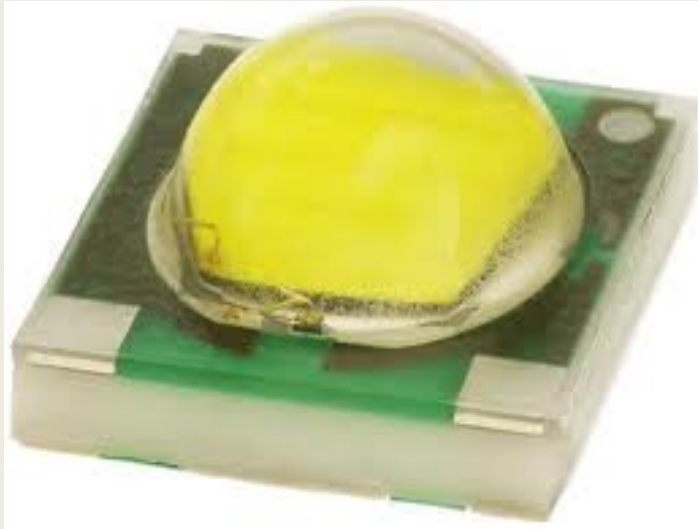




TECHNOLOGY & PRODUCT REVIEW



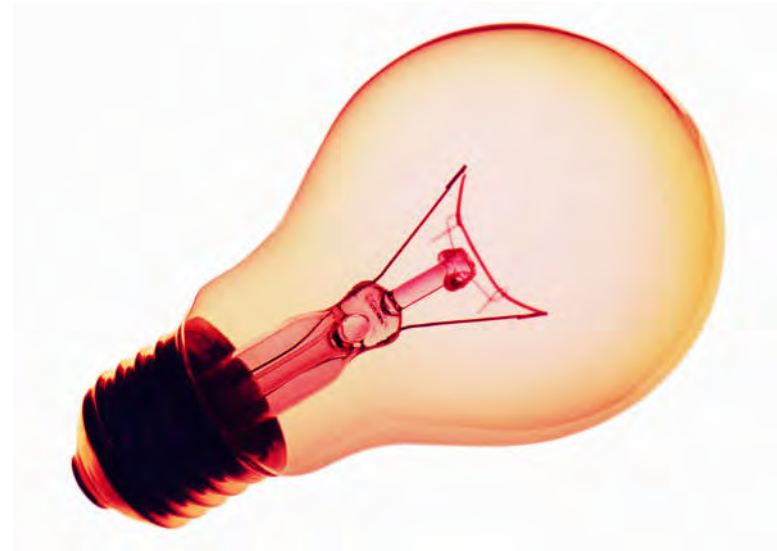
Outline



- LED Lighting Benefits
- LED Critical Components
- Industry Standards
- LEDshine360
- US*EagLED Bulbs
- US*EagLED Fixtures



82% of
Americans
use
incandescent
bulbs in their
homes



Problems:

- energy
- life
- heat
- availability

Fluorescents

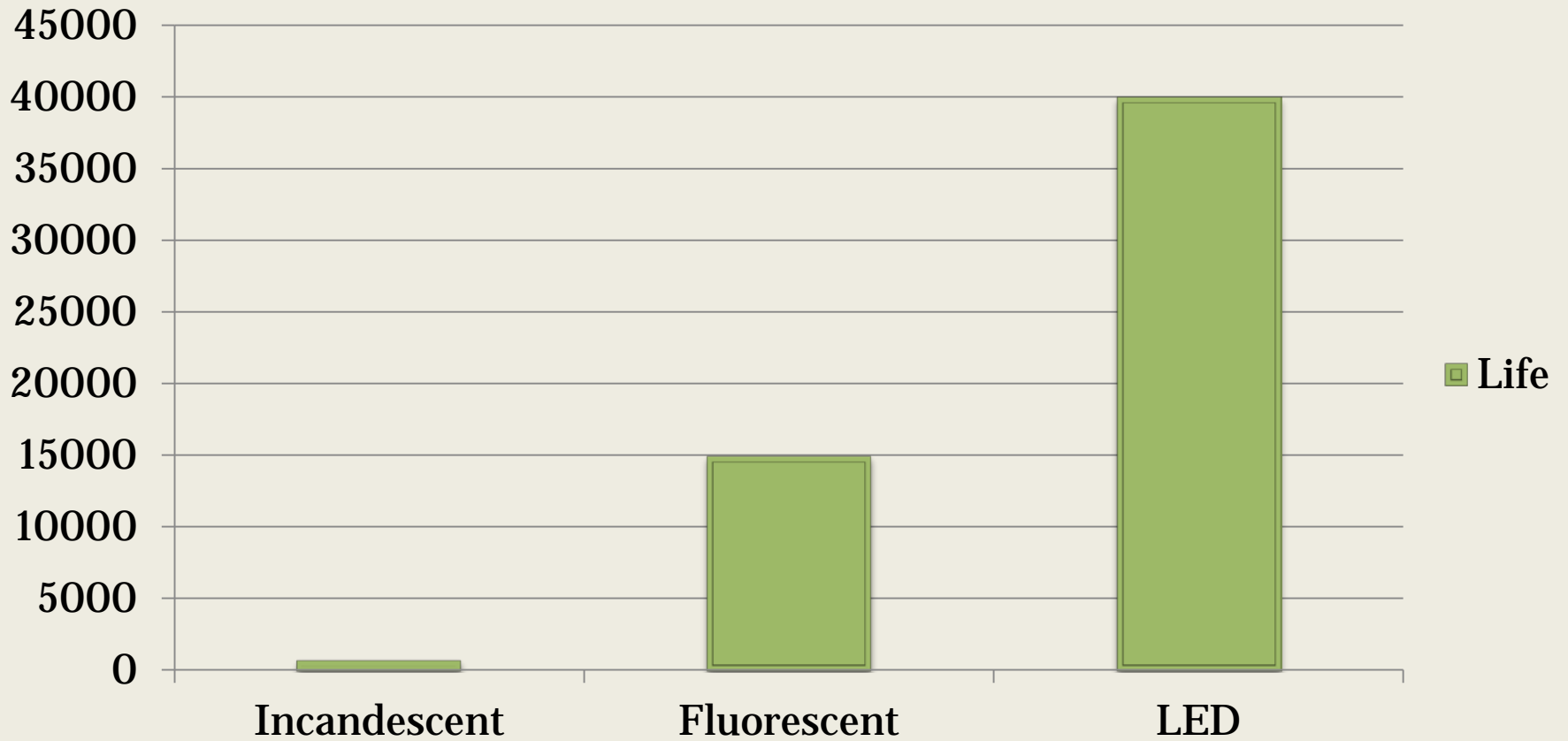


- Mercury
- 'Warm up' time
- Light Quality
- Dirty Energy
- Life

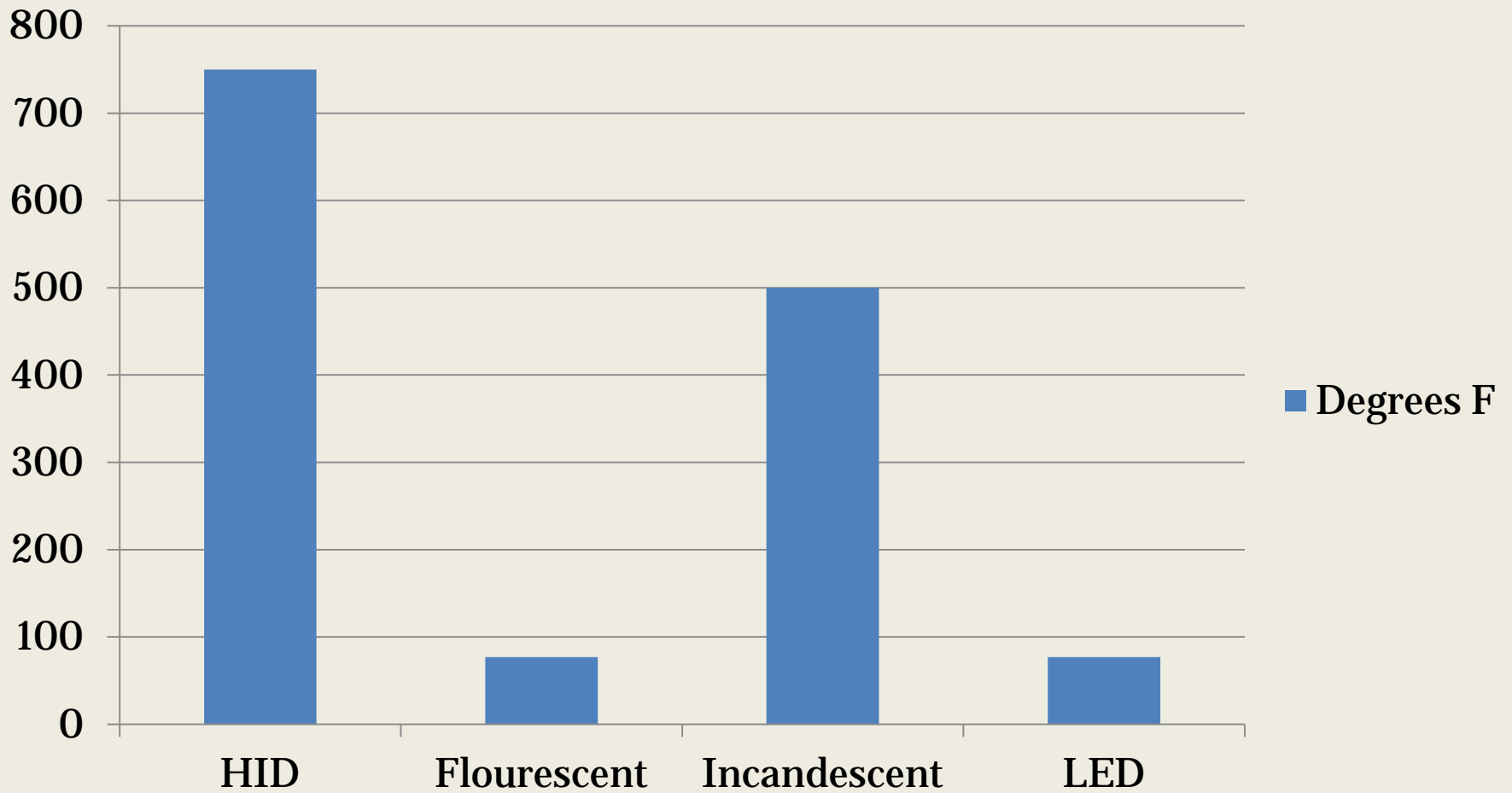
Average Life



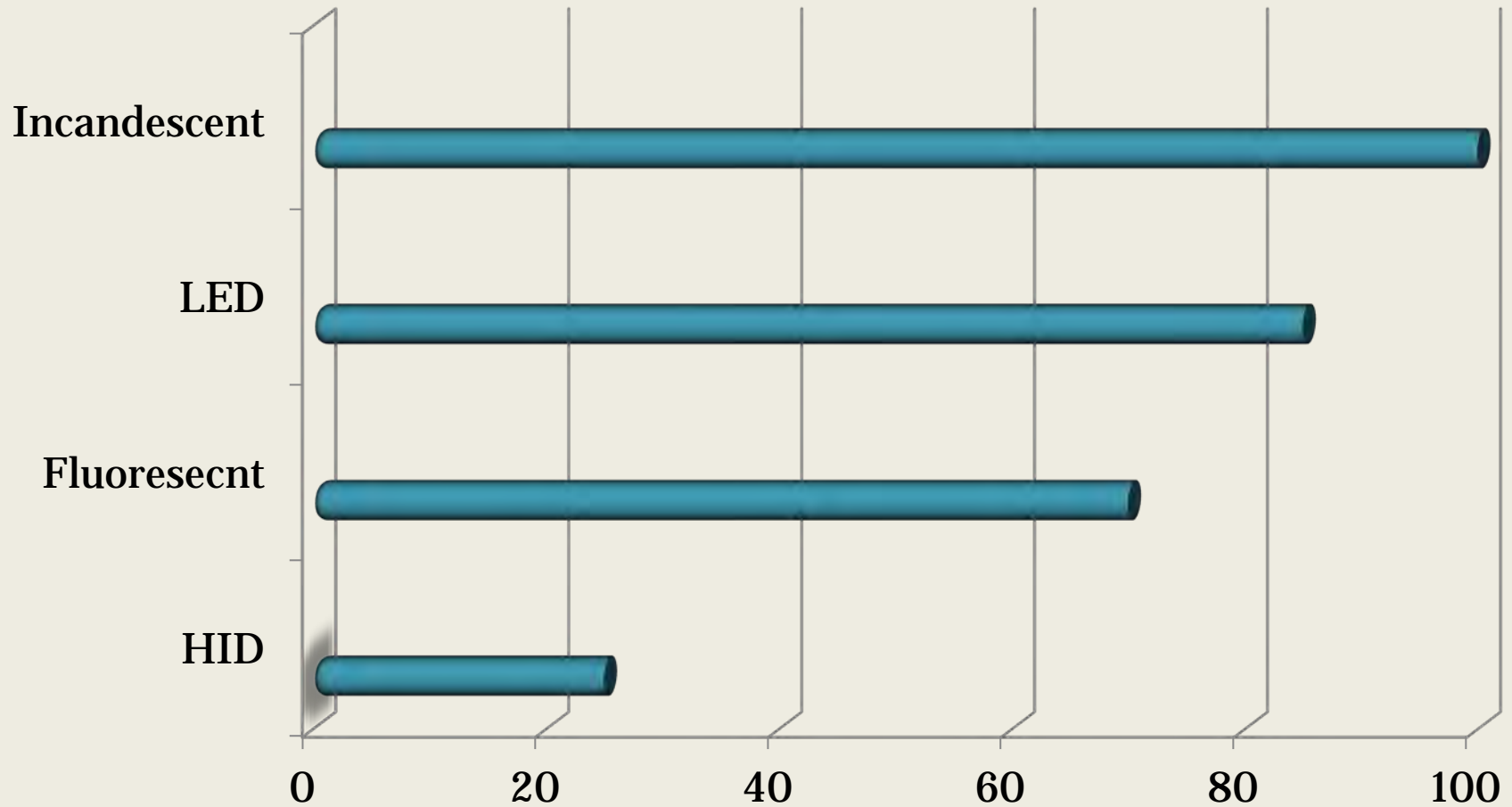
Life



Operating Temperature



CRI Comparison Chart



Industrial Lighting Comparison



Technology	Efficacy	Color Temperature	CRI	Lifetime (typical)	Lifetime Type	Initial Purchase Price
LED	60-200+ lm/w	2700-7000K	70-95	50,000+ hours	L70/L80 (70-80% of output at lifetime value)	Higher
Compact Fluorescent Lamps (CFL)	55-70 lm/w	2700-7000K	70-85	10,000 hours	50% failure rate of given number of bulbs	Medium
Incandescent	10-15 lm/w	2700 K	100	1,500 hours	50% failure rate of given number of bulbs	Low
Fluorescent	50-90 lm/w	2700-7000K	70-85	25,000 hours	50% failure rate of given number of bulbs	Low
Metal Halide	60-75 lm/w	5000 K	80	20,000 hours	50% failure rate of given number of bulbs	Medium
High Pressure Sodium	80-110 lm/w	2100 K	25	20,000 hours	50% failure rate of given number of bulbs	Medium

LED vs Fluorescent Tubes



	LED TUBES	FLUORESCENT TUBES
Lifespan	Tubes last twice as long as the average fluorescent tube	Last 10 to 20 times longer than incandescent bulbs, but not as long as LED bulbs.
Cost	Very expensive. Tubes can range from \$50 to \$100.	Inexpensive. Tubes cost \$2 to \$10.
Heat output	These bulbs do not cause heat build-up.	Temperature can be up to 2 degrees warmer under fluorescent tubes.
Efficiency	More efficient than both fluorescent and incandescent tubes.	Four to six times more efficient than incandescent bulbs, but less efficient than LED tubes. They also require a ballast to power.
Comfort	More ergonomic than fluorescent tubes.	Not ergonomic: light is drab and all bulbs flicker (though not always visible to the human eye).
Material	Does not contain hazardous metals like mercury.	Does contain mercury and phosphor.
Other	Light is not as strong as fluorescent or incandescent bulbs.	Bulb life is reduced in situations where light is switched on and off frequently.

Environmentally Friendly

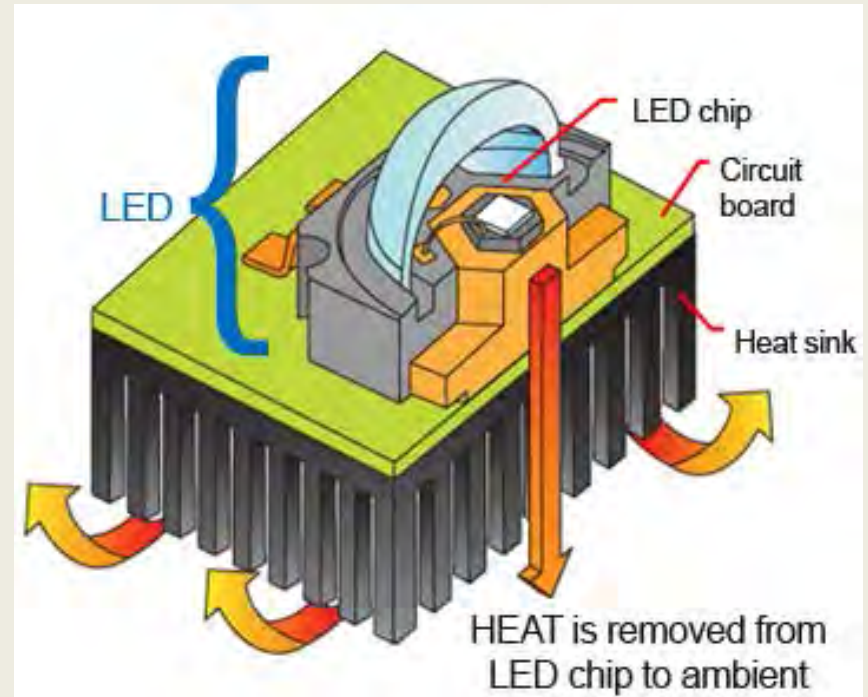


- No mercury
- No lead / heavy metals (RoHS Compliant)
 - (HID Bulbs can exceed 100-1000mg of mercury per lamp)
- No ultra violet (UV) radiation
- No infrared radiation

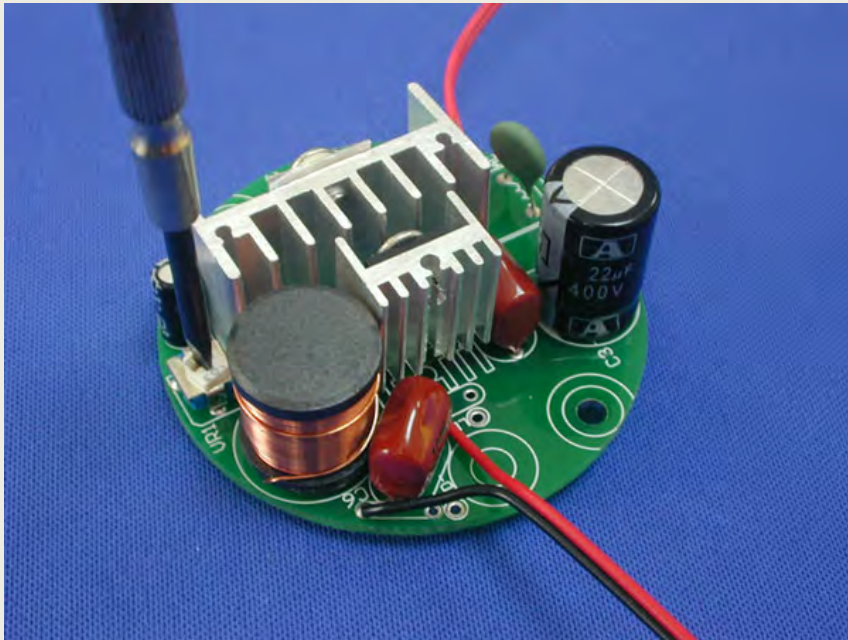
Heat Sink



- All diodes emit heat & light
- The better the heat extraction, the lower operating temperature of the diodes
- AKA hotter heat sink = cooler diodes
- Cooler diodes last longer



Driver



- #1 cause of LED light failure (for low quality products)
- Electrical contact issues
- Heat issues
- Electrical discharge issues
- UL or ETL certifications critical in evaluating quality

Light Emitting Diodes



- Lack of standardization
- Multiple manufacturers in Far East making poor quality diodes
 - Quality degrades quickly
 - Life expectancy depreciates rapidly
- Buyer should know the style of diode, manufacturer and have LM80 data available

Our Commitment to Quality



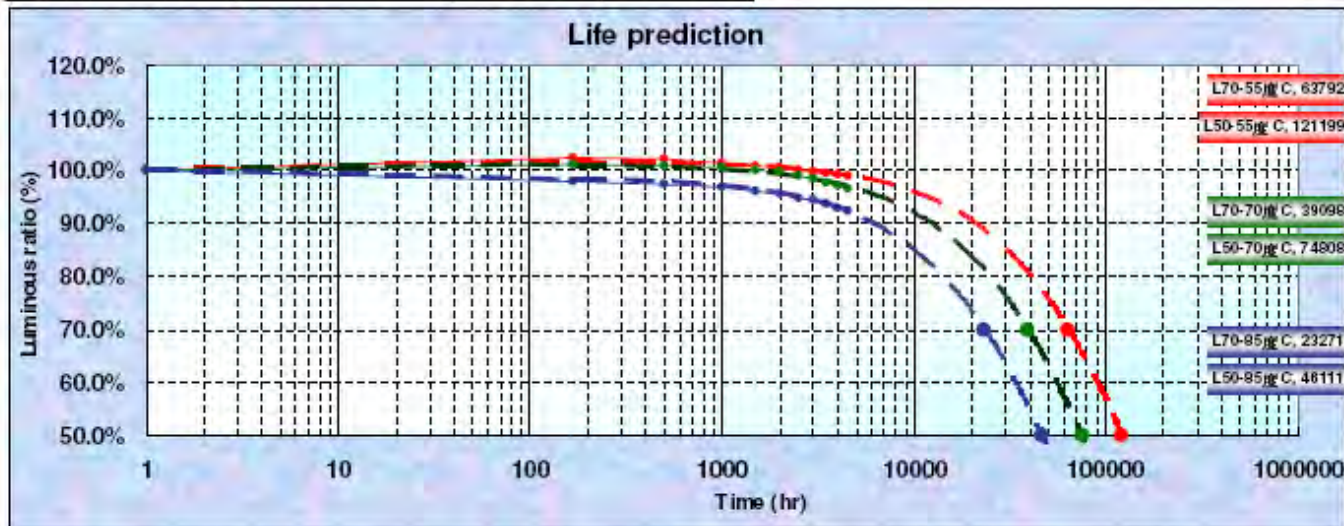
- Lighting Facts Partners
- Energy Star Partners
- UL filing number E353186
- ETL filing number ETL 4004124
- US*EagLED 5 year warranty
- LEDshine360 6 year warranty

LEDshine360 LM80 Data



➤ 45-21 (3020 Package) Series life Prediction data, (B50) $I_f=20\text{mA}$

45-21 LED Chip series life data			
T_j	55℃	70℃	85℃
L70 (hour)	63,792	39,098	23,271
L50 (hour)	121,199	74,808	46,111
$L_{@6000\text{hrs}} (\%)$	98.2%	95.6%	90.3%



*Good Quality LED Example



SHAPE

*Tomorrow's light bulb.
Shaped like yesterdays.*

SPREAD

360° All around brilliance.

SAVINGS



ADVANTAGES

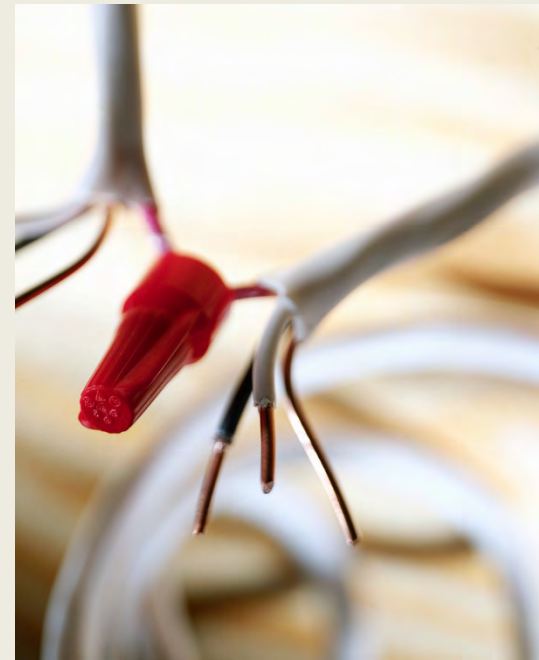
- Patented technology
- Shape of the bulb
- 'Looks-like-a-bulb'
- Beam Spread
- Quality of Light
- Modular design
- Ceramic heat sync
- Energy Savings
- Competitive Pricing



Modular Design



- Core Heat Dissipation System
- Wireless design
 - No internal wires
 - Modular
 - Integrated circuit driver design



US★EAGLEDTM



US*EagLED Tube Fixtures



- Industrial Waterproof (IP65) Auralux (outdoor, parking garage)
- Channel & surface mount (warehouse)
- Recessed troffer (home, offices)
- Impact Resistant (prison)
- 10 Year Warranty
- ETL Listed
- Made In USA

US*EagLED Tube Fixtures



US*EagLED LED Bulbs



- MR16, PAR30 & PAR38 Energy Star Approved
- LED Tube, PAR20, R20, R30, other options available
- ARRA compliant versions available upon request
- All UL or ETL listed
- 5 year warranty

LED High Bay Retrofit Kit

- Replaces 100, 150, 250, & 400 watt HID
- 110W = 400W
- 11,000 directional lumens
- 5 year warranty
- IP65 Waterproof
- Easy installation in current fixtures



LED Outdoor Fixtures



Conclusions



- Rapidly changing industry
- We offer quality products meeting top industry standards
- Exclusive LEDshine360 product line
- Diverse product variety
- Made in USA options available
- Industrial retrofits & fixtures available
- ROI projections available for every project