

## Mini LED Module

- COB LED module for channel letter, light box

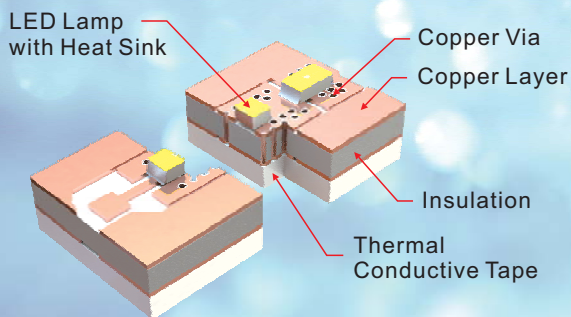


### Features

- 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.

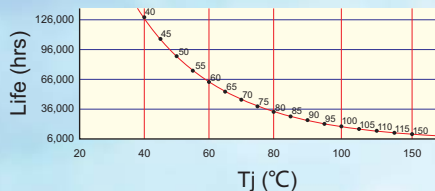
### Heat Management

#### MiniChip™ Module LEDMS-W



- 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, the results are much higher thermal resistance and excessive chip temperatures of 100°C+.
- The **Life-Tj illustration** demonstrates the relationship between life time and chip/junction temperature for typical LED chips. The lower the temperature, the longer the life. Our LED modules have achieved the lowest possible chip temperature, thus prolonging its life even under high ambient temperatures.

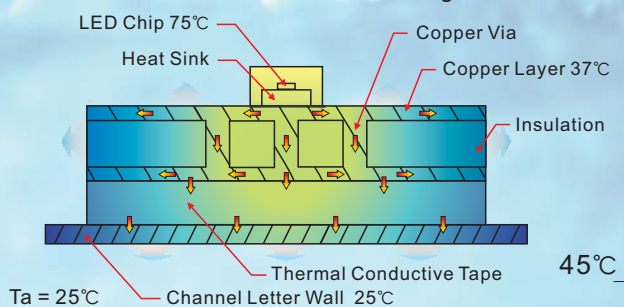
The diagram below explains **heat management** comparison between Minichip Modules and Typical Modules.



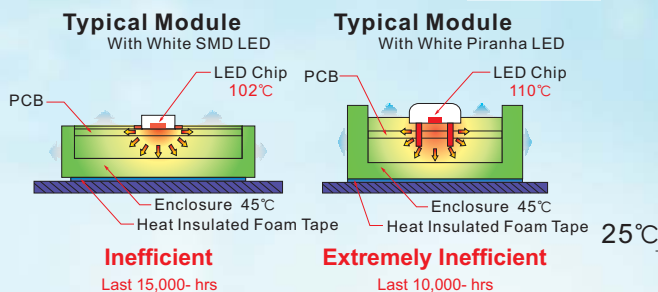
**Outstanding**

Last 25000+hrs

#### Cross Section Thermal Image



**VS.**

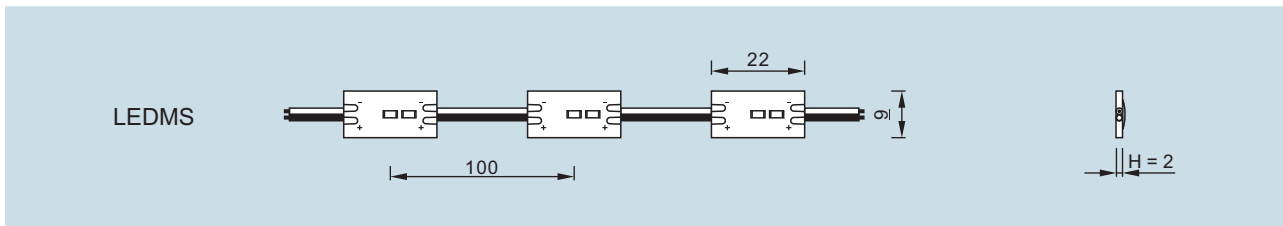


**Inefficient**  
Last 15,000- hrs

**Extremely Inefficient**  
Last 10,000- hrs

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

## ■ 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°

