

SPECIFICATIONS

FOR TOPLITE COB MODULE

MODEL: ATR-AR38



TOPLITE

TOPLITE INTERNATIONAL LLC.

www.topliteusa.com



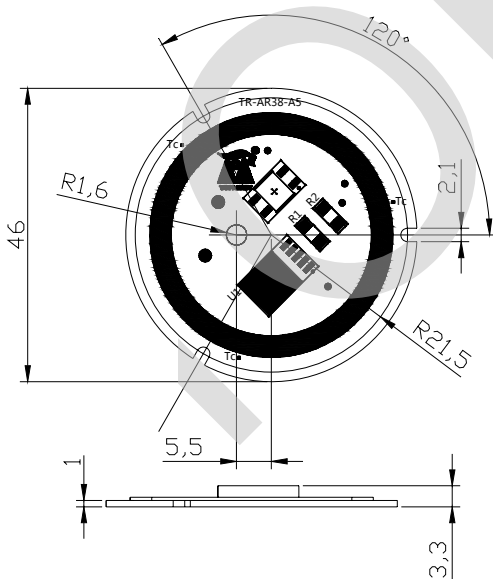
TECHNICAL DATA SHEET

ATR-AR38 <FOR TOPLITE COB MODULE>

1. PRODUCT APPEARANCE



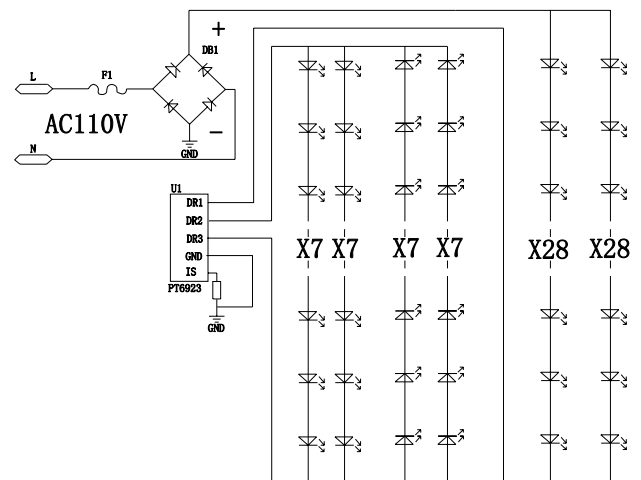
2. OUTLINE DRAWING



Unit: mm

Tolerance: ±0.25

3. SCHEMATIC DIAGRAM





TECHNICAL DATA SHEET

ATR-AR38 <FOR TOPLITE COB MODULE>

4. DESCRIPTION

The ATR-AR38 series, which are designed for AC drive or operation, do not need the standard converter essential for a conventional general lighting product. The modules also have a high power factor which can contribute to high energy savings in many lighting applications. Since there is no need for a converter, the ATR-AR38 series life-time can be estimated closer to the LED because it is not as dependent on the other electronics in the system. It also allows for better utilization of space without the converter.

5. FEATURES

- Connect to AC power
- High Power Efficiency
- High Power Factor
- Low THD
- Long Life Time
- Simplest BOM
- Miniaturization
- Lead Free product
- RoHS compliant Applications
- Bulb light
- Down light
- Factory Ceiling light
- Industrial Light

**TECHNICAL DATA SHEET****ATR-AR38** <FOR TOPLITE COB MODULE>**6. PERFORMANCE PARAMETERS****6-1. ABSOLUTE MAXIMUM RATINGS**

ITEM	SYMBOL	RATING	UNIT
Power Dissipation	P	10.8	W
Forward Current	I _F	90	mA
MAX Voltage	V _{opt}	125	V
Operating Temperature	T _{opr}	- 30 ~ + 85	°C
Storage Temperature	T _{stg}	- 40 ~ + 100	°C
Junction Temperature	T _{jmax}	+ 125	°C

Note:

- *1. Forward Current allows maximum surge current ≤ 10 ms.
- *2. Power dissipation and forward current are the values when the LED is used within the range of the derating curve in this data sheet.



TECHNICAL DATA SHEET

ATR-AR38 <FOR TOPLITE COB MODULE>

6-2. ELECTRICAL-OPTICAL CHARACTERISTICS

(T_c=25°C)

**	PARAMETER	SYMB	CONDITION	MIN.	TYP.	MAX.	UNIT
common	Operating Voltage	V _F	AC110V 60Hz	100	110	120	V
	Beam Angle	Deg		—	120	—	Deg
	Operating Frequency	Hz		—	60	—	Hz
	CRI	Ra		80	—	—	—
	Power Factor	PF		0.9	0.95	—	—
W	** Color Temp.	—	AC110V 60Hz	2870	3045	3220	K
	W ₁ Luminous Flux *2	Φ		720	765	—	lm
	Luminous Efficiency	η		80	85	—	lm/W
	W ₂ Luminous Flux *2	Φ		774	810	—	lm
	Luminous Efficiency	η		86	90	—	lm/W
D	** Color Temp.	—	AC110V 60Hz	4745	5028	5311	K
	D1 Luminous Flux *2	Φ		810	855	—	lm
	Luminous Efficiency	η		90	95	—	lm/W
	D2 Luminous Flux *2	Φ		864	900	—	lm
	Luminous Efficiency	η		96	100	—	lm/W
C	** Color Temp.	—	AC110V 60Hz	6020	6530	7040	K
	C1 Luminous Flux *2	Φ		855	900	—	lm
	Luminous Efficiency	η		95	100	—	lm/W
	C2 Luminous Flux *2	Φ		909	945	—	lm
	Luminous Efficiency	η		101	105	—	lm/W

(Note) Parameters is formulated based on shipping samples

Note:

- *1. After 20 ms drive, Measurement tolerance: ± 3 %
- *2. Monitored by TOPLITE's 1 m integrating sphere, after 20 ms drive, Measurement tolerance: ± 10 %
- *3. Monitored by TOPLITE's 1 m integrating sphere, after 20 ms drive, Measurement tolerance:± 2
- *4. Operating Voltage doesn't indicate the maximum voltage which customers use but means tolerable voltage according to each country's voltage variation rate
It's recommended that the solder pad temperature should be below70



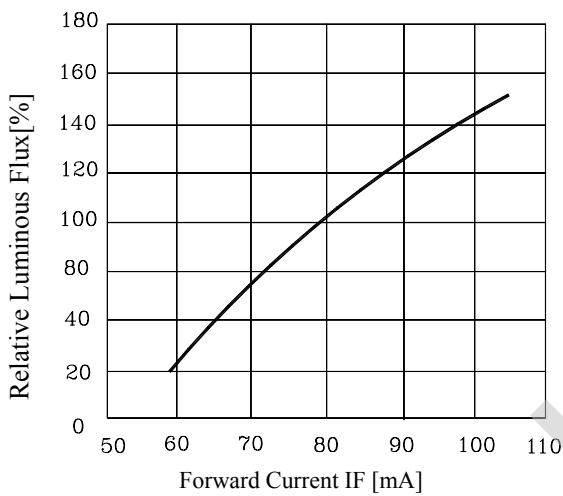
TECHNICAL DATA SHEET

ATR-AR38 <FOR TOPLITE COB MODULE>

6-3. OPTICAL CHARACTERISTICS CURVES (TYP.)

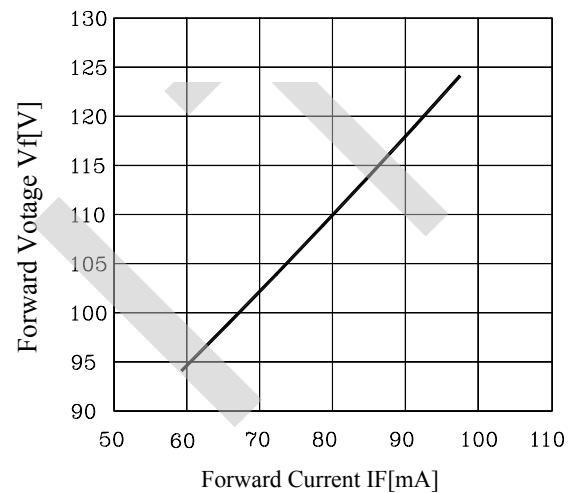
Forward Current Vs. Relative Luminous Flux

$T_c = 25^\circ\text{C}$



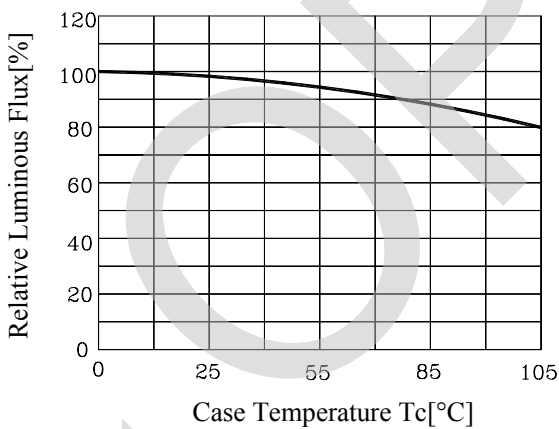
Forward Voltage Vs. Forward Current

$T_c = 25^\circ\text{C}$



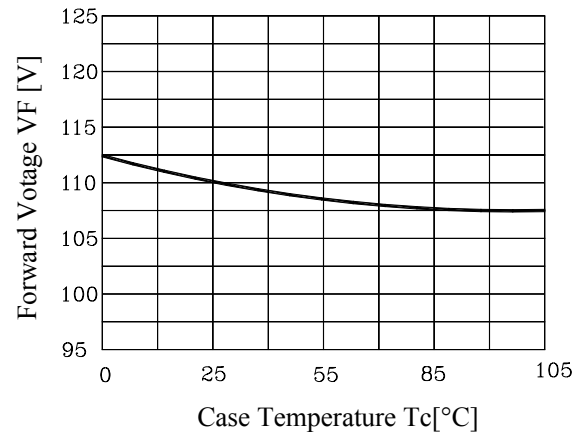
Case Temperature Vs. Relative Luminous Flux

$I_f = 80\text{mA}$



Case Temperature Vs. Forward Voltage

$I_f = 80\text{mA}$



**TECHNICAL DATA SHEET****ATR-AR38** <FOR TOPLITE COB MODULE>**7.RELIABILITY**

The reliability of products shall be satisfied with items listed below.

7-1. TEST ITEMS AND TEST CONDITIONS

NO.	TEST ITEM	TEST CONDITIONS	RESULT
1	Continuous operation test	$T_a = 25^{\circ}\text{C}$, $V_F = 110\text{V}$ 60Hz \times 1000 hours(with Al fin)	PASS
		$T_a = 80^{\circ}\text{C}$, $T_j = 120^{\circ}\text{C}$, $V_F = 110\text{V}$ 60Hz \times 1000 hours(with Al fin)	
2	Low temperature storage	$T_a = -40^{\circ}\text{C} \times 1000$ hours	PASS
3	High temperature storage	$T_a = 100^{\circ}\text{C} \times 1000$ hours	PASS
4	Moisture resistance	$T_a = 60^{\circ}\text{C}$, 90%RH for 1000 hours	PASS
5	Thermal shock	$T_a = -40^{\circ}\text{C} \times 30$ minutes $\sim 100^{\circ}\text{C} \times 30$ minutes, 100 cycle	PASS

7-2. FAILURE CRITERIA

NO.	PARAMETER	SYMBOL	FAILURE CRITERIA
1	Forward Voltage	V_F	$V_F > \text{Initial value} \times 1.1$
2	Luminous Flux	Φ	$\Phi < \text{Initial value} \times 0.7$



TECHNICAL DATA SHEET

ATR-AR38 <FOR TOPLITE COB MODULE>

8.CHROMATICITY COORDINATES REGIONAL

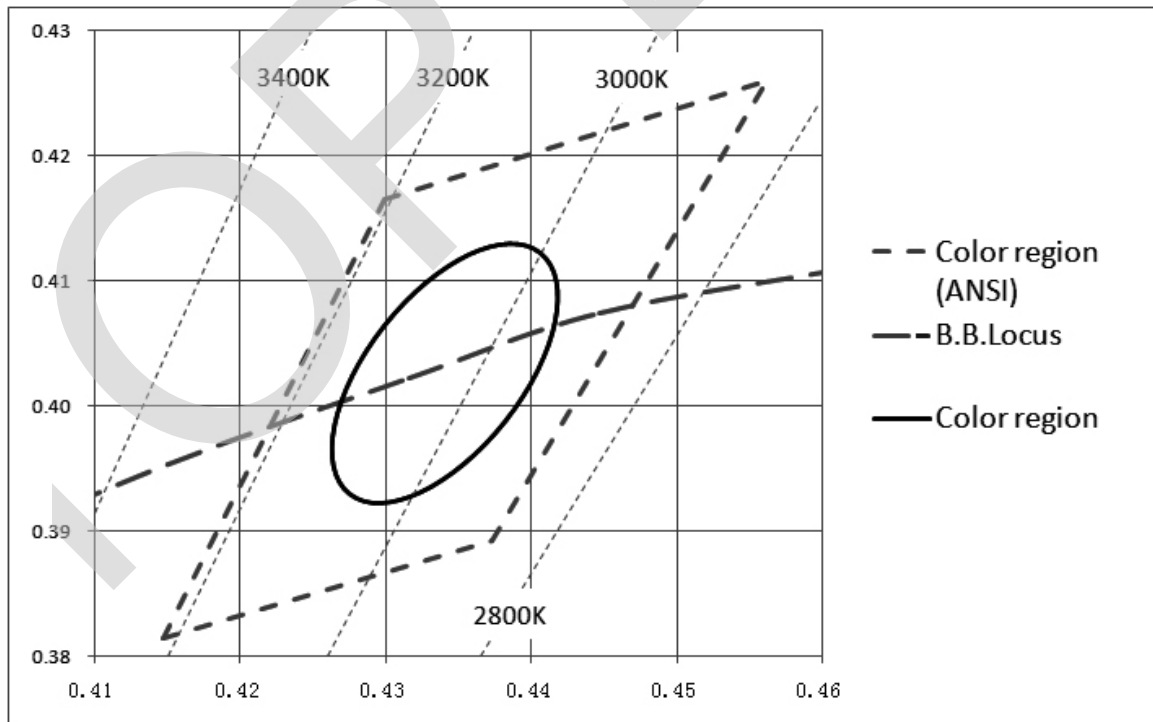
8-1. 3000K CHROMATICITY COORDINATES

(Tolerance: x,y ± 0.005)
(V_F =110V 60Hz, T_c= 25°C)

Range		Chromaticity coordinates				
		NO.1	NO.2	NO.3	NO.4	CENTER
	x	0.4562	0.4299	0.4147	0.4373	0.4338
	y	0.4260	0.4165	0.3814	0.3893	0.4030

* The percentage of each rank in the shipment shall be determined by TOPLITE.

Chromaticity Diagram



Note: The tolerance of measurement at our tester is VF±3% , Dv±10% , Chromaticity(x,y)±0.005.



TECHNICAL DATA SHEET

ATR-AR38 <FOR TOPLITE COB MODULE>

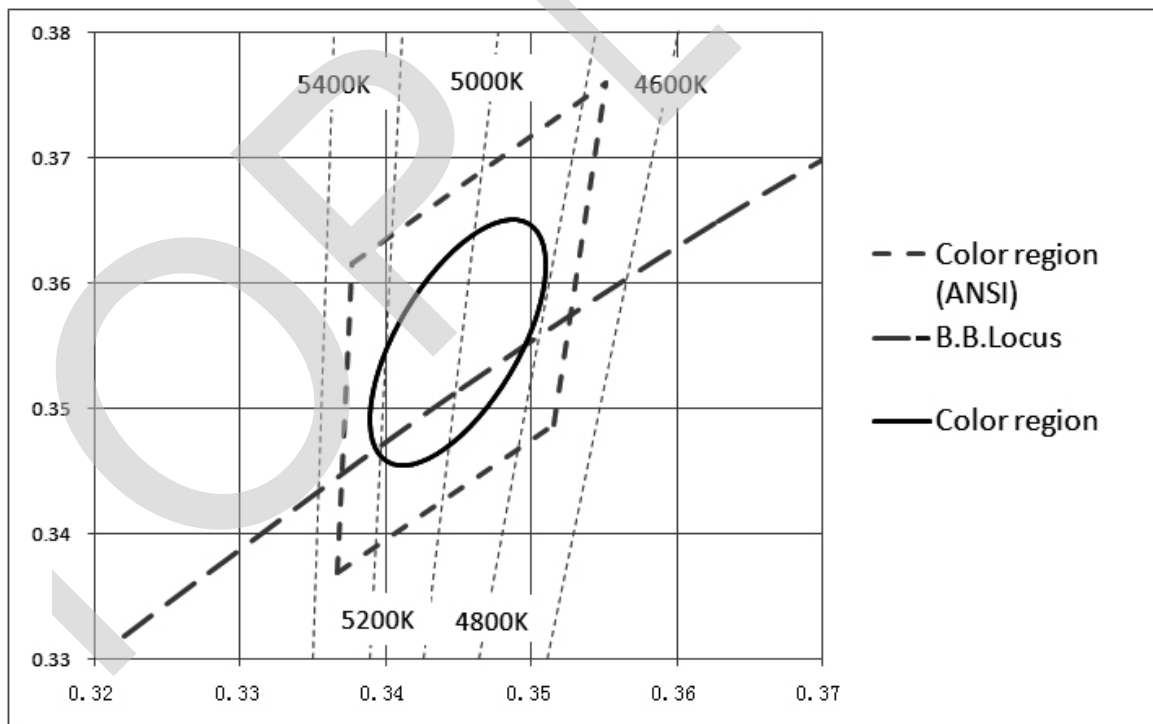
8-2. 5000K CHROMATICITY COORDINATES

(Tolerance: $x,y \pm 0.005$)
 ($V_F=110V$ 60Hz, $T_c=25^\circ C$)

Range		Chromaticity coordinates				
		NO.1	NO.2	NO.3	NO.4	CENTER
	x	0.3551	0.3376	0.3366	0.3515	0.3447
	y	0.3760	0.3616	0.3369	0.3	0.3553

* The percentage of each rank in the shipment shall be determined by TOPLITE.

Chromaticity Diagram



Note: The tolerance of measurement at our tester is $V_F \pm 3\%$, $D_v \pm 10\%$, Chromaticity(x,y) ± 0.005 .



TECHNICAL DATA SHEET

ATR-AR38

<FOR TOPLITE COB MODULE>

8-3. 6500K CHROMATICITY COORDINATES

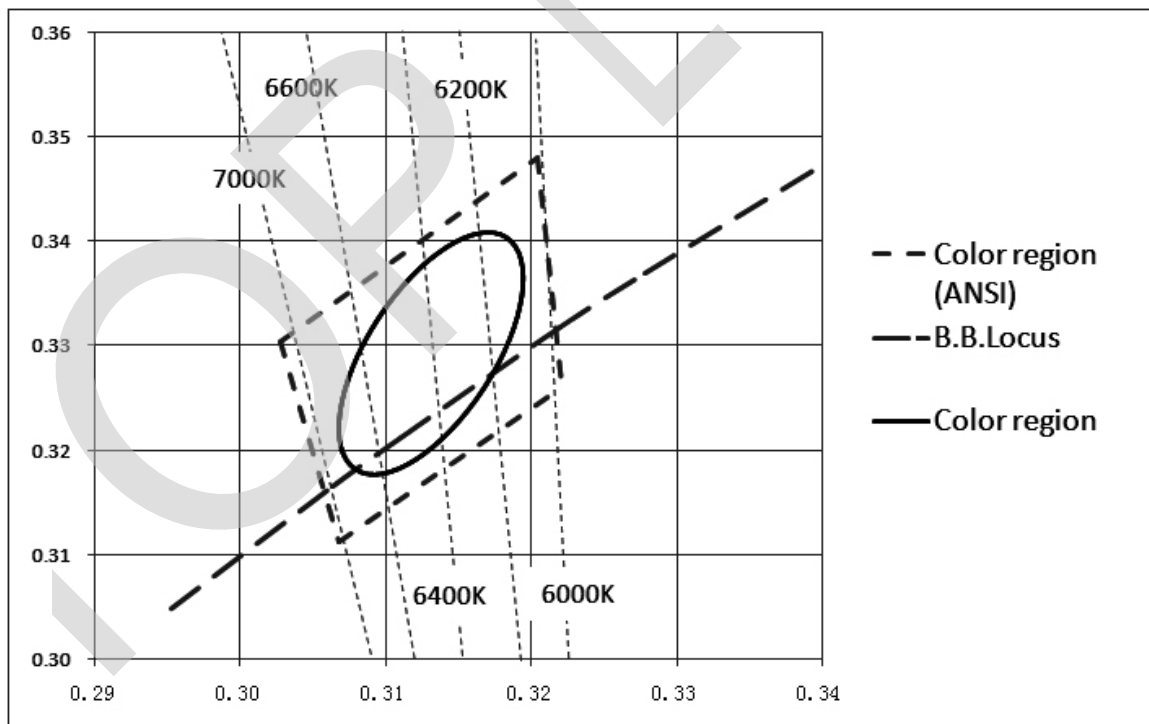
(Tolerance: $x,y \pm 0.005$)

($V_F=110V$ 60Hz, $T_c=25^\circ C$)

Range		Chromaticity coordinates				
		NO.1	NO.2	NO.3	NO.4	CENTER
	x	0.3205	0.3028	0.3068	0.3221	0.3123
	y	0.3481	0.3304	0.3113	0.3261	0.3238

* The percentage of each rank in the shipment shall be determined by TOPLITE.

Chromaticity Diagram



Note: The tolerance of measurement at our tester is $V_F \pm 3\%$, $D_v \pm 10\%$, Chromaticity(x,y) ± 0.005 .



TECHNICAL DATA SHEET

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11. ATTENTION

- Please review the ATR-AR38 Module Application Note for protective circuitry component usage.
- Please note, the AC-products run on high voltage so use caution when near the device which the circuit is ATR-AR38
- DO NOT touch any of the circuit board, components or terminals with body or metal while circuit is active.
- Please do not add or change wires while ATR-AR38 circuit is active
- The appearance and specifications of the product may be modified for improvement without notice.
- Long time exposure of sunlight or occasional UV exposure will cause lens discoloration.
- Please do not assemble under the condition of moisture and oxidizing gas in the air (Cl, H₂S, NH₃, SO₂, NOX, etc)