

SPECIFICATIONS

FOR TOPLITE COB MODULE

MODEL: ATE-R14



TOPLITE INTERNATIONAL LLC.

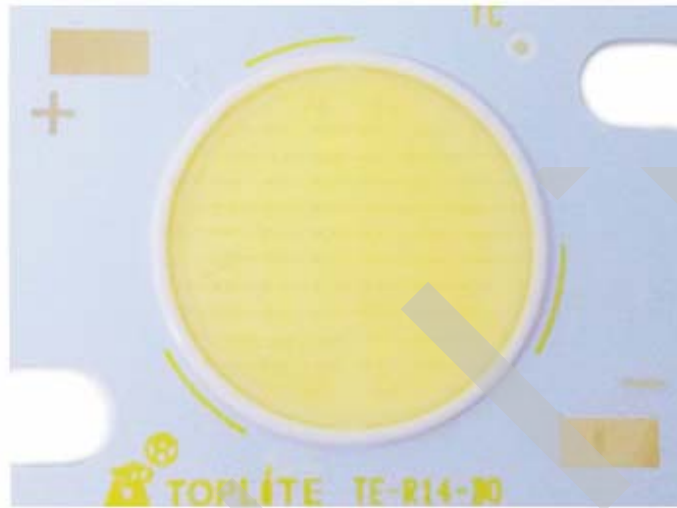
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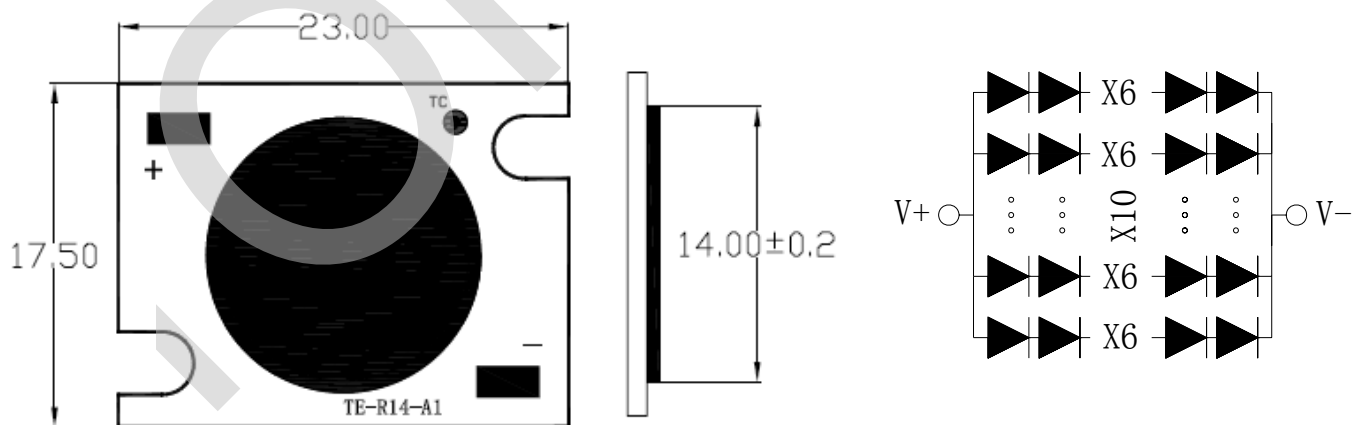
TECHNICAL DATA SHEET

ATE-R14 <FOR TOPLITE COB MODULE>

1. PRODUCT APPEARANCE



2. OUTLINE DRAWING



Unit: mm

Tolerance: ±0.25

**TECHNICAL DATA SHEET****ATE-R14** <FOR TOPLITE COB MODULE>

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3. PERFORMANCE PARAMETERS**3-1. ABSOLUTE MAXIMUM RATINGS**

ITEM	SYMBOL	RATING	UNIT
Power Dissipation	P	24.48	W
Forward Current	I _F	1200	mA
Reverse Voltage	V _R	30	V
Operating Temperature	T _{opr}	- 30 ~ + 80	°C
Storage Temperature	T _{stg}	- 40 ~ + 100	°C
Junction Temperature	T _{jmax}	110	°C
Thermal Resistance	R _{J-C}	2.2	°C/W

Note:

*1. Forward Current allows maximum surge current Pulse Width ≤ 10ms. Duty ≤ 1/10 ,1KHZ

*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.



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3-2. ELECTRICAL-OPTICAL CHARACTERISTICS

(T_c=25°C)

**	PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
common	Forward Voltage ^{*1}	V _F	I _F =700mA	16.8	18	20.4	V	
	Beam Angle	—		—	120	—	Deg	
W	** Color Temp.	—	I _F =700mA	2870	3045	3220	K	
	** Color Rendering Index ^{*3}	R _a		80	—	—	—	
	W ₁	Luminous Flux ^{*2}		Φ	1134	1197	—	lm
		Luminous Efficiency		η	90	95	—	lm/W
	W ₂	Luminous Flux ^{*2}		Φ	1210	1260	—	lm
		Luminous Efficiency		η	96	100	—	lm/W
D	** Color Temp.	—	I _F =700mA	4745	5028	5311	K	
	** Color Rendering Index ^{*3}	R _a		80	—	—	—	
	D ₁	Luminous Flux ^{*2}		Φ	1260	1323	—	lm
		Luminous Efficiency		η	100	105	—	lm/W
	D ₂	Luminous Flux ^{*2}		Φ	1386	1449	—	lm
		Luminous Efficiency		η	110	115	—	lm/W
C	** Color Temp.	—	I _F =700mA	6020	6530	7040	K	
	** Color Rendering Index ^{*3}	a		80	—	—	—	
	C ₁	Luminous Flux ^{*2}		Φ	1386	1449	—	lm
		Luminous Efficiency		η	110	115	—	lm/W
	C ₂	Luminous Flux ^{*2}		Φ	1461	1512	—	lm
		Luminous Efficiency		η	116	120	—	lm/W

(Note) Parameters is formulated based on shipping samples

*1. After 20 ms drive, Measurement tolerance: ± 3 %

*2. Monitored by Toplight's 1 m integrating sphere, after 20 ms drive, Measurement tolerance: ± 10 %

*3. Monitored by Toplight's 1 m integrating sphere, after 20 ms drive, Measurement tolerance:± 2



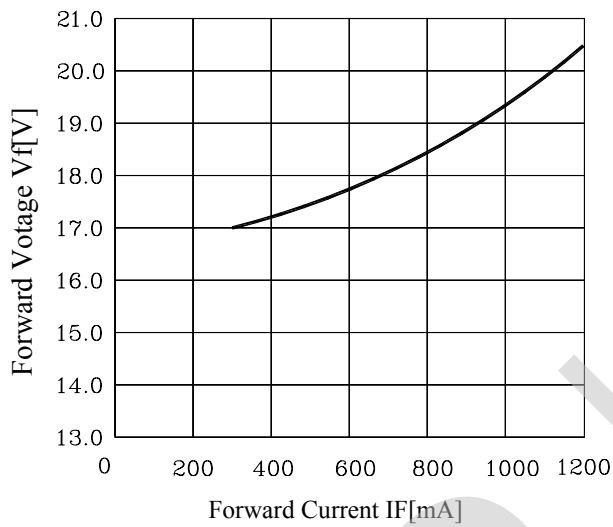
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3-3. Characteristics diagram (TYP.)

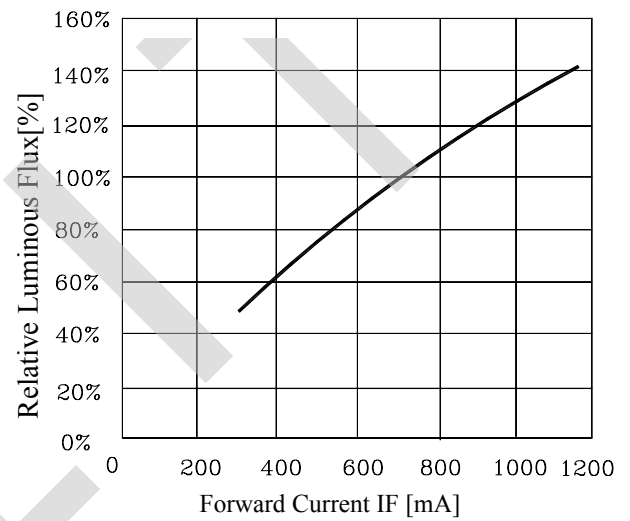
Forward Voltage Vs. Forward Current

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



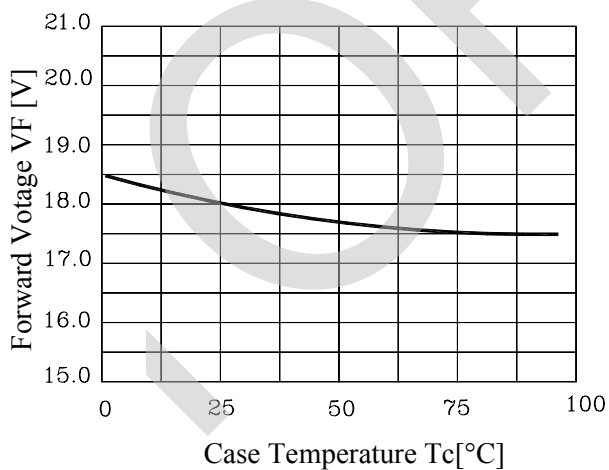
Forward Current Vs. Relative Luminous Flux

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



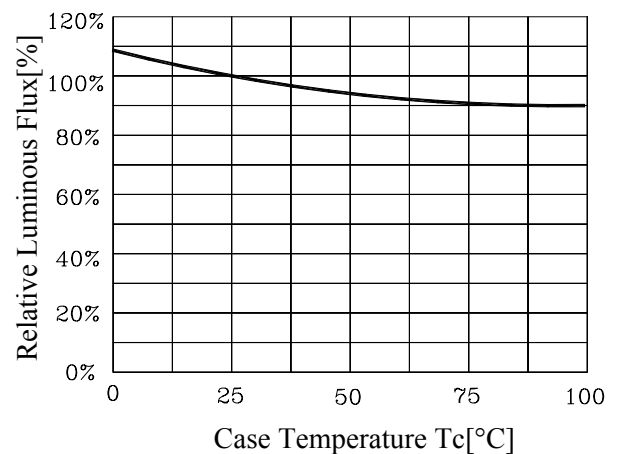
Case Temperature Vs. Forward Voltage

$I_f = 700\text{mA}$



Case Temperature Vs. Relative Luminous Flux

$I_f = 700\text{mA}$



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4. RELIABILITY

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

4-1. TEST ITEMS AND TEST CONDITIONS

NO.	TEST ITEM	TEST CONDITIONS	RESULT
1	Continuous operation test	$T_a = 25^{\circ}\text{C}$, $I_F = 700\text{ mA} \times 1000\text{ hours}$ (with Al fin)	PASS
		$T_a = 80^{\circ}\text{C}$, $T_j = 120^{\circ}\text{C}$, $I_F = 700\text{ mA} \times 1000\text{ hours}$ (with Al fin)	
2	Low temperature storage	$T_a = -40^{\circ}\text{C} \times 1000\text{ hours}$	PASS
3	High temperature storage	$T_a = 100^{\circ}\text{C} \times 1000\text{ hours}$	PASS
4	Moisture resistance	$T_a = 60^{\circ}\text{C}$, 90%RH for 1000 hours	PASS
5	Thermal shock	$T_a = -40^{\circ}\text{C} \times 30\text{ minutes} \sim 100^{\circ}\text{C} \times 30\text{ minutes}$, 100 cycle	PASS

4-2. FAILURE CRITERIA

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



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5. CHROMATICITY COORDINATES REGIONAL

5-1. 3000K CHROMATICITY COORDINATES

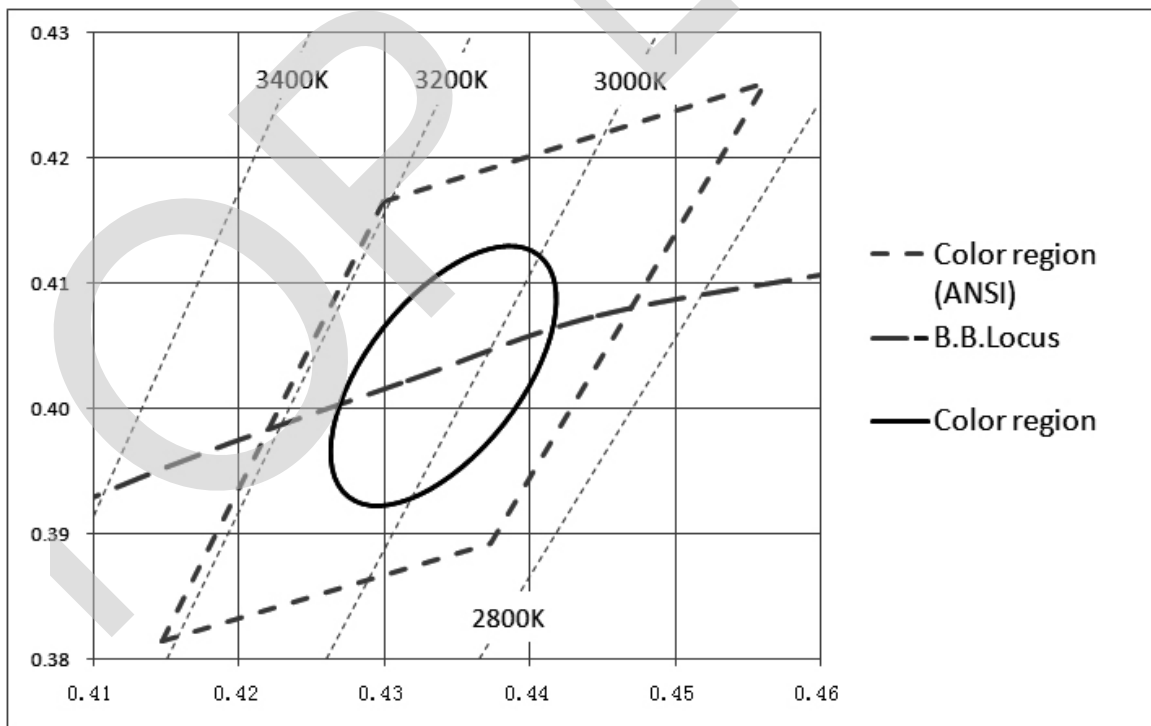
(Tolerance: $x,y \pm 0.005$)

($I_F = 700\text{mA}, T_c = 25^\circ\text{C}$)

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 $V_F \pm 3\%$, $D_v \pm 10\%$, Chromaticity(x,y) ± 0.005 .



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5-2. 5000K CHROMATICITY COORDINATES

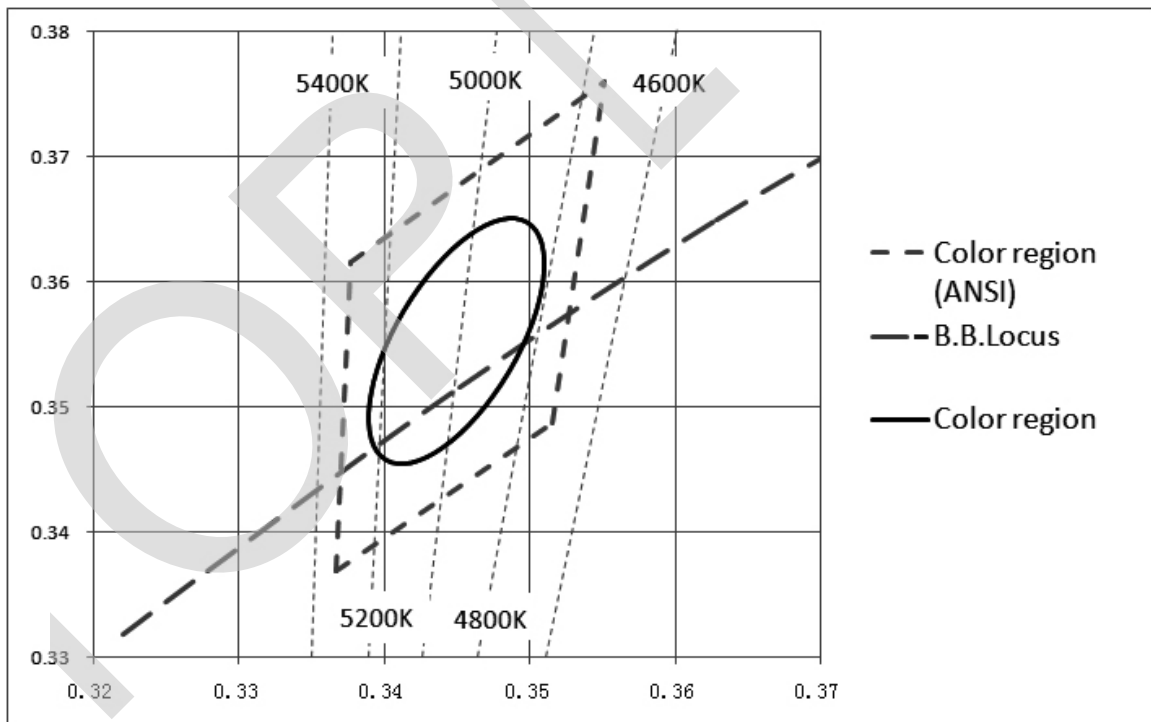
(Tolerance: $x,y \pm 0.005$)

($I_F = 700\text{mA}$, $T_c = 25^\circ\text{C}$)

Range		Chromaticity coordinates				
		NO.1	NO.2	NO.3	NO.4	CENTER
	x	0.3551	0.3376	0.3366	0.3515	0.3447
	y	0.376	0.3616	0.3369	0.3487	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 .



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5-3. 6500K CHROMATICITY COORDINATES

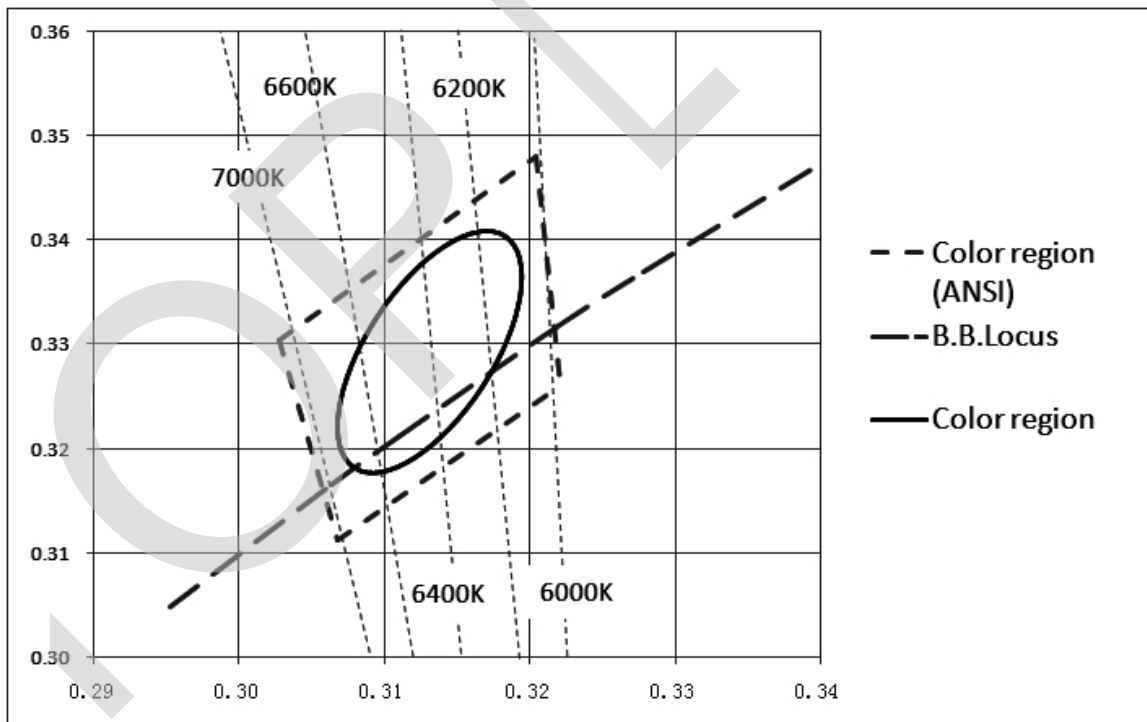
(Tolerance: x,y ± 0.005)

(I_F =700mA, T_c= 25°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 VF±3% , Dv±10% , Chromaticity(x,y)±0.005.



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6. USE STANDARD & PRECAUTIONS

Before use TOPLITE COB product, carefully read the specifications;

Handling with care for this product

Never touch the optical surface with finger or sharp object. The LED surface could be soiled or damaged, which could affect the optical performance of the LED.

Do not apply direct pressure on the optical surface.

Do not touch the resin with tweezers to avoid scratching or other damage.

In work environment, please keep handling the LEDs with appropriate ESD grounding. because this is a semiconductor product.

Please take adequate measures to prevent any static electricity being produced:such as the wearing of a wristband or anti-static gloves when handling this product.

