Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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Thomas Research Products

Rev 8-10-2017

Linear (Troffer) Module Family

LED Light Engines with Nichia LEDs

Intelligent Device ECOSYSTEM classic

Electrical Specifications

Driver Type:	Constant-Current
Drive Current:	175mA Nominal (5.5″) 350mA Nominal (11″) 700mA Nominal (23″)
Nom. Forward Voltage:	17.9V
Total Board Power:	3.1W Nominal (5.5″) 6.3W Nominal (11″) 12.5W Nominal (23″)
Life:	50,000 Hrs, 70% lumen maint. @ Ta max 50ºC, used as specified
Max Junction Temp:	90°C
Max Test Point Temp:	80°C
Operating Temp:	-40ºC to +60ºC Ambient
Storage Temp:	-40ºC to +80ºC
Viewing Angle (FWHM):	120° Lambertian distribution
CRI:	83 typical

5.5 Inch Linear DC LED Module

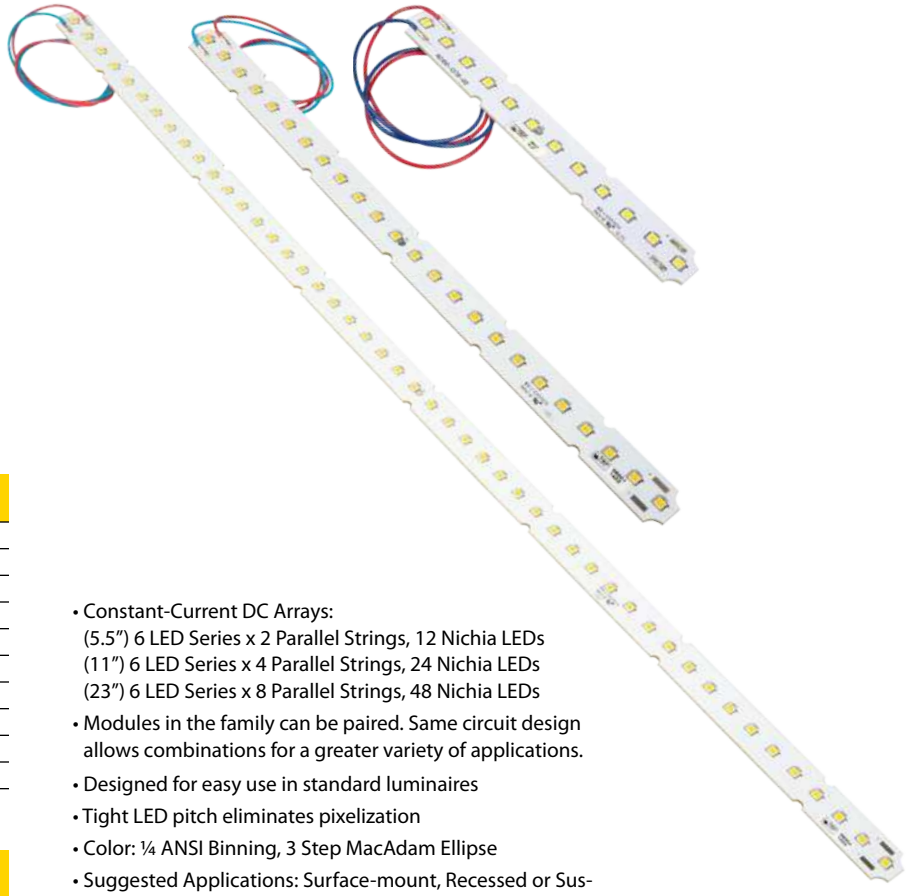
Model	Color Temp *(K)*	Total Current *(mA)*	Total Board Power *(W)*	Lumens *(± 15%)*	Board LPW
98045	2700	87.5	1.4	198	137
		175	3.2	382	121
98046	3000	87.5	1.4	212	146
		175	3.2	410	130
98047	3500	87.5	1.4	223	153
		175	3.2	430	136
98048	4000	87.5	1.4	229	157
		175	3.2	441	140
98049	5000	87.5	1.4	236	163
		175	3.2	455	145

11 Inch Linear DC LED Module

Model	Color Temp *(K)*	Total Current *(mA)*	Total Board Power *(W)*	Lumens *(± 15%)*	Board LPW
98044	2700	175	2.9	397	137
		350	6.3	765	121
98000	3000	175	2.9	425	146
		350	6.3	820	130
98001	3500	175	2.9	446	153
		350	6.3	860	136
98002	4000	175	2.9	458	157
		350	6.3	883	140
98029	5000	175	2.9	472	163
		350	6.3	910	145

23 Inch Linear DC LED Module

Model	Color Temp *(K)*	Total Current *(mA)*	Total Board Power *(W)*	Lumens *(± 15%)*	Board LPW
98026	2700	350	5.9	797	135
		700	12.5	1,537	123
98003	3000	350	5.9	850	144
		700	12.5	1,639	131
98004	3500	350	5.9	893	151
		700	12.5	1,720	138
98005	4000	350	5.9	916	155
		700	12.5	1,765	141
98028	5000	350	5.9	944	160
		700	12.5	1,820	146



- Constant-Current DC Arrays:
  (5.5″) 6 LED Series x 2 Parallel Strings, 12 Nichia LEDs
  (11″) 6 LED Series x 4 Parallel Strings, 24 Nichia LEDs
  (23″) 6 LED Series x 8 Parallel Strings, 48 Nichia LEDs
- Modules in the family can be paired. Same circuit design allows combinations for a greater variety of applications.
- Designed for easy use in standard luminaires
- Tight LED pitch eliminates pixelization
- Color: ¼ ANSI Binning, 3 Step MacAdam Ellipse
- Suggested Applications: Surface-mount, Recessed or Suspended lighting, Troffers, Troffer Retrofits, Linear Recessed and Flush-mount
- Customizable: Engines can be modified to your application. Contact us.
- Engineered by Norlux
- 5 yr. Warranty

Connectivity Options

Suffix	Connection
(blank)	12 IN, #22 AWG Stranded Leads
-01	No Leads
-02	Push-in Connectors

For Poke-In Connectors, use
#24-18 AWG stranded or solid wire

★MADE IN USA★
Of Imported And Domestic Components

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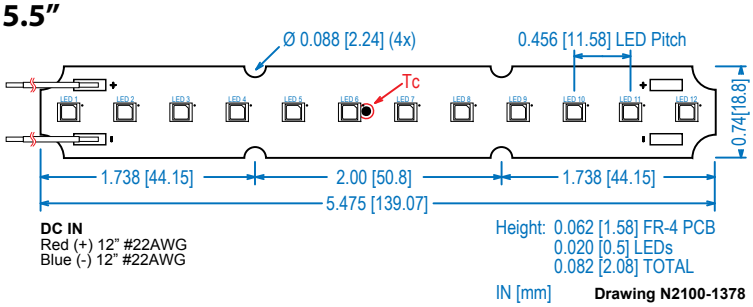
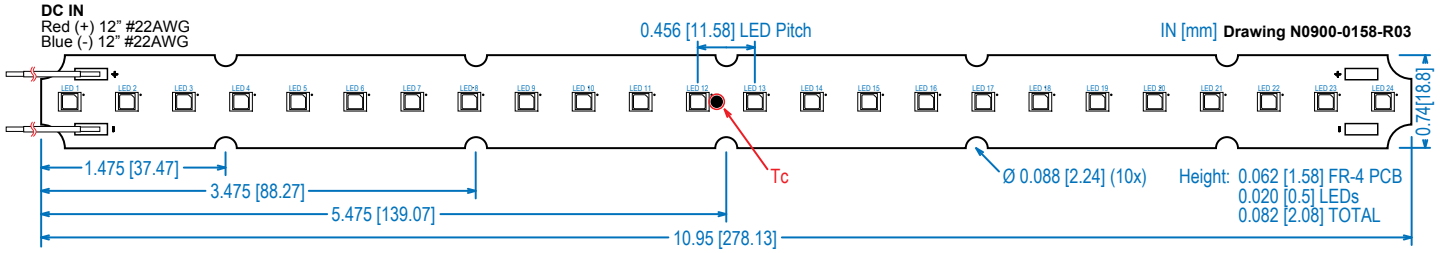
Dimensions

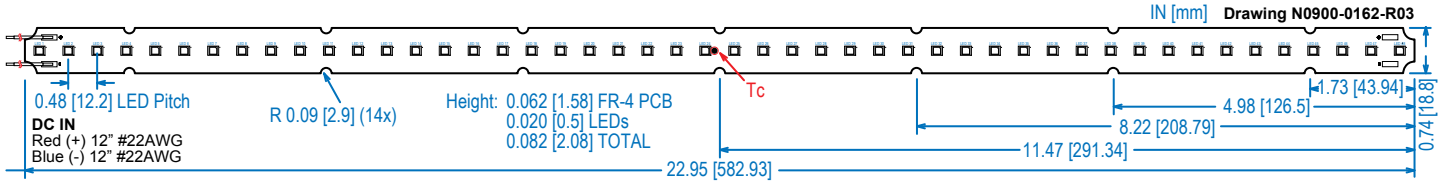
5.5”



11”



23”



CIE Chromaticity Coordinates:

2700K

3 Step Macadams Ellipse

X	Y
0.4576	0.4183
0.4698	0.4212
0.4478	0.3999
0.4591	0.4025

3000K

3 Step Macadams Ellipse

X	Y
0.4325	0.4101
0.4452	0.4146
0.4244	0.3923
0.4362	0.3965

3500K

3 Step Macadams Ellipse

X	Y
0.4045	0.3975
0.4189	0.4044
0.3989	0.3819
0.412	0.3875

4000K

3 Step Macadams Ellipse

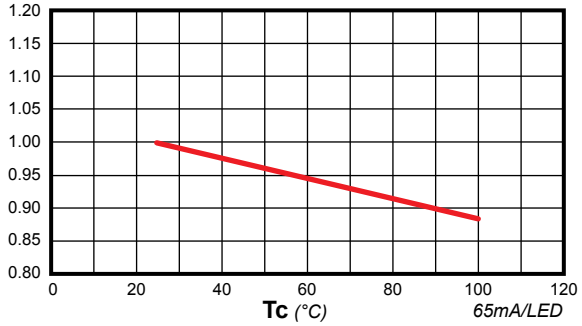
X	Y
0.3783	0.3836
0.3909	0.3906
0.3746	0.3687
0.3864	0.3757

5000K

3 Step Macadams Ellipse

X	Y
0.3408	0.3461
0.3485	0.3520
0.3416	0.3585
0.3499	0.3644

Relative Luminous Flux / Tc Temperature



Application Notes:

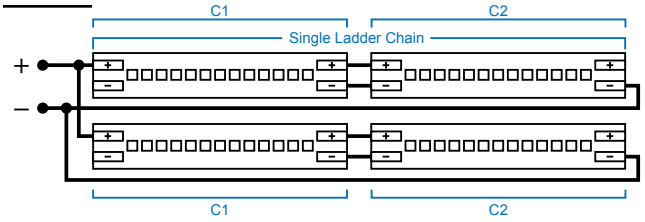
Series/Parallel Configurations

Board combinations can include mixing 5.5", 11" and 23" modules.

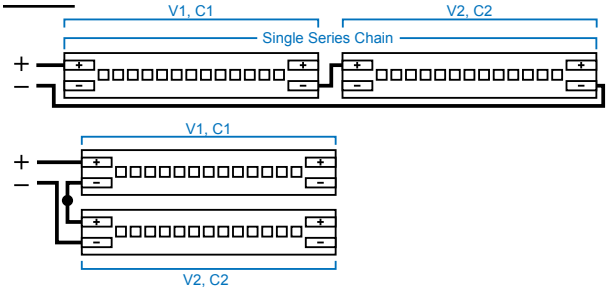
Parallel: The positive and negative of one board is connected to the respective positive and negative of the next. Current adds, so the supply must be current $C_1 + C_2$ for 2 boards in a chain, for example.

Series: The negative of one board is connected to the positive of the next. Voltage adds, so the supply must handle voltage $V_1 + V_2$ for 2 boards.

Parallel



Series



Maximum Run Lengths

The max number of boards wired in a chain **(parallel or series)** is limited by the max current rating of the first board wired to the driver. The **sum of the board currents** in the chain funnels through the first board, when wired from one end. Multiple chains can connect directly to the power supply in parallel. See table for max chain length.

Improved wiring design for each parallel ladder chain should specify the positive and negative power connections at opposite ends of the chain to equalize current through each LED. Series ladder chains are naturally wired this way. Wiring from one end of the chain will create an uneven voltage across each section. The longer the ladder chain, the more important this becomes. Max current into each LED board section is 3.75A. The number of sections or chains wired in parallel directly from the driver is only limited by the supply wire size or driver capacity.

Product	Parallel or Series Ladder Chain	Max Allowable Boards	
		High Current *(Nom)*	Low Current
5.5" Linear	Parallel or Series Ladder	22 PCB	44 PCB
11" Troffer	Parallel or Series Ladder	11 PCB	22 PCB
23" Troffer	Parallel or Series Ladder	5 PCB	11 PCB
Combination	Parallel or Series Ladder	$(C_1 + C_2 + ... C_n) < 3.75A$ *Use currents listed on Pg 1*	

Static Sensitive Device

Handle only at static-safe work stations.

5.5" Compatible TRP Drivers:

Calculate wattage, voltage and current required when mixed with other LED boards. Choose the best driver for your application.

11" Compatible TRP Drivers:

The drivers listed here are all compatible with this module alone or in multiples. Choose the best driver for your application.

- LED12W-24-C0350
- LED12W-36-C0350

Packaging

50 per box standard.

Mounting Notes

The LED assembly is supplied with mounting holes, per the dimensional drawing. It is important to mount the board in such a way as to maintain the Tc point below the max. The steady state thermals in application will dictate if the board needs to be mounted directly to metallic housing and/or include a thermal pad. For example fully enclosed recessed fixture will require better thermal mounting than an open air pendant.

Thermal Application Notes

This board requires additional heat sinking to run above 55ºC ambient at nominal specifications. Heat sink is also required when operated above specified drive currents.

Maximum Current

5.5" Max Current: **360mA**
Voltage at max current: **20V**, Power at max current: **14.4W**

11" Max Current: **720mA**
Voltage at max current: **20V**, Power at max current: **14.4W**

23" Max Current: **1440mA**
Voltage at max current: **20V**, Power at max current: **28.8W**

The total maximum current reflects the LED maximum forward current only, without considering thermal needs. Driving the LEDs this hard will likely violate their thermal limits, depending on the application. **Tc point must remain at or below the max temperature, or the warranty will be voided.** Temperature is directly correlated to LED current.

23" Compatible TRP Drivers:

The drivers listed here are all compatible with this module alone or in multiples. Choose the best driver for your application.

- LED12W-24-C0350
- LED12W-24-C0500
- LED17W-24-C0700
- LED20W-028-C0700
- LED20W-028-C0700-D
- LED20W-48-C0350
- LED20W-48-C0350-D
- LED20W-43-C0460
- LED20W-43-C0460-D
- LED20W-40-C0500
- LED20W-40-C0500-D
- LED25W-36-C0700
- LED25W-36-C0700-D
- LED25W-36-C0700-HL-B
- LED25W-36-C0700-HL-S
- LED25W-36-C0700-HL-BD
- LED25W-36-C0700-HL-SD
- LED25W-040-C0500
- LED25W-040-C0500-D
- LED25W-040-C0620
- LED25W-040-C0620-D
- LED30W-042-C0700
- LED30W-042-C0700-D