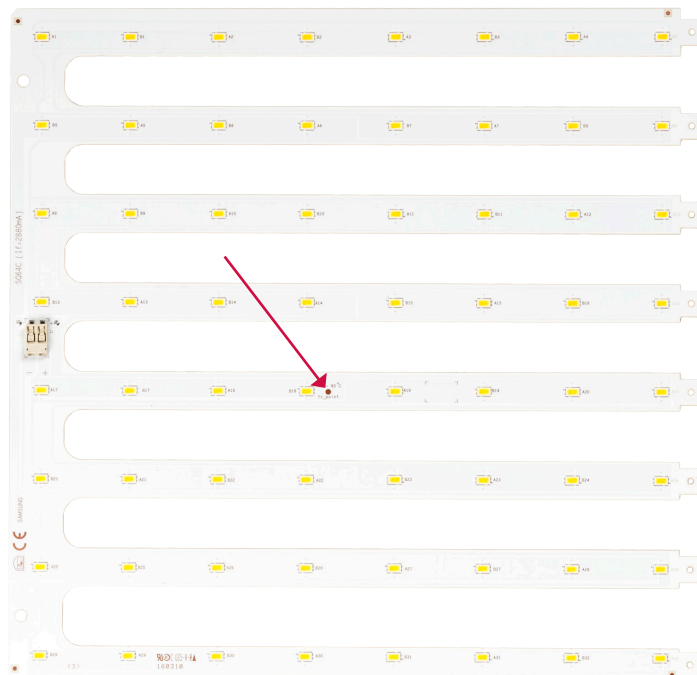
Length	273.0 mm
Width	230.0 mm
Thickness of PCB	1.6 mm
Height	5.8 mm
Weight	88.0 g

Packing details	1 Tray	1 Box	1 Pallet
Num. of modules	4	60	1080

ESD foam trays, antistatic bag and carton box

Thermal Management

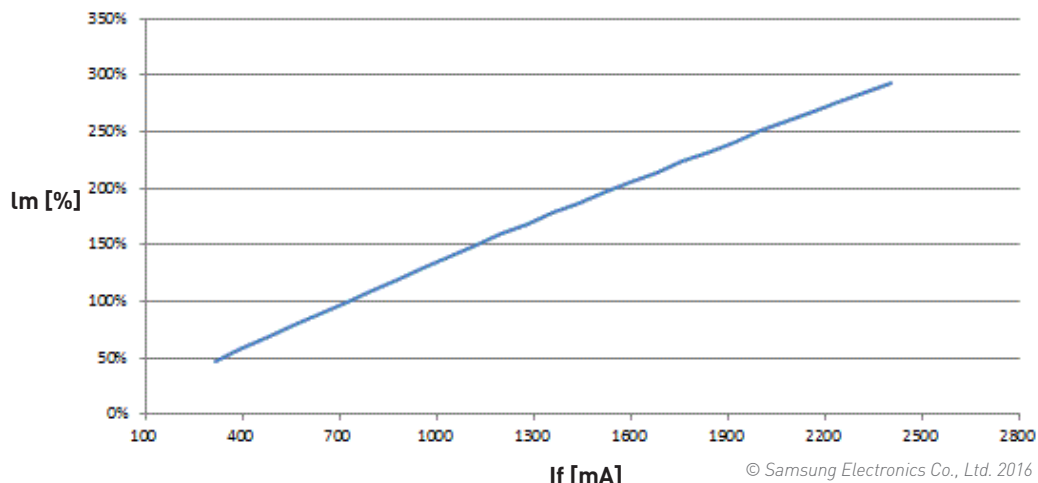
Tc (Tp) Point : See the below red mark.



Relative specification curves

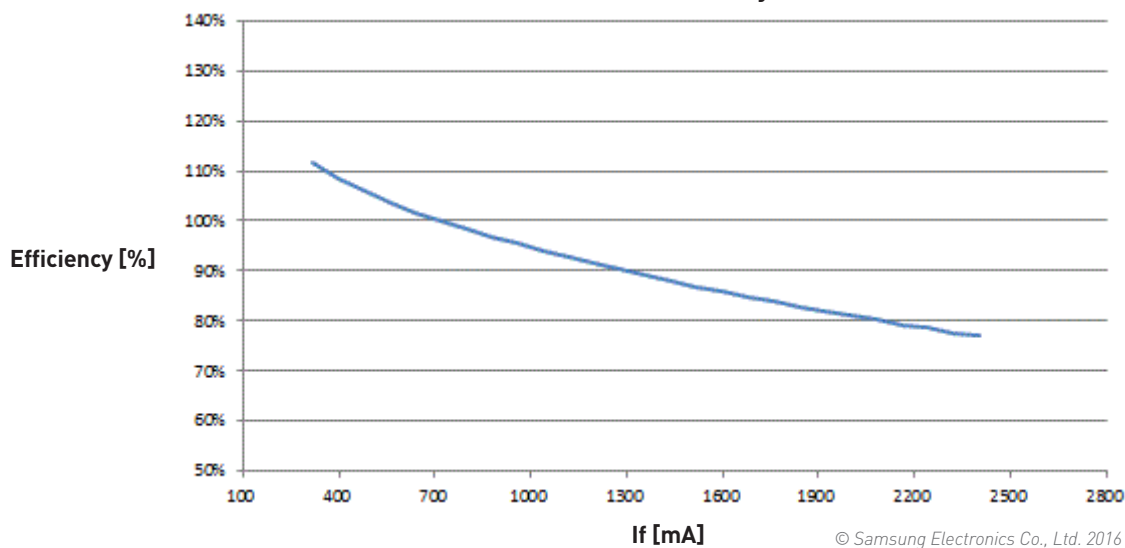
LUMINOUS FLUX

If vs Luminous Flux



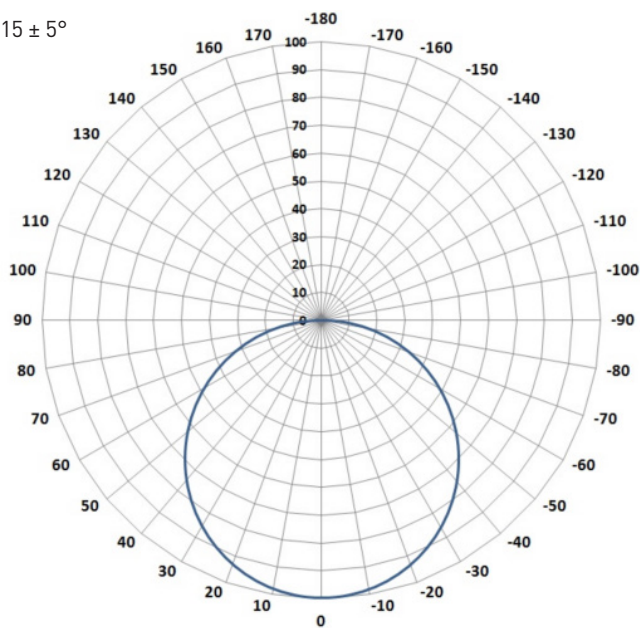
EFFICIENCY

If vs Efficiency



Photometric characteristics

Polar Intensity Diagram: Beam Angle $115 \pm 5^\circ$



In order to have safe and reliable operation, the LED luminaires will need to comply with the relevant standards and regulations (e.g. IEC/EN 60598-1). The LED luminaire shall be designed to adequately protect the LED modules from dust, moisture and pollution. The luminaire manufacturer is responsible for the correct choice and installation of the LED module / LED driver combination according to the application and product datasheets. Specifications of the LED modules may never exceed the operating conditions as per the product datasheets.

HANDLING OF THE LED MODULES

LED modules contain components (LED packages, chips) that are sensitive for mechanical stress, electrostatic discharge (ESD) and chemical contaminants. Improper handling of the modules might cause damage or even destruction of the LED modules. Damaged LEDs may show some unusual characteristics such as increase in leakage current, lowered turn-on voltage, or abnormal lighting of LEDs at low current. Please follow following instructions and the precautions given in the product datasheets while handling and assembling Helvar LED modules.

Storage conditions

- Unused LED modules are recommended to stored carefully in an original sealed ESD package preventing moisture, pollutants or ESD to cause damage the module.
- Storage temperature range: -30...+80 °C

Opening the package / resealing

- LED modules are kept in stable protected environment in the packaging, open the package only when you are ready to use the LED modules. If resealing of the original package is required remove excess air from the packaging and place the moisture absorber (silica-gel bag) in to the packaging and seal the ESD back with adhesive tape.

ESD precautions at luminaire assembly site

The LEDs are sensitive to the electrostatic discharge (ESD) and surge current. If voltage exceeding the absolute maximum rating is applied to LEDs, it may cause damage or even destruction to LED devices.

- EN 61340-5-1: Protection of electronic devices from electrostatic phenomena – General Requirements describes procedures for protection for damage caused by electrostatic discharge while handling electronic devices, following list lists basic protective measures described in the standard.

ESD protection measures in handling and assembling LED modules

- Employee training for correct handling
- Personnel grounding via wrist band / footwear
- ESD protective clothing / shoes
- Handle LED modules only in ESD protected areas and workplaces

Chemical considerations

Chemical substances may cause damage the LED module by causing discoloration, loss of luminous flux or total failure of the module.

Avoid materials and substances containing:

- VOCs - Volatile Organic Compounds that may occur in adhesives, or sealings. Verify that the materials used in the luminaires are not causing VOCs.
- Halogen compounds
- Chlorine
- Acetates
- Sulphuric compounds

Never look directly into an operational LED module without suitable protective eye wear!

ELECTRIC & THERMAL CONSIDERATIONS

Wiring insulation

- According to recommendations in EN 60598

Wire connections

- Please refer to LED driver datasheets connections diagram
- Wrong polarity might damage the LED modules

Choosing the LED driver

- To guarantee the safe and reliable operation of the SQ64 series LED-modules the LED driver must be provided with open and short circuit protection.
- SQ64 series modules are designed to be used with constant current output type LED driver

Electrical design, electrical safety

During the design it is luminaire manufacturers responsibility to follow the international and national electric design regulations and recommendations for the electric safety and luminaire protection. Electric safety classification and protection class is depending on:

- Actual luminaire design and safety classification
 - LED driver insulation
 - LED driver output isolation (safety isolating, non-isolated)
- ALWAYS CHECK AND FOLLOW EXACT REGULATIONS FROM LATEST RELEVANT IEC/EN STANDARDS.**

Installation considerations

The SQ64 series modules are basic isolated against ground and can be installed on earthed metal parts of the luminaire. We recommend using plastic screws, clips or a combination of M3 metal screws and insulating plastic washers for safe mounting.

Please follow regulations from IEC60598-1 for creepage and clearance requirements.

The use of TIM (thermal interface material) is generally not required if the maximum ambient temperature in the luminaire does not exceed 50 °C. If using TIM in the installation process, the user should give special attention not to contaminate the optical source or PCB.

Maximum tc & tp temperature

- Reliable operation is only guaranteed if the maximum tc point temperature is not exceeded under the conditions of use.
- Lifetime is only guaranteed if the maximum tp point temperature specified for lifetime is not exceeded under the conditions of use.

MECHANICAL CONSIDERATIONS

- While handling the modules avoid mechanical stress or pressure applied to light emitting surface.
- Avoid dropping of the LED modules
- Bending of the modules is not allowed
- Avoid touching the light emitting surface
- Mechanical modifications (drilling, milling, sawing and breaking of the module) are not permitted

All data presented here is based on Samsung Electronics Co., Ltd. copyrighted datasheets. Samsung is a registered trademark of Samsung Electronics Co., Ltd. All data were deemed correct at time of creation. Samsung or Helvar are not liable for errors or omissions.