Ares 100A

Best UV Efficacy
Plant Growth COB Module

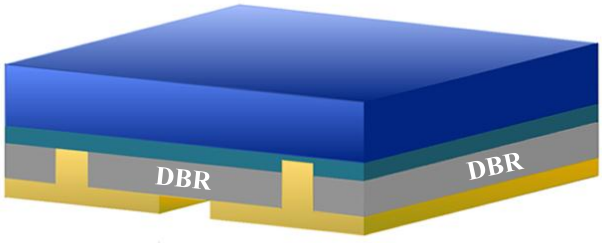
Intense and Cooler

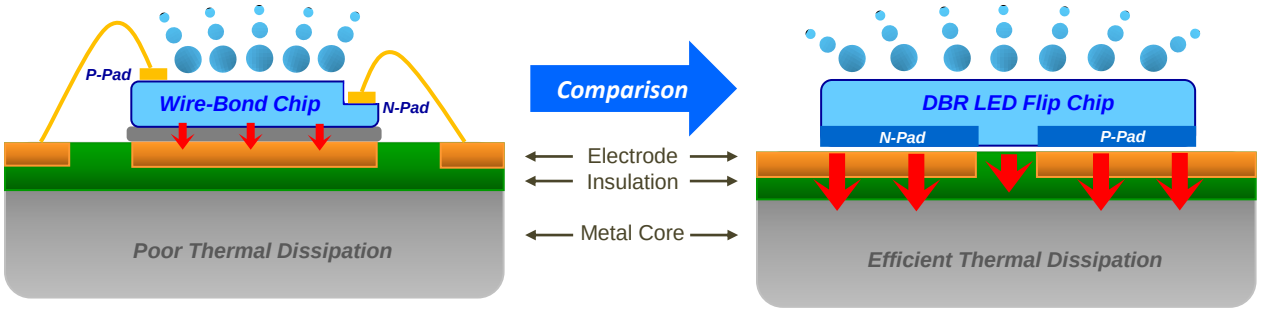
High Efficiency & Lower Thermal Resistance

Ares 100A is a 100W COB module offering options of UV illumination at peak wavelengths of 375±5nm and 395±5nm. Each COB is structured based on patented DBR LED Flip Chips and unique low temperature bonding technologies to further boost lighting efficiency and decrease the thermal resistance between the LED chip junction and module's metal substrate.

Features:

- Peak Options at 375±5nm or 395±5nm
- 30mm Light Emitting Surface
- 0.18°C/W Thermal Resistance
- Max. Power 185W for Peak of 375±5nm
- Max. Power 167.5W for Peak of 395±5nm
- Patented 35x35mil UV Flip Chips
- Low Temperature Bonding
- RoHS Compliant





FLIP CHIP OPTO

Flip Chip Opto , Inc.
48668 Milmont Dr., Fremont, CA 94538 USA
Tel: (510)678-1128 | Sales@fcopto.com | www.fcopto.com

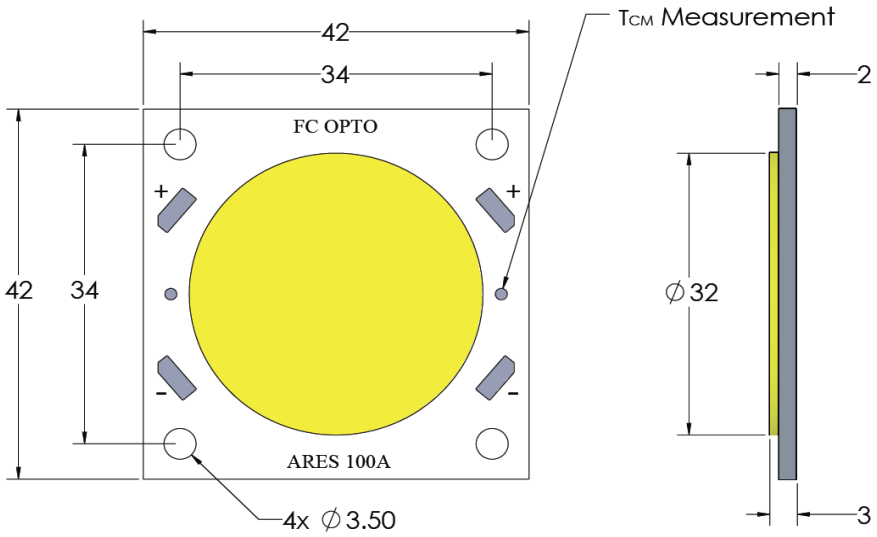
Electro-Optical Characteristics (Ta=25°C):

Viewing Angle $2\theta_{1/2}$ = 140°

Model	Peak Wavelength (nm)	V_F (V) @ I_F=2.8A	Power (mW) @ I_F=2.8A	V_F (V) @ I_F=4.0A	Power (mW) @ I_F=4.0A	LES (mm)
100A-395	395±5	38.4	20,160	40.2	26,010	30
100A-375	375±5	42	864	44.4	1,039	

Mechanical Dimensions:

- Solder pads are labeled “+” and “-“ to denote positive and negative electrodes, respectively.
- Drawing dimensions are in millimeters, and are not to scale.
- Tolerance: ±0.2mm.
- The optical center of the LED Array is defined by the mechanical center of the array.



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Absolute Maximum Ratings (Ta=25°C):

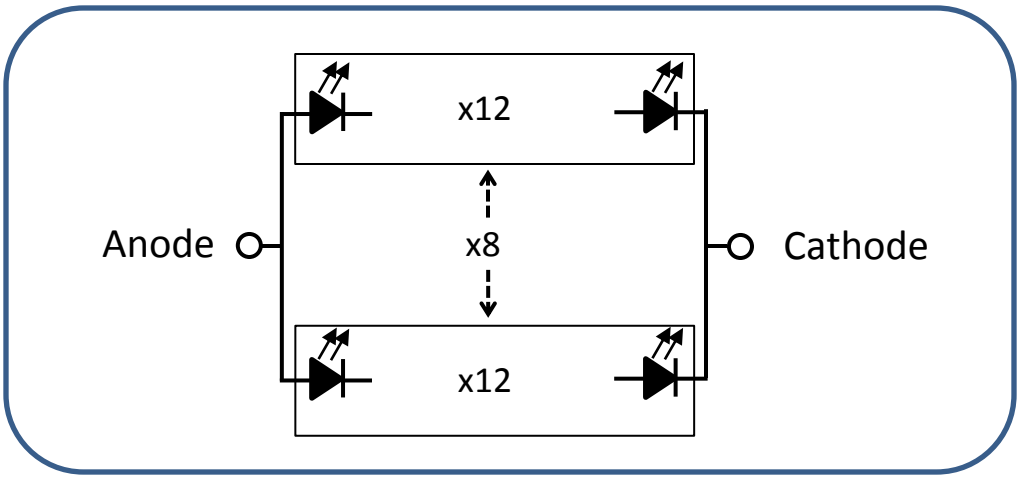
Parameter	Symbol	Max. Rating	Conditions
Power Dissipation at 375±5nm	P_d	185W	Tj≤140°C
Power Dissipation at 395±5nm	P_d	167.5W	Tj≤140°C
DC Forward Current	I_F	4,000mA	Tj≤140°C
Junction Temperature	Tj	140°C	
Reverse Voltage	V_r	-5V	$T_{ambient}$ = 25°C
Reverse Current	I_r	≤1μA	Vr = -5V
Operating Case Temperature	T_C	-40°C to 90°C	
Storage Temperature	T_{ST}	-40°C to 120°C	

Thermal Characteristics:

Parameter	Symbol	°C/W	Definition
Thermal Resistance	$R_{th(j-b)}$	0.18	Between LED Junction and COB Bottom Surface

- Junction Temperature Tj = Tb + Power(W) x Rth(j-b), where Tb is the temperature at COB bottom surface.

Circuit Diagram:



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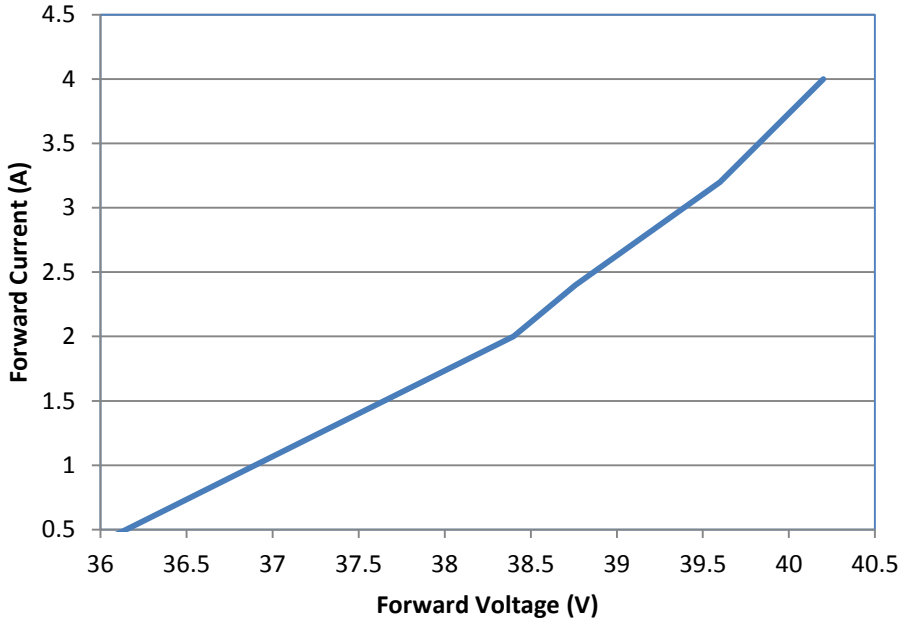
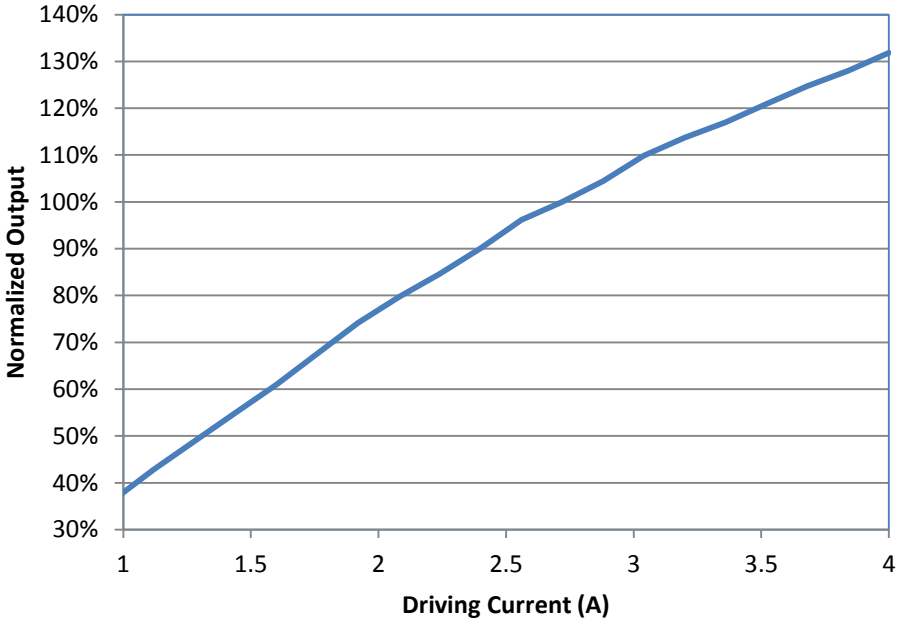
Characteristic Graphs (Ta=25°C):

(i) 395nm Forward Current (I_F) vs. Forward Voltage (V_F)



(ii) 395nm Normalized Output vs. Forward Current (I_F)



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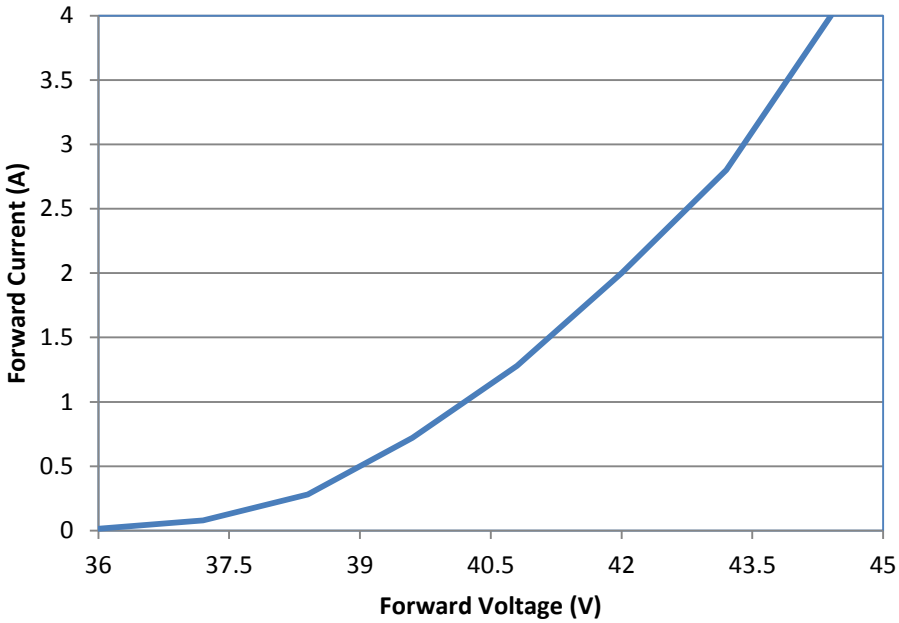
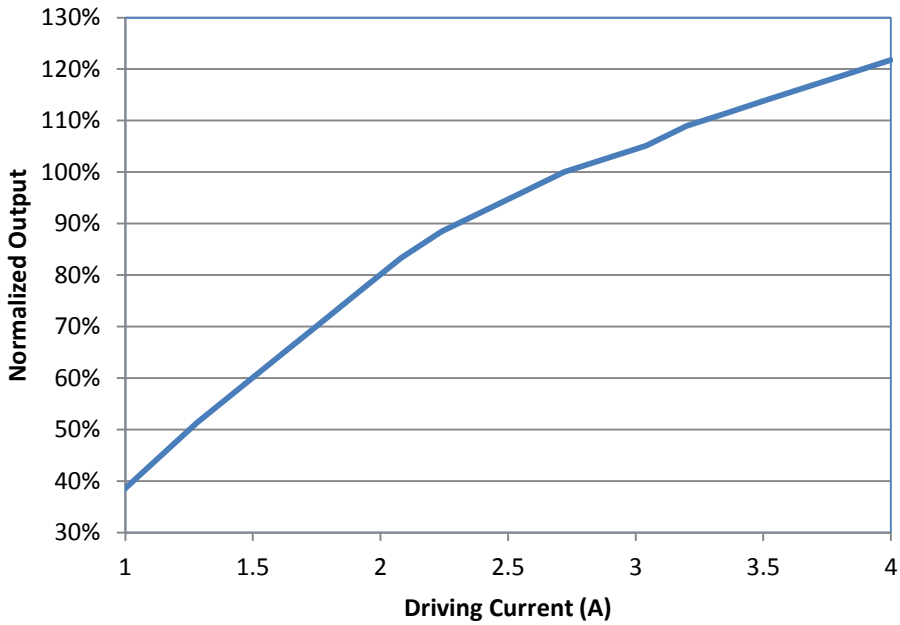
Characteristic Graphs (Ta=25°C):

(iii) 375nm Forward Current (I_F) vs. Forward Voltage (V_F)



(iv) 375nm Normalized Output vs. Forward Current (I_F)



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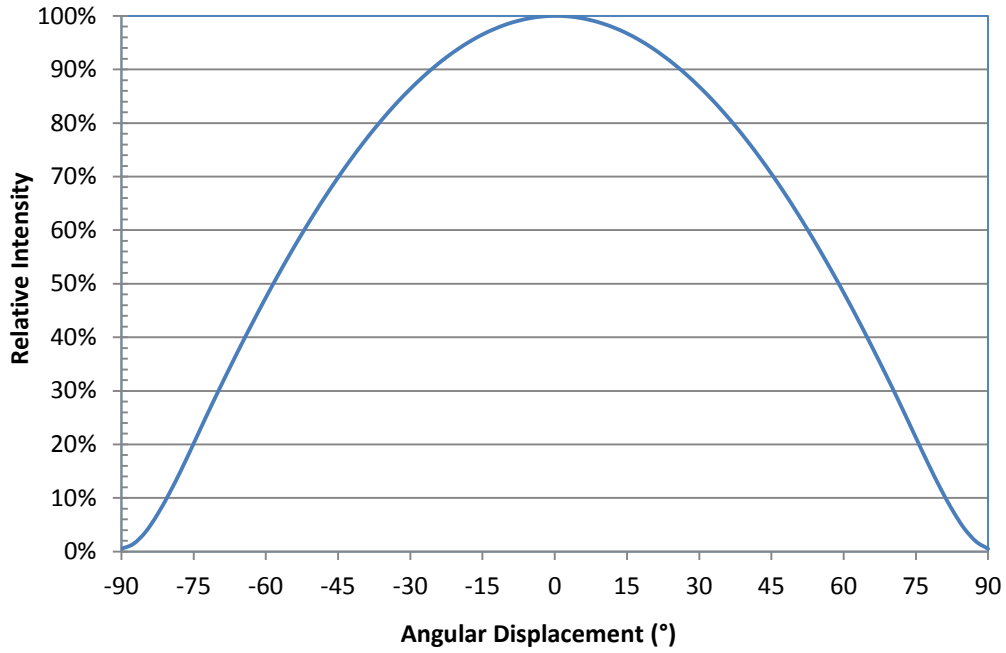
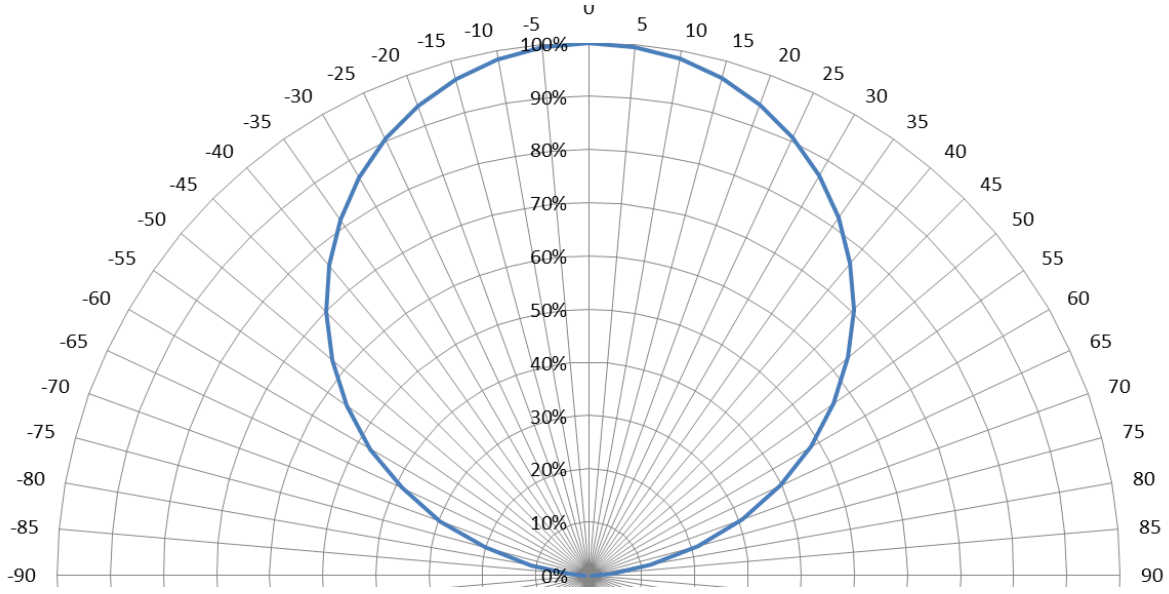
(v) Typical Spatial Radiation Pattern



(vi) Typical Polar Radiation Pattern



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Cautions:

1. Circuit Protection is recommended during the assembly and operation.
    i. MOV, TVS, current fuse, thermal fuse, capacitor, resistor are options to avoid unexpected circuit faults.

2. Storage Conditions
    i. Moisture Controlled environment is recommended to avoid COB damages during storage. Moisture may cause circuit damages and result in brightness reduction or failure in circuit contacts.
    ii. COB in moisture-proof sealed bags should be stored in ambient conditions of temperature less than 30°C and humidity less than 90%RH.
    iii. COB in open air should be kept in ambient conditions of temperature less than 30°C and humidity less than 60%RH.
    iv. COB should be restored in moisture-proof bag with moisture absorbent together.

3. Handling Light Emitting Surface (LES)
    i. LES is a silicone lens and should not have direct contact with sharp tools and human fingers.

4. Recommendation on Assembly with Heat Sink
    i. Apply thermal grease over the heatsink contact surface to seal the voids and roughness pre-existing on the contact surface.
    ii. Attach COB onto heatsink contact surface with thermal grease in between. Thermal grease thickness is suggested less than 25um (1 mil)
    iii. Apply sufficient pressure to secure the COB, and ensure (a) full contact between COB and heatsink, (b) no voids within thermal grease, (c) minimal thermal grease thickness.

5. Flip Chip Opto is not responsible to the damages caused by the operation under the parameters exceeding the values described in the specification.

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