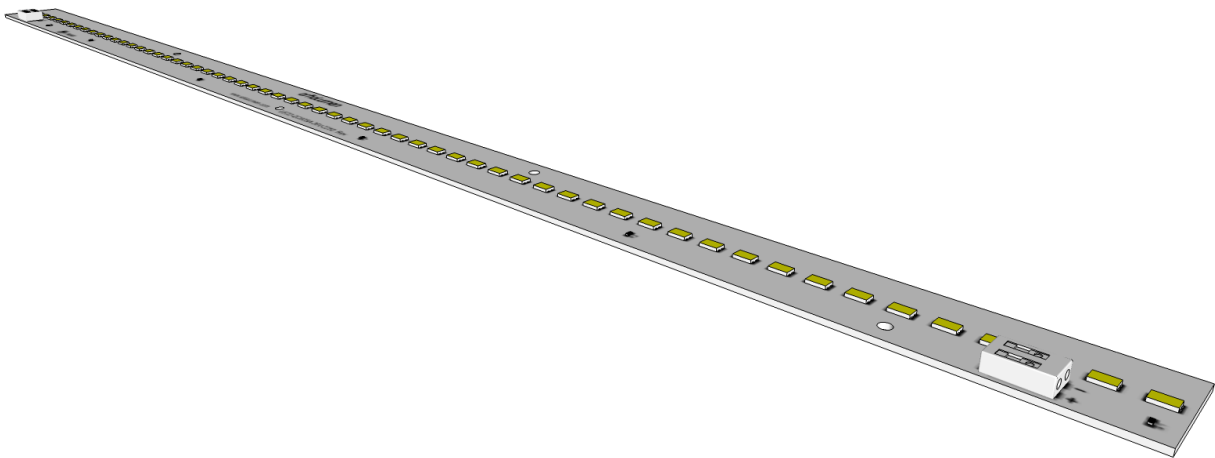


arkalumen

LED Light Engine Strips

Samsung 5630 LED



Release: 2014-MS-2.2

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LED Light Engine Strips

Samsung 5630 LED

This document provides detailed specifications for LED light engine strips designed by Arkalumen. The Arkalumen modular design permits easy combination of strips to meet requirements for commercial and industrial applications. Arkalumen LED light engines can be powered using constant current drivers, or constant voltage drivers in combination with Arkalumen DC-DC controllers.

Features

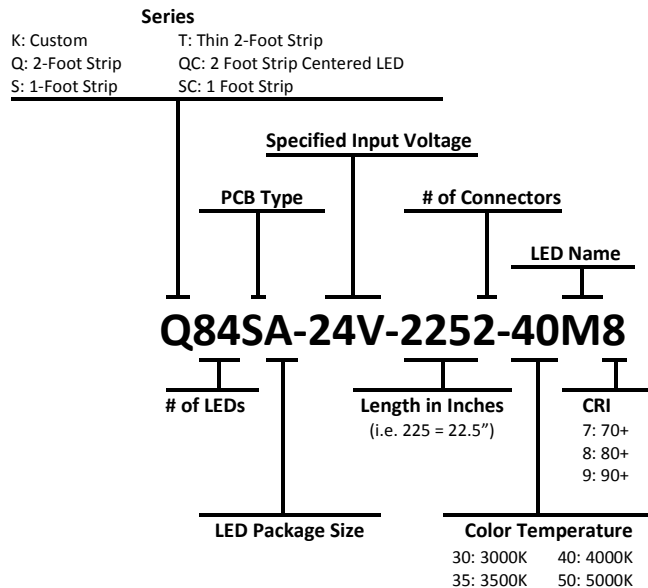
- Metal core PCB on all light engines for excellent heat dissipation
- High efficacy, 160 lm/W @ 65 mA/LED, 145 lm/W @ 120 mA/LED
- CCT options ranging from 2000K – 6500K, up to 3-step MacAdam available
- High fidelity with CRI 80+ standard and CRI 90+ available
- Continuous LED Pitch from board to board, eliminating dark spots
- LED agnostic design enabling use of any 5630 packages
- LM-80 tested LEDs with calculated L70 longevity over 130,000 hrs @55°C and over 90,000 hrs @ 85°C.
- All Arkalumen light engines are UL recognized in U.S./Canada



RoHS

5 Year Warranty

Light Engine Strip Order Code



List of Light Engine Strips

Board	Voltage [V]	Dimensions	Output [lm] ¹
T28SA	24	22.5" x 0.7"	1870
T35SA	24	22.5" x 0.7"	2340
T42SA	24	21.5" x 0.7"	2810
T49SA	24	22.5" x 0.7"	3270
Q56SA	24	22.5" x 1.0"	3740
Q70SA	24	22.5" x 1.0"	4680
Q84SA	24	22.5" x 1.0"	5610
Q112SA	24	23.0" x 1.0"	7480
SC28SA	24	11.5" x 1.0"	1870
S56SA	24	11.5" x 1.0"	3740
QC48SA	36	22.5" x 1.0"	3210
QC60SA	36	22.5" x 1.0"	4010
Q72SA	36	22.5" x 1.0"	4810
Q84SA	36	22.5" x 1.0"	5610
S36SA	36	11.5" x 1.0"	2410
SC36SA	36	11.5" x 1.0"	2410

1. Light outputs calculated @ 150 mA/LED @4000K

INDEX

T Series	2	Q Series, 36V	8
Q Series	4	S Series, 36V	10
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Electrical Characteristics

Boards	Current [mA]		Voltage [V]		Power [W]	
	Typ. ¹	Max ²	Typ. ¹	Max ²	Typ. ¹	Max ²
T28SA	480	600	21.4	22.0	10.3	13.2
T35SA	600	750	21.4	22.0	12.9	16.5
T42SA	720	900	21.4	22.0	15.4	19.8
T49SA	840	1050	21.4	22.0	18.0	23.1

Luminous Flux

Boards	# of LED	65 mA / LED			120 mA / LED (Typ.)			150 mA / LED		
		Min	Typ.	Max	Min	Typ.	Max	Min	Typ.	Max
T28SA	28	840	870	9000	1490	1540	1590	1810	1870	1930
T35SA	35	1050	1090	1120	1860	1920	1980	2260	2340	2410
T42SA	42	1260	1300	1350	2230	2310	2380	2720	2810	2900
T49SA	49	1470	1520	1570	2600	2690	2780	3170	3270	3380

CCT: Lumen Multiplication Factor

CCT	3000K	3500K	4000K	5000K
80+ CRI	0.95	0.97	1.00	1.03

Product Characteristics

Name	LED	Connectors		Chip on Board	Optics
	Type	# Options	Type		
M: Samsung 5630	Mid-Power	1 2	2-pin	None	None

PCB Characteristics

Dimensions ³	Composition	Flammability Classification	Finish
21.50" x 0.70" 22.50" x 0.70" 23.00" x 0.70"	T-6 6061 AL (Aluminum: 0.051"; Dielectric: 0.003"; FR4 core: 0.005")	UL 94V-0	White

¹ Typical values are calculated for A2 Vf bin Samsung LM561B LEDs operating at a current of 120mA/LED @ T_j = 25°C.

² Max. values are calculated for A2 Vf bin Samsung LM561B LEDs operating at a current of 150mA/LED @ T_j = 25°C.

³ Dimensions may be 20" to 24" upon request. Premium charge applicable per unit for 24" boards.

Mechanical Specifications

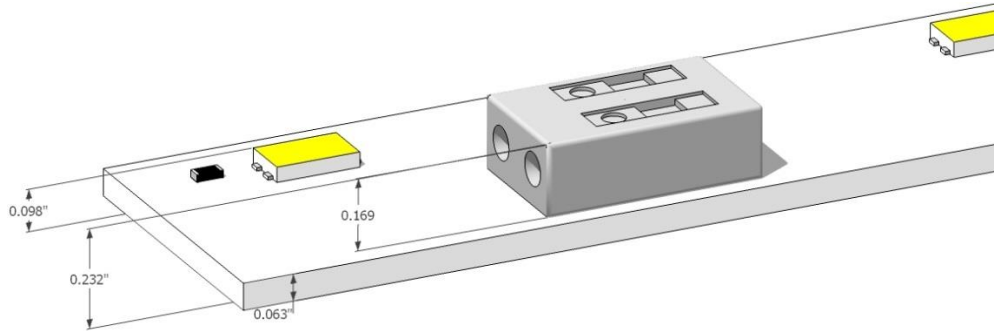


Figure 1 - T Series Profile Dimensions

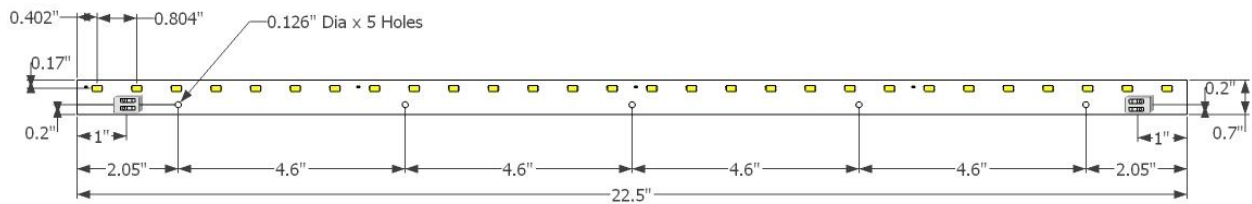


Figure 2 - T28SA-2252 Mechanical Drawing

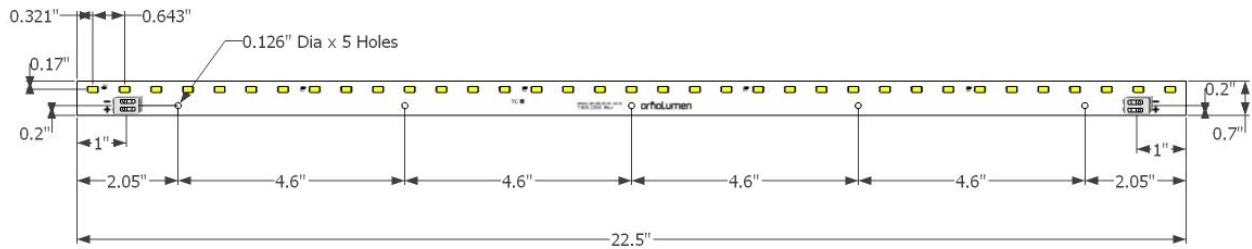


Figure 3 - T35SA-2252 Mechanical Drawing

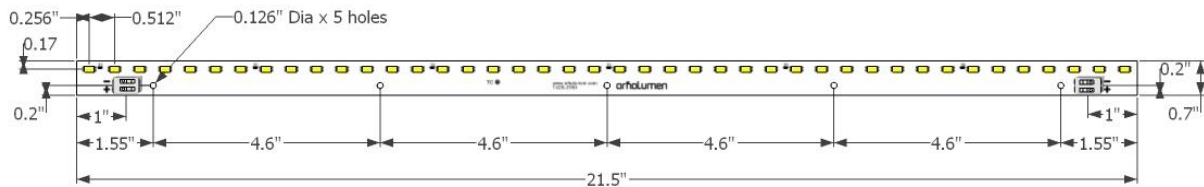


Figure 4 - T42SA-2152 Mechanical Drawing

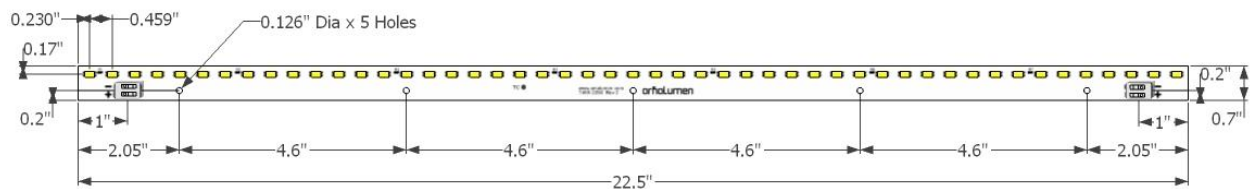


Figure 5 - T49SA-2252 Mechanical Drawing

Electrical Characteristics

Boards	Current [mA]		Voltage [V]		Power [W]	
	Typ. ¹	Max ²	Typ. ¹	Max ²	Typ. ¹	Max ²
Q56SA	960	1200	21.4	22.0	20.6	26.4
Q70SA	1200	1500	21.4	22.0	25.7	33.0
Q84SA	1440	1800	21.4	22.0	30.9	39.6
Q112SA	1920	2400	21.4	22.0	41.1	52.8

Luminous Flux

Boards	# of LED	65 mA / LED			120 mA / LED (Typ.)			150 mA / LED		
		Min	Typ.	Max	Min	Typ.	Max	Min	Typ.	Max
Q56SA	56	1680	1740	1790	2980	3080	3170	3620	3740	3860
Q70SA	70	2100	2170	2240	3720	3840	3970	4530	4680	4830
Q84SA	84	2520	2610	2690	4460	4610	4760	5430	5610	5790
Q112SA	112	3360	3480	3590	5950	6150	6350	7230	7480	7730

CCT: Lumen Multiplication Factor

CCT	3000K	3500K	4000K	5000K
80+ CRI	0.95	0.97	1.00	1.03

Product Characteristics

Name	LED		Connectors		Chip on Board	Optics
	Type		#	Type		
M: Samsung 5630	Mid-Power		1 2	2-pin	None	None

PCB Characteristics

Dimensions ³	Composition	Flammability Classification	Finish
21.50" x 1.00" 22.50" x 1.00" 23.00" x 1.00"	T-6 6061 AL (Aluminum: 0.051"; Dielectric: 0.003"; FR4 core: 0.005")	UL 94V-0	White

¹ Typical values are calculated for A2 Vf bin Samsung LM561B LEDs operating at a current of 120mA/LED @ T_j = 25°C.

² Max. values are calculated for A2 Vf bin Samsung LM561B LEDs operating at a current of 150mA/LED @ T_j = 25°C.

³ Dimensions may be 20" to 24" upon request. Premium charge applicable per unit for 24" boards.

Mechanical Specifications

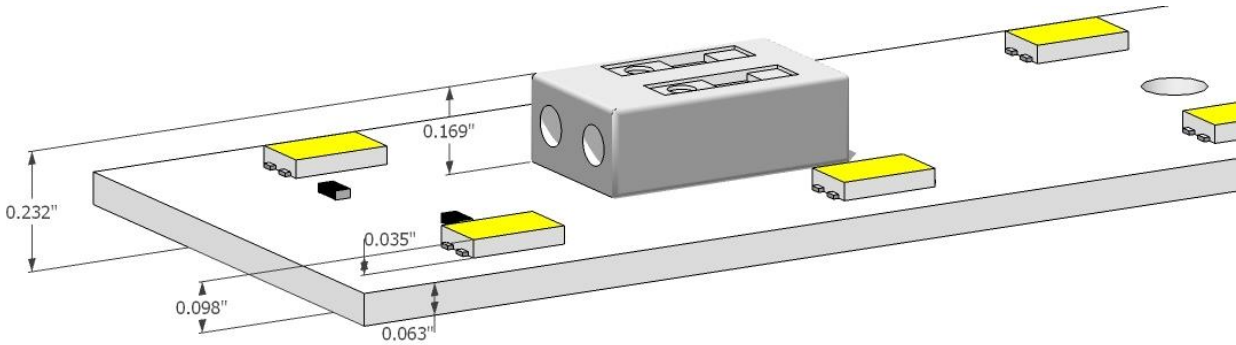


Figure 6 - Q Series Profile Dimensions

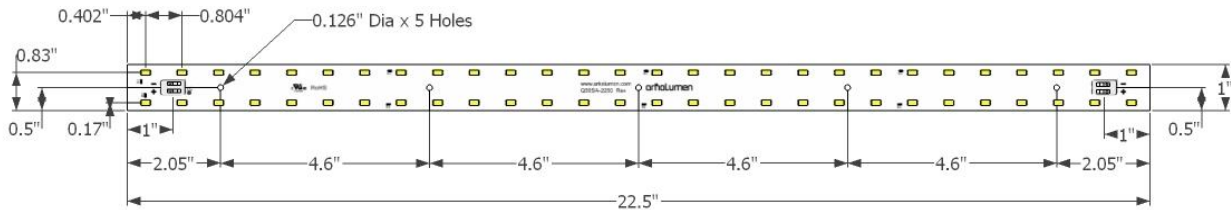


Figure 7 - Q56SA-2252 Mechanical Drawing

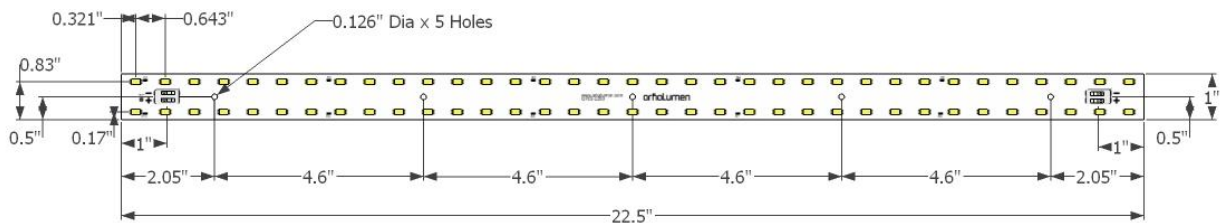


Figure 8 - Q70SA-2252 Mechanical Drawing

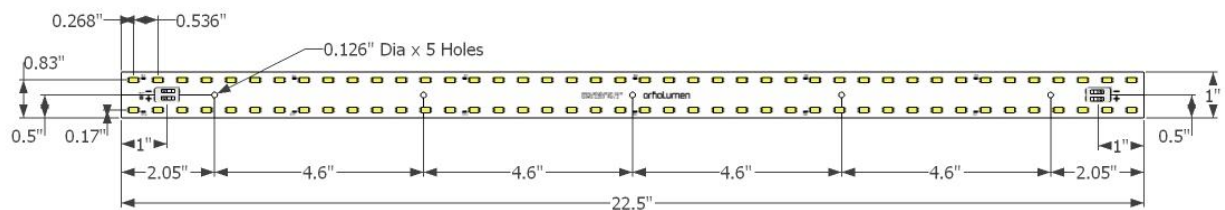


Figure 9 - Q84SA-2252 Mechanical Drawing

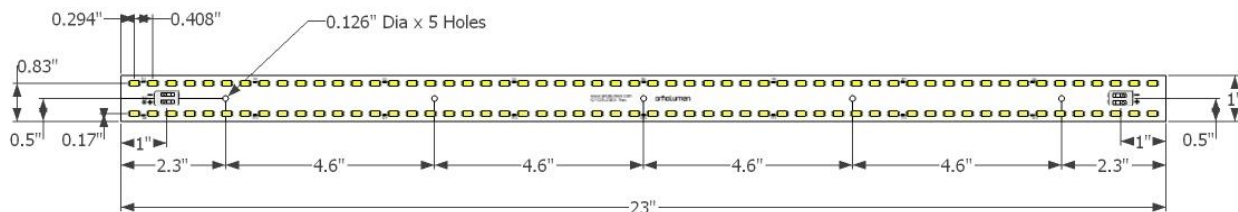


Figure 10 - Q112SA-2352 Mechanical Drawing

Electrical Characteristics

Boards	Current [mA]		Voltage [V]		Power [W]	
	Typ. ¹	Max ²	Typ. ¹	Max ²	Typ. ¹	Max ²
SC28SA	480	600	21.4	22.0	10.3	13.2
S56SA	960	1200	21.4	22.0	20.6	26.4

Luminous Flux

Boards	# of LED	65 mA / LED			120 mA / LED (Typ.)			150 mA / LED		
		Min	Typ.	Max	Min	Typ.	Max	Min	Typ.	Max
SC28SA	28	840	870	900	1490	1540	1590	1810	1870	1930
S56SA	56	1680	1740	1790	2980	3080	3170	3620	3740	3860

CCT: Lumen Multiplication Factor

CCT	3000K	3500K	4000K	5000K
80+ CRI	0.95	0.97	1.00	1.03

Product Characteristics

Name	LED		Connectors		Chip on Board	Optics
	Type		#	Type		
M: Samsung 5630	Mid-Power		1 2	2-pin	None	None

PCB Characteristics

Dimensions	Composition	Flammability Classification	Finish
11.50" x 1.00"	T-6 6061 AL (Aluminum: 0.051"; Dielectric: 0.003"; FR4 core: 0.005")	UL 94V-0	White

¹ Typical values are calculated for A2 Vf bin Samsung LM561B LEDs operating at a current of 120mA/LED @ T_J = 25°C.

² Max. values are calculated for A2 Vf bin Samsung LM561B LEDs operating at a current of 150mA/LED @ T_J = 25°C.

Mechanical Specifications

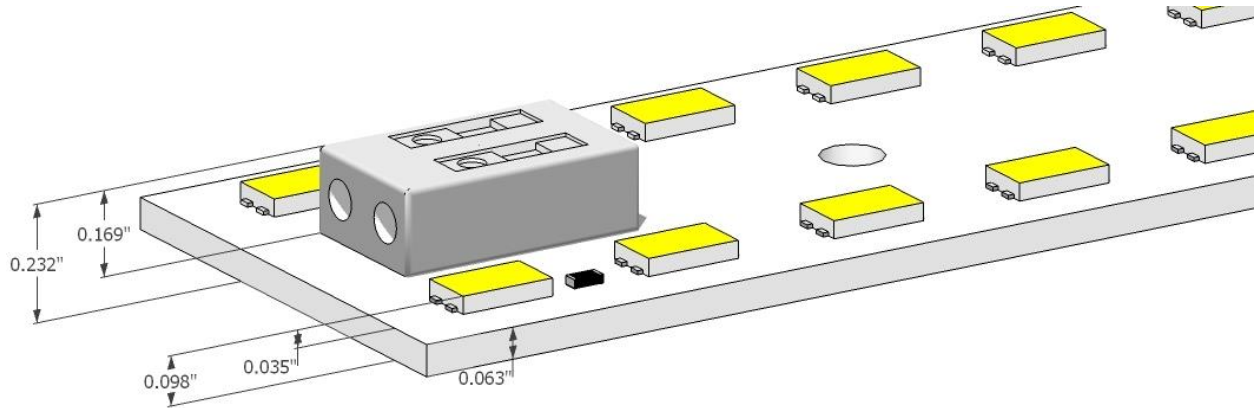


Figure 11 - S Series Profile Dimensions

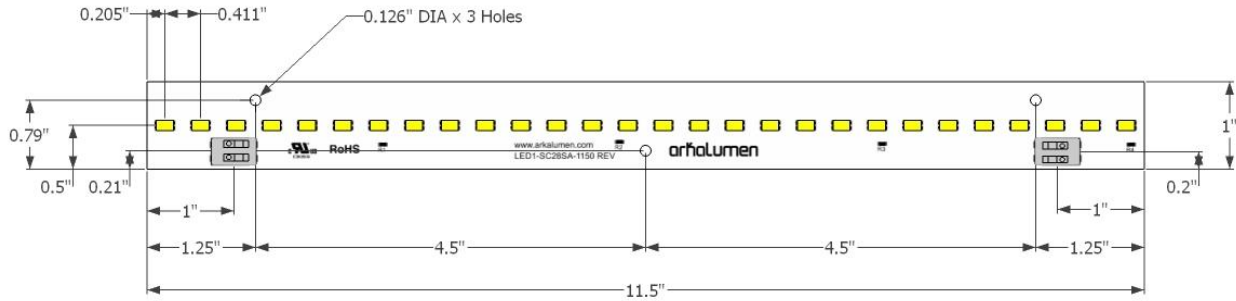


Figure 12 - SC28SA Mechanical Drawing

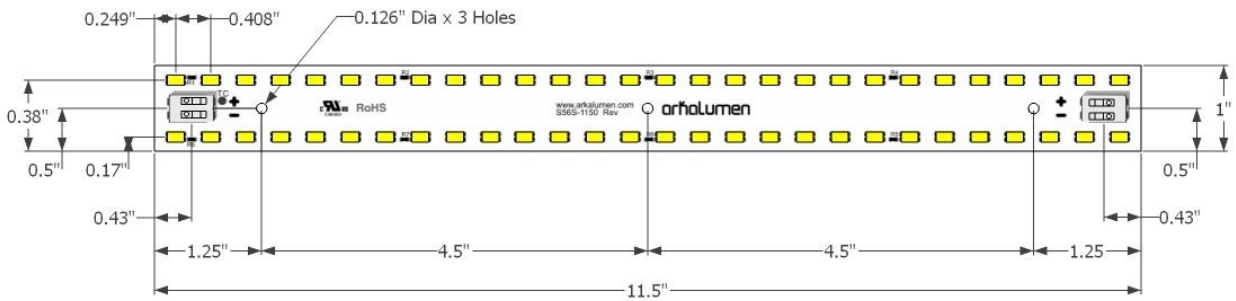


Figure 13 - S56SA Mechanical Drawing

Electrical Characteristics

Boards	Current [mA]		Voltage [V]		Power [W]	
	Typ. ¹	Max ²	Typ. ¹	Max ²	Typ. ¹	Max ²
QC48SA-36V	480	600	36.7	37.7	17.6	22.6
QC60SA-36V	600	750	36.7	37.7	22.0	28.3
Q72SA-36V	720	900	36.7	37.7	26.4	33.9
Q84SA-36V	840	1050	36.7	37.7	30.9	39.6

Luminous Flux

Boards	# of LED	65 mA / LED			120 mA / LED (Typ.)			150 mA / LED		
		Min	Typ.	Max	Min	Typ.	Max	Min	Typ.	Max
QC48SA-36V	48	1440	1490	1540	2550	2640	2720	3100	3210	3310
QC60SA-36V	60	1800	1860	1920	3190	3290	3400	3880	4010	4140
Q72SA-36V	72	2160	2240	2310	3830	3950	4080	4660	4810	4970
Q84SA-36V	84	2520	2610	2690	4460	4610	4760	5430	5610	5790

CCT: Lumen Multiplication Factor

CCT	3000K	3500K	4000K	5000K
80+ CRI	0.95	0.97	1.00	1.03

Product Characteristics

Name	LED		Connectors		Chip on Board	Optics
	Type	#	Type			
M: Samsung 5630	Mid-Power	1 2	2-pin		None	None

PCB Characteristics

Dimensions ³	Composition	Flammability Classification	Finish
22.50" x 1.00"	T-6 6061 AL (Aluminum: 0.051"; Dielectric: 0.003"; FR4 core: 0.005")	UL 94V-0	White

¹ Typical values are calculated for A2 Vf bin Samsung LM561B LEDs operating at a current of 120mA/LED @ T_j = 25°C.

² Max. values are calculated for A2 Vf bin Samsung LM561B LEDs operating at a current of 150mA/LED @ T_j = 25°C.

³ Dimensions may be 20" to 24" upon request. Premium charge applicable per unit for 24" boards.

Mechanical Specifications

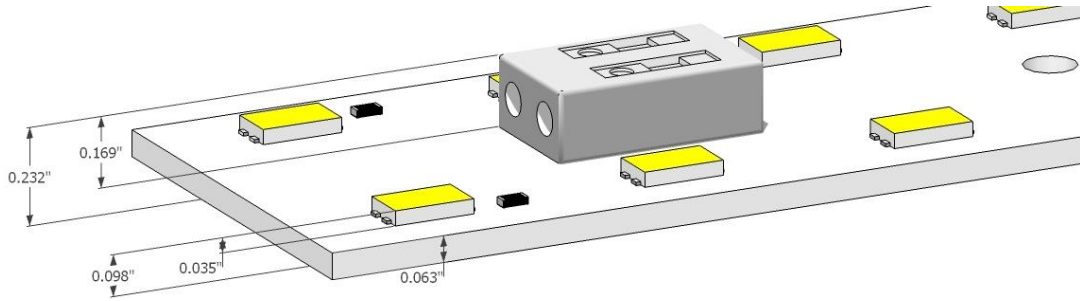


Figure 14 - Q Series 36V Profile Dimensions

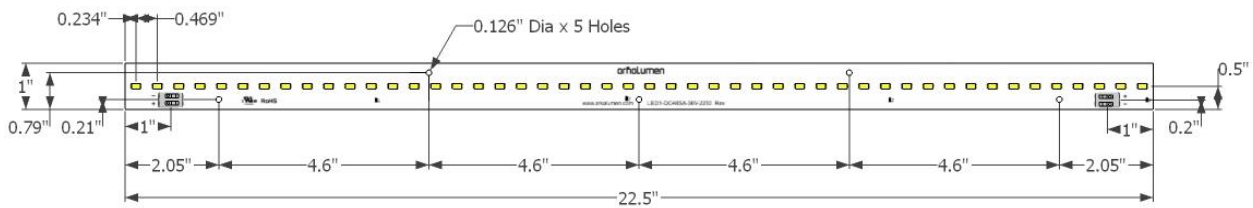


Figure 15 - QC48SA-36V-2252 Mechanical Drawing

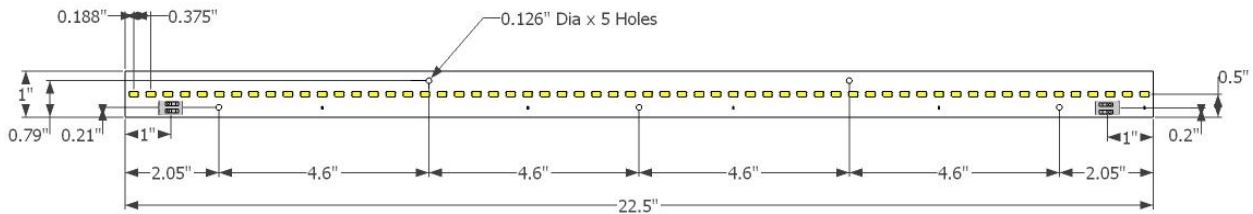


Figure 16 - QC60SA-36V-2252 Mechanical Drawing

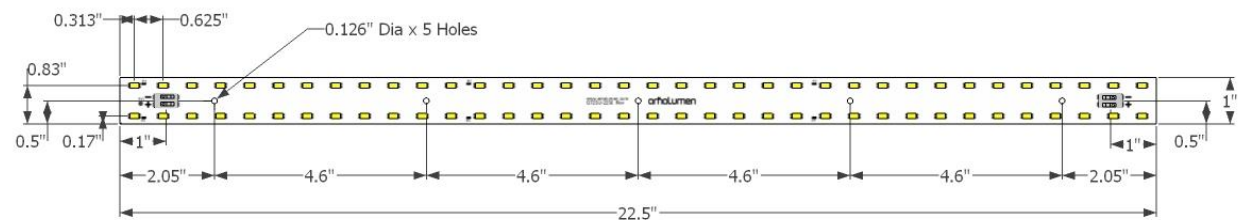


Figure 17 - Q72SA-36V-2252 Mechanical Drawing

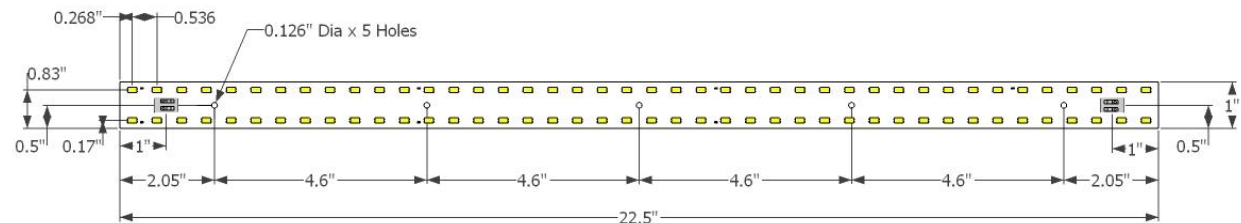


Figure 18 - Q84SA-36V-2252 Mechanical Drawing

Electrical Characteristics

Boards	Current [mA]		Voltage [V]		Power [W]	
	Typ. ¹	Max ²	Typ. ¹	Max ²	Typ. ¹	Max ²
S36SA-36V	360	450	36.7	37.7	13.2	17.0
SC36SA-36V	360	450	36.7	37.7	13.2	17.0

Luminous Flux

Boards	# of LED	65 mA / LED			120 mA / LED (Typ.)			150 mA / LED		
		Min	Typ.	Max	Min	Typ.	Max	Min	Typ.	Max
S36SA-36V	36	1080	1120	1150	1910	1980	2040	2330	2410	2480
SC36SA-36V	36	1080	1120	1150	1910	1980	2040	2330	2410	2480

CCT: Lumen Multiplication Factor

CCT	3000K	3500K	4000K	5000K
80+ CRI	0.95	0.97	1.00	1.03

Product Characteristics

Name	LED		Connectors		Chip on Board	Optics
	Type		#	Type		
M: Samsung 5630	Mid-Power		1 2	2-pin	None	None

PCB Characteristics

Dimensions	Composition	Flammability Classification	Finish
11.50" x 1.00"	T-6 6061 AL (Aluminum: 0.051"; Dielectric: 0.003"; FR4 core: 0.005")	UL 94V-0	White

¹ Typical values are calculated for A2 Vf bin Samsung LM561B LEDs operating at a current of 120mA/LED @ T_j = 25°C.

² Max. values are calculated for A2 Vf bin Samsung LM561B LEDs operating at a current of 150mA/LED @ T_j = 25°C.

Mechanical Specifications

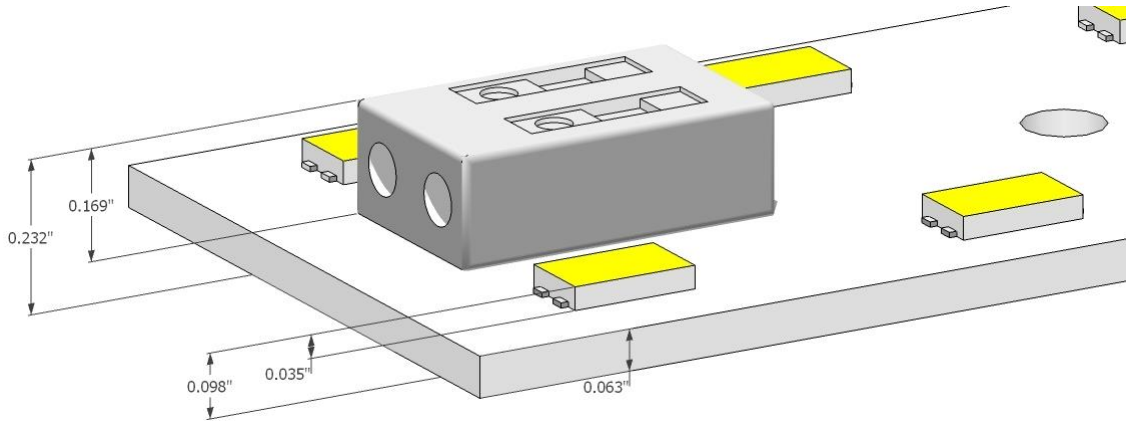


Figure 19 - S Series 36V Profile Dimensions

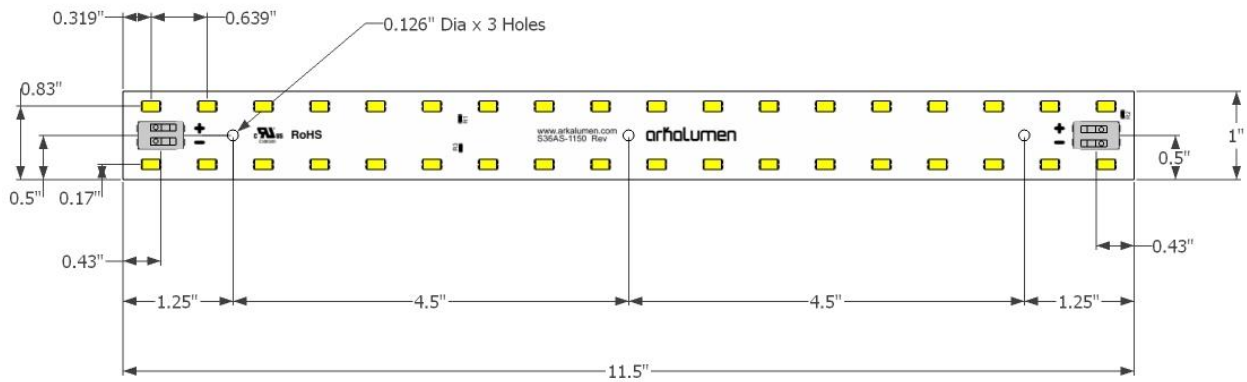


Figure 20 - S36SA-36V-1152 Mechanical Drawing

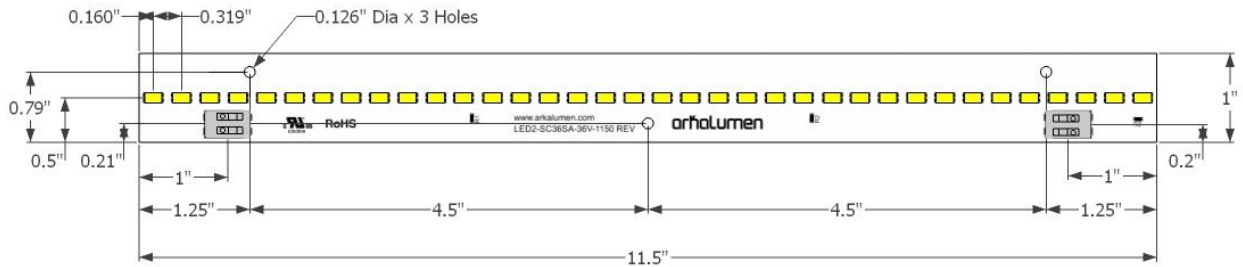
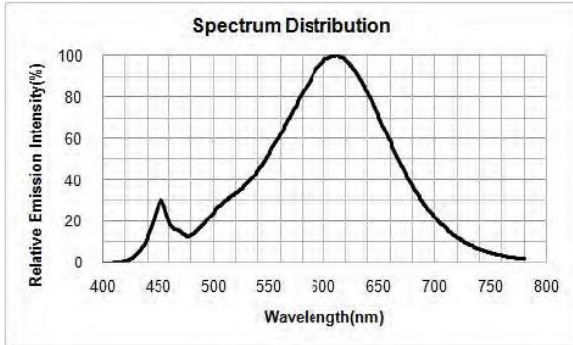


Figure 21 - SC36SA-36V-1152 Mechanical Drawing

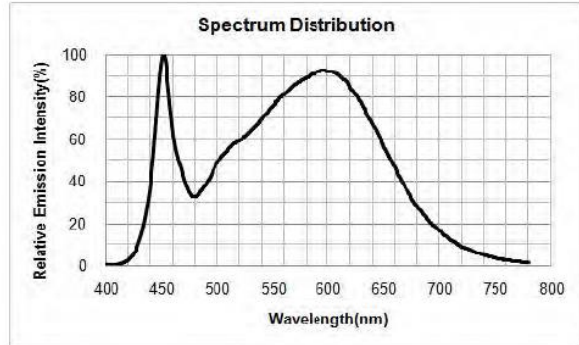
Optical Characteristics

Samsung 5630 LED

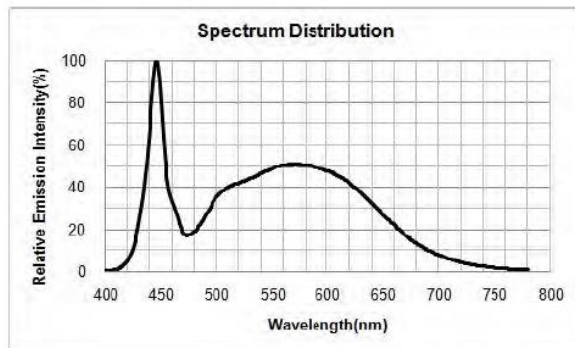
[CCT : 2700K & 3000K]



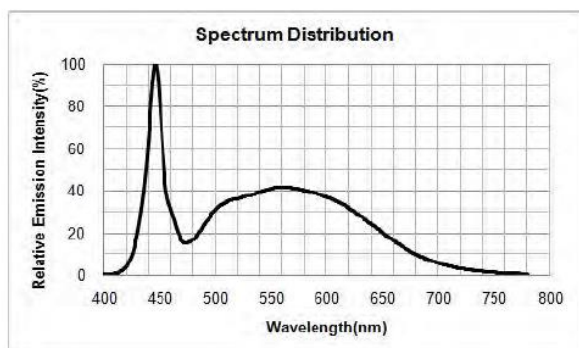
[CCT : 3500K & 4000K]



[CCT : 5000K & 5700K]

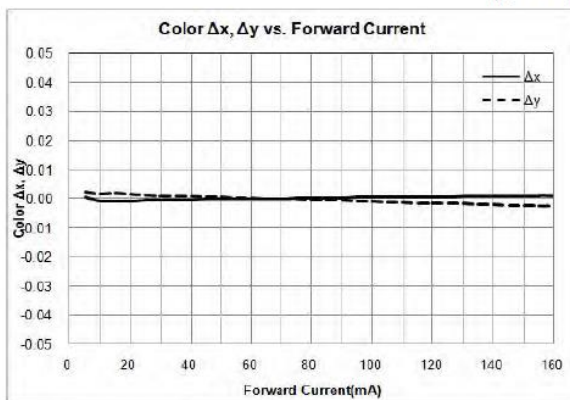


[CCT : 6500K]



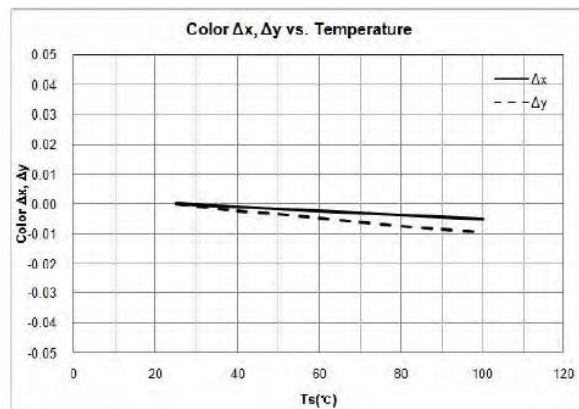
[Color Δx , Δy vs. Forward Current]

($T_s = 25^\circ\text{C}$)



[Color Δx , Δy vs. T_s]

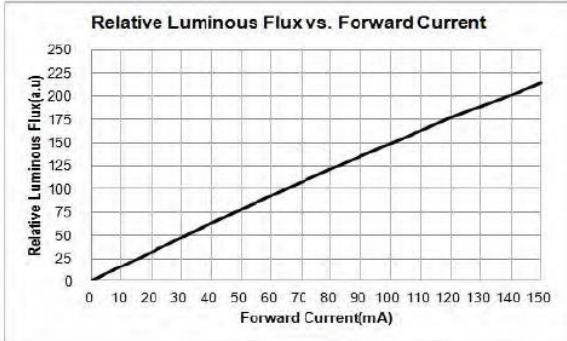
($I_f = 65\text{mA}$)



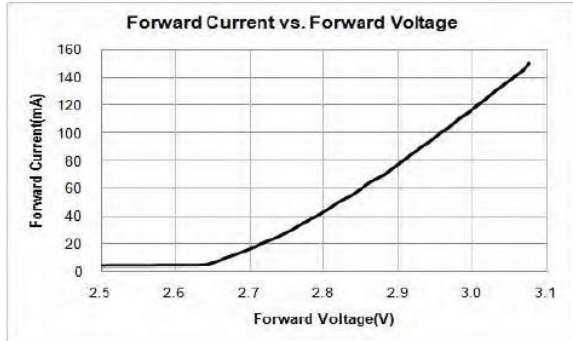
Optical Characteristics

Samsung 5630 LED

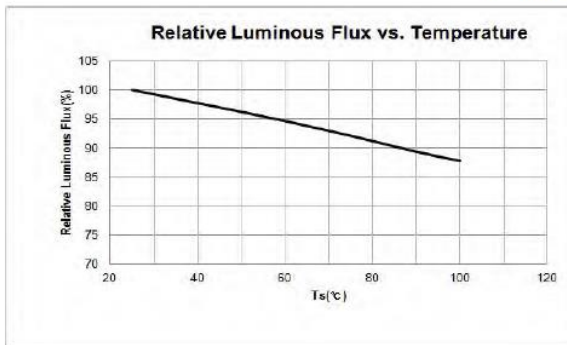
[Relative Luminous Flux vs. Forward Current] ($T_s = 25^\circ\text{C}$)



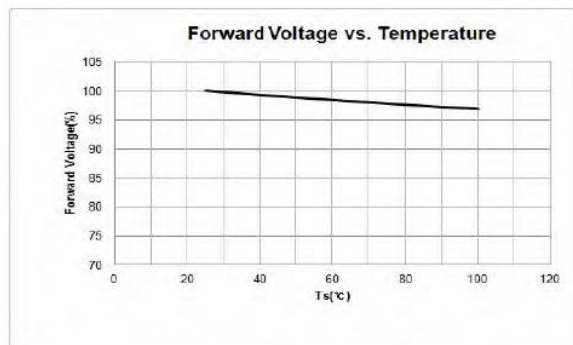
[Forward Current vs. Forward Voltage] ($T_s = 25^\circ\text{C}$)



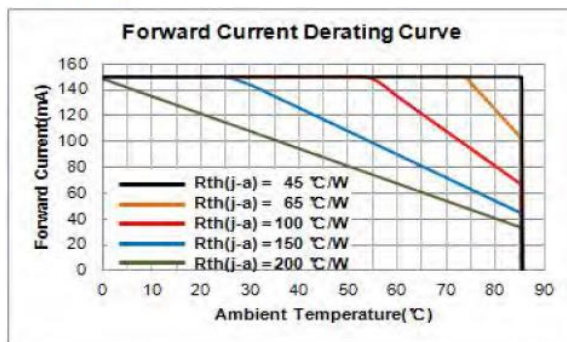
[Relative Luminous Flux vs. T_s] ($I_f = 65\text{mA}$)



[Forward Voltage vs. T_s] ($I_f = 65\text{mA}$)



Derating Curve



Beam Angle Characteristics

