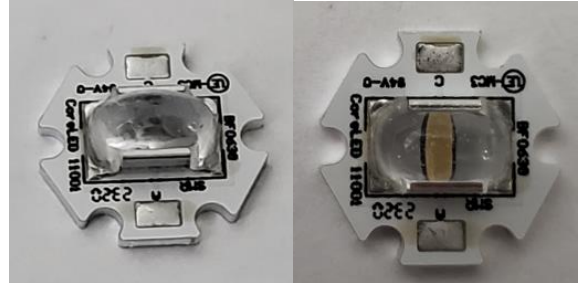


### CoreLED P/N 12001-STAR-E17

- 7H x 3V Flood IES NEMA Type lens
- Nichia E17 LED source
- 20mm Starboard for easy prototyping and evaluation



### SMO Product Description:

The SMO product family is a series of molded high-temperature silicone miniature lenses that attach directly to PCB with solder clip using standard reflow method. These components achieve high light collection efficiency, a variety of engineered beam patterns, and are supplied for high volume pick and place electronics assembly.

### Key Features:

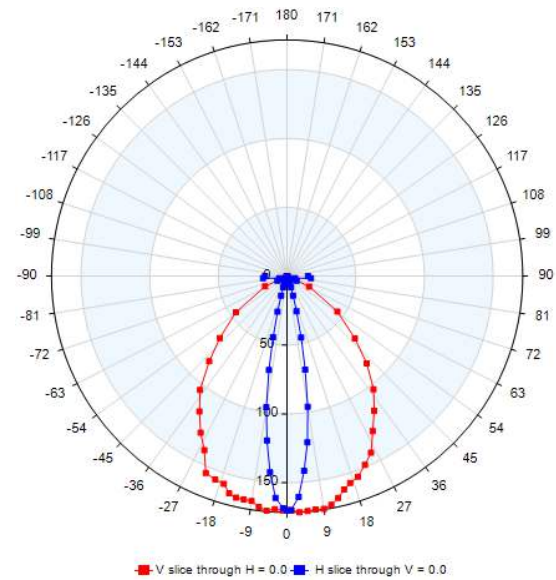
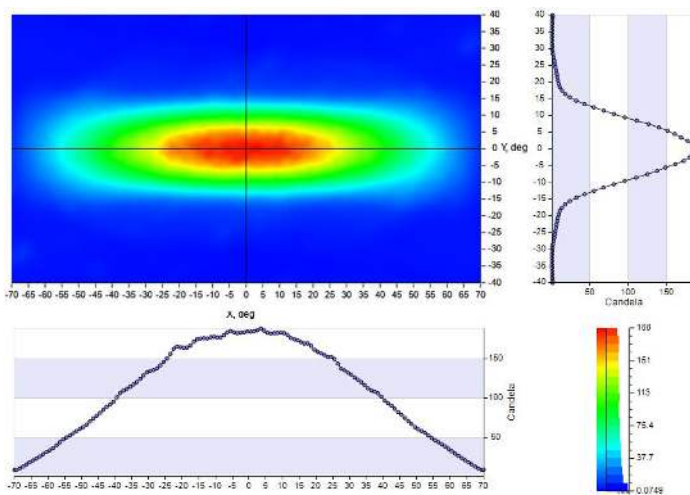
- Optical lens is reflow mounted at the same time as LED assembly
- Supplied in tape and reel
- Increased control of light output
- Precision alignment (within  $\pm 0.1$ mm)
- Family of optical beam patterns that will work using IR reflow
- Reflow solder clip directly attached to lens
- Standard pick and place equipment
- Manufactured without the need for additional components to attach the optics

**STARBOARD mounted optics are meant for PROTOTYPE and EVALUATION purposes only**

### Emitted Pattern Profile

Nichia E17 (Measured) 1717 LED package

IES NEMA Type	7H x 3V
Maximum Candela	173
Horizontal Beam Angle (50%)	84
Vertical Beam Angle (50%)	19.5
Horizontal Field Angle (10%)	131
Vertical Field Angle (10%)	33
Total Rated Lamp Lumens	100

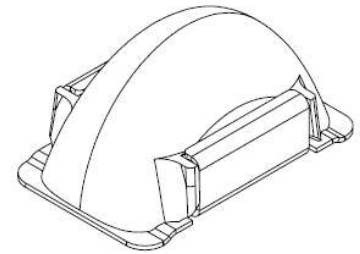
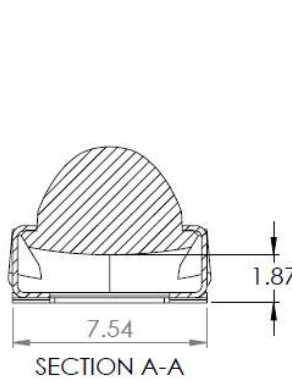
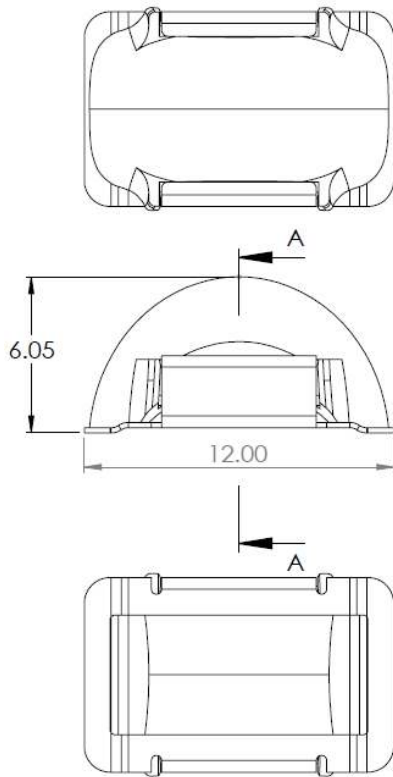


ANGULAR DISTRIBUTION OF LUMINOUS INTENSITY (cd)

POLAR INTENSITY PLOT

**IES files and Raytrace models are available upon request from CoreLed Engineering.**

### Mechanical Profile: SMO Linear Collimator



- NOTES:
- PART TO BE FREE OF OIL AND OTHER FOREIGN MATERIALS DETRIMENTAL TO ASSEMBLY FUNCTION OR SAFE HANDLING
  - FINAL PACKAGED PART TO MEET CLEANLINESS REQUIREMENT ACCORDING TO VDA 19: CCC = N(H-N00), VALID FOR METALLIC PARTICLES ONLY.  
(NO METAL PARTICLES > 300 um ALLOWED)
  - ALL TOLERANCES +/- 0.1 mm UNLESS OTHERWISE SPECIFIED
  - PART TO BE PACKAGED TAPE AND REEL. SEE DATASHEET

**PROPRIETARY AND CONFIDENTIAL**  
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CORELED SYSTEMS, LLC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CORELED SYSTEMS, LLC IS PROHIBITED.

NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED:	NAME	DATE
DIMENSIONS ARE IN MILLIMETERS	B. WELLS	3/25/21
TOLERANCES:		
FRACTIONAL ±	DRAWN	
ANGULAR: MACH ± BEND ±	CHECKED	
TWO PLACE DECIMAL ±	ENG APPR.	
THREE PLACE DECIMAL ±	MFG APPR.	
INTERPRET GEOMETRIC TOLERANCING PER:	G.A.	
MATERIAL	COMMENTS:	
FINISH		

CoreLed Systems, LLC		
TITLE:		
SURFACE MOUNT OPTIC 12X7 LINEAR COLLIMATOR		
SIZE	DWG. NO.	REV
<b>A</b>	P/N: 12001	<b>1.1</b>
SCALE: 5:1	WEIGHT:	SHEET 1 OF 3

Mechanical design features shown with solder clip

CAD files available upon request from CoreLed Engineering

### LED Information



### NCSWE17AT

- Pb-free Reflow Soldering Application
- RoHS Compliant

NICHIA STS-DA1-3687I <Cat.No.170112>

### SPECIFICATIONS

#### (1) Absolute Maximum Ratings

Item	Symbol	Absolute Maximum Rating	Unit
Forward Current	$I_F$	700	mA
Pulse Forward Current	$I_{FP}$	1000	mA
Reverse Voltage	$V_R$	5	V
Power Dissipation	$P_D$	2.31	W
Operating Temperature	$T_{OP}$	-40~100	°C
Storage Temperature	$T_{STG}$	-40~100	°C
Junction Temperature	$T_J$	135	°C

\* Absolute Maximum Ratings at  $T_C=25^\circ\text{C}$ .

\*  $I_{FP}$  conditions with pulse width  $\leq 10\text{ms}$  and duty cycle  $\leq 10\%$ .

#### (2) Initial Electrical/Optical Characteristics

Item	Symbol	Condition	Typ	Max	Unit
Forward Voltage	$V_F$	$I_F=350\text{mA}$	3.0	-	V
Reverse Current	$I_R$	$V_R=5\text{V}$	-	-	$\mu\text{A}$
R70	Luminous Flux	$\Phi_v$ $I_F=350\text{mA}$	158	-	lm
	Color Rendering Index	$R_a$ $I_F=350\text{mA}$	72	-	-
R8000	Luminous Flux	$\Phi_v$ $I_F=350\text{mA}$	148	-	lm
	Color Rendering Index	$R_a$ $I_F=350\text{mA}$	82	-	-
R9050	Luminous Flux	$\Phi_v$ $I_F=350\text{mA}$	125	-	lm
	Color Rendering Index	$R_a$ $I_F=350\text{mA}$	92	-	-
R9080	Luminous Flux	$\Phi_v$ $I_F=350\text{mA}$	118	-	lm
	Color Rendering Index	$R_a$ $I_F=350\text{mA}$	92	-	-
Chromaticity Coordinate	x	- $I_F=350\text{mA}$	0.3447	-	-
	y	- $I_F=350\text{mA}$	0.3553	-	-
Thermal Resistance	$R_{JC}$	-	0.5	1.0	°C/W

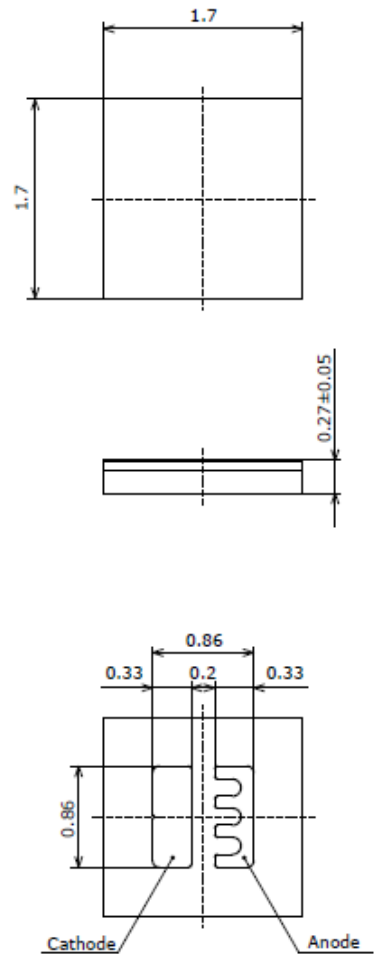
\* Characteristics at  $T_C=25^\circ\text{C}$ .

\* Luminous Flux value as per CIE 127:2007 standard.

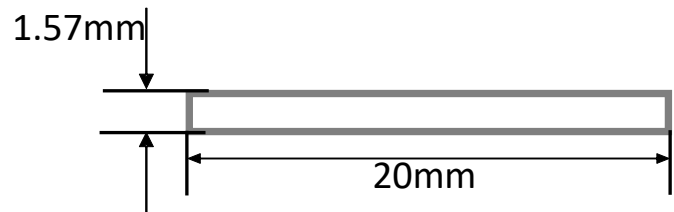
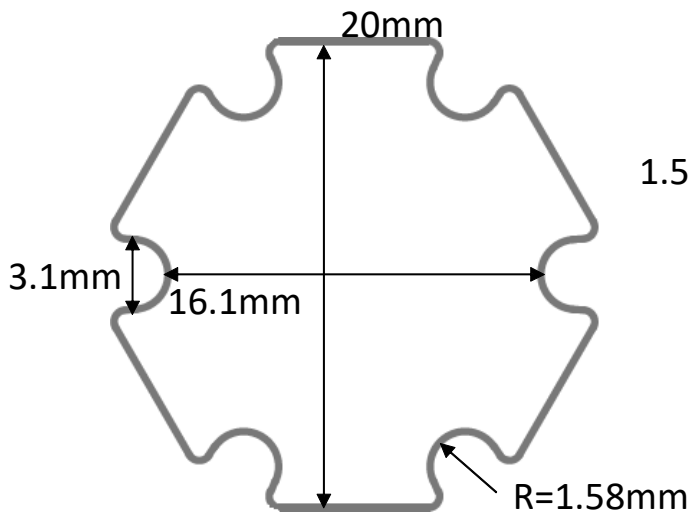
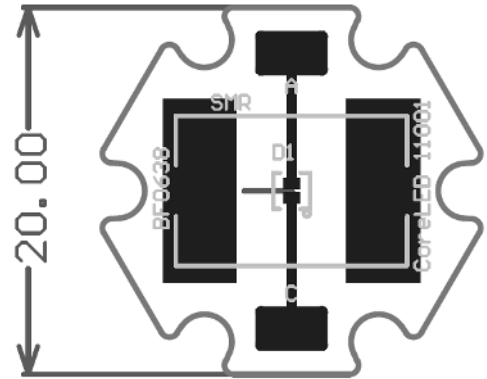
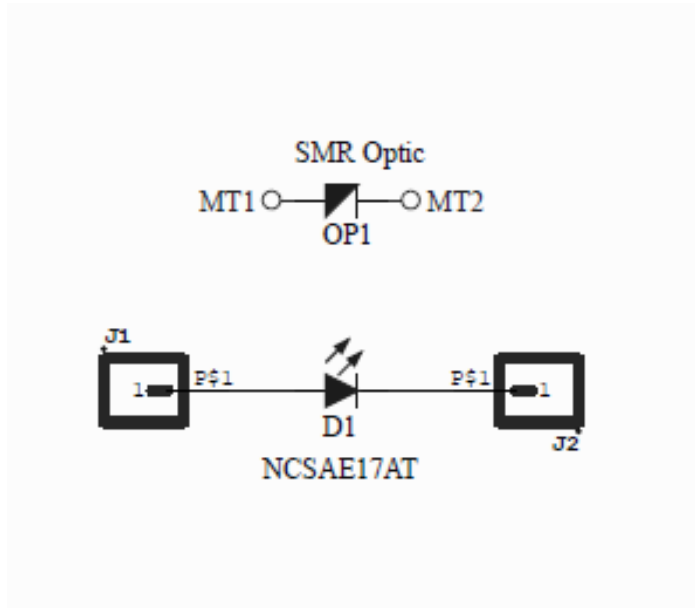
\* Chromaticity Coordinates as per CIE 1931 Chromaticity Chart.

\* The thermal resistance value ( $R_{JC}$ ) is used to perform logical analysis (e.g. computer-based thermal analysis simulation) and represents a thermal resistance between the die to the  $T_C$  measurement point (PCB used: Aluminum PCB  $t=1.5\text{mm}$ , Insulating layer  $t=0.12\text{mm}$ ).

\* For more details on thermal resistance, see CAUTIONS, (6) Thermal Management.



### Starboard Schematic



**STARBOARD mounted optics are meant for PROTOTYPE and EVALUATION purposes only**



Surface Mounted Optic (SMO)  
12x7mm Linear Collimator  
STARBOARD  
Rev 1.0 – 05/13/21

Electrical:

From LED Data sheet: recommended operation is Typical 3.0V at 350mA (1 Watt to provide 150 lumens).

Thermal:

Recommended attachment to heat sink to dissipate 1W (3.0V at 350mA). LED is rated higher and can be run up to 700mA with appropriate heatsinking provided.

Packaging:

Individually packaged in static controlled bag.

**STARBOARD mounted optics are meant for PROTOTYPE and  
EVALUATION purposes only**