# Minichip<sup>TM</sup> By Hyrite Lighting Co.

ISO9001:2008

# Mini LED Module

- COB LED module for channel letter, light box





#### **Features**

- The special LED lamp with integrated heat sink is attached and soldered onto double sided PCB with proper heat dissipation design, resulting in low thermal resistance.
- Extended operating life at high ambient temperature, 25,000+ hrs @25°C/16,000+ hrs @40°C.
- 135° wide angle, emits soft and even light.
- Small size, low cost, excellent for indoor channel letters, resin filled letters.

Tj (°C)

## **Heat Management**

#### MiniChip<sup>™</sup> Module Outstanding LED Lamp Copper Via with Heat Sink Last 25000+hrs Copper Layer 115°C **Cross Section Thermal Image** Insulation LED Chip 75℃ Copper Via Heat Sink Thermal Copper Layer 37℃ **Conductive Tape** - Insulation The special LED lamp with integrated heat sink is soldered onto double sided PCB with copper heat dissipation through holes; Heat is subsequently transferred to the channel letter wall via thermal conductive tape. In typical modules relying on tiny LED lamp legs and foam tape to transfer the same amount of heat, 45℃ the results are much higher thermal resistance and excessive Thermal Conductive Tape chip temperatures of 100°C+. Ta = 25°C Channel Letter Wall 25℃ The Life-Tj illustration demonstrates the relationship between life time and chip/junction temperature for typical LED chips. Legend The lower the temperature, the longer the life. Our LED modules External Heat Flow have achieved the lowest possible chip temperature, thus prolonging its life even under high ambient temperatures. Typical Module **Typical Module** With White SMD LED With White Piranha LED The diagram below explains heat management comparison LED Chip PCB LED Chip between Minichip Modules and Typical Modules. PCB 66,000 -Enclosure 45°C Enclosure 45°C Heat Insulated Foam Tape Heat Insulated Foam Tape 25℃ 6,000

Outline	Color	Model No.	LEDs /Unit	Voltage	Unit Watts (Max.)	Viewing Angle	W. L. (nm)	Luminance (lm)	Life Time (hrs, Ta=25℃)	Modules /Chain	Chains /Pack
g oog	White	LEDMS-W250	2	12VDC	0.36W	135°	6500K	18	20,000	50	2
8 008	Green	LEDMS-G250	2	12VDC	0.36W	135°	525	8	20,000	50	2
8 00,8	Blue	LEDMS-B250	2	12VDC	0.36W	135°	470	3	20,000	50	2
g oog	Red	LEDMS-R150	1	12VDC	0.5W	135°	625	7	30,000	50	2
ğ <b></b> )ğ	Yellow	LEDMS-Y150	1	12VDC	0.5W	135°	590	8	30,000	50	2

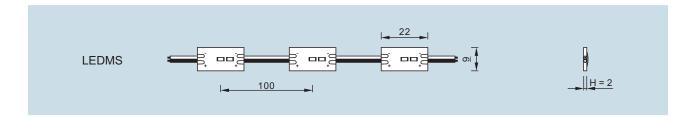
Inefficient

Last 15,000- hrs

**Extremely Inefficient** 

Last 10,000- hrs

#### Dimensions



### ■ Radiation characteristics

Average beam angle(50%): 117.8°

Light intensity: cd

C0/180, 117.4°
C30/210, 117.7°
C60/240, 118.0°
C90/270, 118.0°

