H4 LED Downlight Series – LED Light Engines

The Halo H4 LED is a family of 4" aperture recessed downlights with H455 series housings are designed for use with Halo EL4 Series LED Light Engines and compatible TL4 Series LED trims. Halo H4 LED housings have integral LED drivers that offer dimming as a standard feature.

The Halo LED EL4058xx Light Engines are designed for use in the LED dedicated housing Series H455x. Halo LED H4 Series light engines deliver in the range of 534-700 lumens (depending upon the trim and selected color temperature); and the H4 Series offers a selection of four color temperatures: 2700K, 3000K, 3500K, 4000K. Halo LED offers a superior optical design that yields productive beam lumens, good cutoff and low glare.

DESIGN FEATURES

MECHANICAL

(A) Upper Heat Sink

- Durable extruded aluminum construction.
- Conducts heat away from the LED keeping the junction temperatures below specified maximums, even when installed in insulated ceiling environments.

(B) Lower Heat Sink

- Durable die-cast aluminum construction.
- Precision keyed flange designed to lock with matching keyed slots in H4 trim rings.
- Works in conjunction with the upper heat sink for heat conduction away from the LED

MOUNTING

(C) Friction Blades

- Precision formed stainless steel spring blades provide retention of the EL series of light engines in the H455 series housings.
- Friction blade design allows the light engine to be installed in any position within the housing aperture (360 degrees).
- Tether security cable included on the light engine for attachment to the housing during installation, as recommended and when required by code.

ELECTRICAL

(D) LED Connection

- LED connector is a non-screw base connector offering easy installation with the H455 Series housings.
- LED connector meets California Title-24 high-efficacy luminaire requirement for a non-screw base socket, and where required to qualify as a high-efficacy luminaire.

COLOR SPECIFICATION & QUALITY STANDARDS

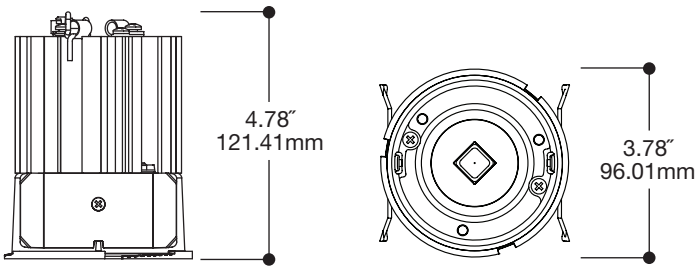
- Halo employs a tight chromaticity specification and LED color binning process to ensure LED color uniformity, sustainable Color Rendering Index (CRI) and Correlated Color Temperature (CCT) consistency over the useful life of the LED
- Halo LED chromaticity specification not only meets, but exceeds ENERGY STAR® SSL color standards (as per ANSIC 78.377-2008).
- Every Halo LED Module is quality tested and performance measured on the production line, and then serialized to register lumens, wattage, CRI and CCT
- Halo LED's serialized testing and measurement process further ensures color and lumen consistency to meet stringent Cooper Lighting specifications and exceed ENERGY STAR® SSL standards
- Halo LED Modules and light engines include color designation in the model number
- Example: EL405827

  8 27
  - 2700°K nominal CCT
  - > 80 CRI

QUALIFICATION

- 534 - 700 lumens (depending upon color temperature and trim selected)
- Halo LED offers the widest choice of four correlated color temperatures in recessed LED downlighting: 2700°K, 3000°K, 3500°K, 4000°K
- 80 CRI
- Lumen Maintenance 70% lumens / 50,000 hours
- Up to 50 Lumens per Watt
- LED package consisting of an engineered conglomeration of multiple LEDs to create one virtual source, for a productive "cone of light"
- Designed for interchangeable trim choices, with selection from multiple reflector and lens trim options
- H4 LED Light Engines exceed ENERGY STAR® Qualification when used with designated LED trims*
- Can be used to meet State of California Title 24 2008 and International Energy Conservation Code – IECC 2009 High Efficacy requirements when used with designated LED trims*
- LED emits no ultraviolet and only minimal infrared wavelengths
- ROHS compliant

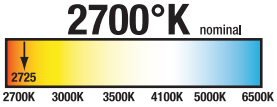
**Refer to compliance matrix*



H4 LED Downlight Series

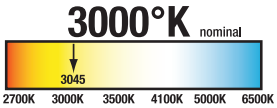
LED Light Engines

Available in
2700°K
3000°K
3500°K
4000°K
Correlated Color Temperatures



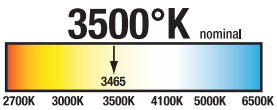
EL405827

4" LED Light Engine, 2700°K



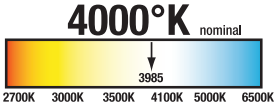
EL405830

4" LED Light Engine, 3000°K



EL405835

4" LED Light Engine, 3500°K



EL405840

4" LED Light Engine, 4000°K

LUMEN SUMMARY

H4 LED Light Engine	Trim Model	TL400SC	TL400H	TL400WH	TL401WB	TL402SCS	TL402HS	TL402WHS	TL403WBS
	Trim Type	Open Specular Reflector	Open Haze Reflector	Open White Reflector	Open White Baffle	Solite® Lens Specular Clear Reflector	Solite® Lens Haze Reflector	Solite® Lens White Reflector	Solite® Lens White Baffle
EL405827	LUMENS	602	566	550	538	533	531	534	538
EL405830	LUMENS	651	618	605	591	582	574	588	583
EL405835	LUMENS	685	652	635	621	612	611	628	623
EL405840	LUMENS	700	667	652	637	623	613	628	623

H4 LED Light Engine	Trim Model	TL400SBK	TL400SN	TL400TBZ	TL401BB	TL402SBKS	TL402SNS	TL402TBZS	TL403BBS
	Trim Type	Specular Black Reflector	Satin Nickel Reflector	Tuscan Bronze Reflector	Black Baffle	Solite® Lens Specular Black Reflector	Solite® Lens Satin Nickel Reflector	Solite® Lens Tuscan Bronze Reflector	Solite® Lens Black Baffle
EL405827	LUMENS	386	471	429	381	516	527	501	514
EL405830	LUMENS	428	522	477	421	566	579	555	565
EL405835	LUMENS	421	515	467	416	560	572	542	559
EL405840	LUMENS	436	530	481	430	566	581	553	567

COMPLIANCE MATRIX

HALO H4 LED Compliance Summary

Symbol	Qualification Standard[1]
ES	ENERGY STAR® Program Requirements for Solid State Lighting Luminaires Eligibility Criteria
T24	California Energy Commission 2008 Building Energy Efficiency Standards, California Code of Regulations Title 24, Part 1 -- High Efficacy Luminaire
IECC	2009 International Energy Conservation Code® -- "High Efficacy Lamps" and Section 404 "Electrical Power and Lighting Systems"

Symbol	Base Standards for Compliance[2]	
ES	Lumens & Efficacy	<4.5" aperture = 345 Lumens and >4.5" aperture = 575 Lumens; plus a minimum 35 LpW
T24	Efficacy	>5 Watts to 15W = 40 LpW and >15W to 40W = 50 LpW
IECC	Efficacy	Efficacy standards with minimum LpW based upon lamp / source wattage. Refer to 2009 IECC "High-Efficacy Lamps"

[1]Qualification Note: There are more details associated with these standards. Consult the specific standard for complete qualification and compliance requirments.

[2]Compliance Note: Efficacy is measured in Lumens per Watt (LpW).

H4 LED	TL400SC	TL400H	TL400WH	TL401WB	TL402SCS	TL402HS	TL402WHS	TL403WBS	TL400SN	TL400TBZ	TL400SBK	TL401BB	TL402SNS	TL402TBZS	TL402SBKS	TL403BBS
EL405827	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	T24	T24	T24	T24	*	*	*	*	*	*	*	*	*	*	*	*
	IECC	IECC	IECC	IECC	*	*	*	*	*	*	*	*	*	*	*	*
EL405830	ES	ES	ES	ES	ES	ES	ES	ES	*	*	*	*	ES	ES	ES	ES
	T24	T24	T24	T24	T24	T24	T24	T24	*	*	*	*	*	*	*	*
	IECC	IECC	IECC	IECC	IECC	IECC	IECC	IECC	*	*	*	*	*	*	*	*
EL405835	ES	ES	ES	ES	ES	ES	ES	ES	*	*	*	*	ES	ES	ES	ES
	T24	T24	T24	T24	T24	T24	T24	T24	*	*	*	*	*	*	*	*
	IECC	IECC	IECC	IECC	IECC	IECC	IECC	IECC	*	*	*	*	*	*	*	*
EL405840	ES	ES	ES	ES	ES	ES	ES	ES	ES	*	*	*	ES	ES	ES	ES
	T24	T24	T24	T24	T24	T24	T24	T24	*	*	*	*	*	*	*	*
	IECC	IECC	IECC	IECC	IECC	IECC	IECC	IECC	*	*	*	*	*	*	*	*

***Note:**

Halo is committed to providing the latest in qualification testing to ENERGY STAR® SSL, Title 24-2008 and IECC-2009 standards.

With continuing improvements in LED technology and Halo's commitment to continuous updates in qualification testing, refer to LED Light Engine product specification sheets online for the latest in compliance qualification status.

As an ENERGY STAR® Partner, Cooper Lighting adhers to the stringent standards of ENERGY STAR® SSL, and maintains the highest level of compliance qualification.