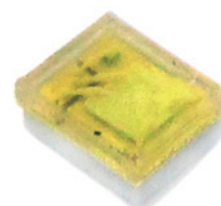




Lighting Design Manufacturing Service

www.edison-opto.com

Flash 2016 Datasheet



Features :

- Small emitter size
- Highest brightness Flash
- Surface mount technology
- Superior ESD protection

Typical Applications :

- Portable camera-phones
- Digital still cameras
- Personal digital assistant



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General Information

Introduction

Flash 2016, a surface mount device with ultra-compact light source is designed for camera flash in portable digital imaging system. The Flash 2016 products provide typical luminous flux of 160 lm with a driving current of 1A. The higher brightness enabling higher resolution of picture is taken in the darker environments at greater distance. Moreover, the reflow-solderable property of Flash 2016 provides an easy path towards the optimum thermal management to achieve a promising reliability. In conclusion, Flash 2016 offers you a special experience in LED Flash.

Product Nomenclature

The following table describes the available color, power consumption, and lens type. For detailed flux and forward voltage information, please consult the Bin Group documentation.

Table 1. Flash 2016 nomenclature.

ES - EW - 1AD1

X1 X2 X3 X4 X5 X6 X7

X1		X2		X3		X4		X5		X6		X7
LED Item		Module		Emitting Color		Power		Substrate Type		Emitter Type		Series No.
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	
ES	Flash	E	Emitter	W	Cool White	1	1,000mA	A	2.0x1.6mm	D	D-Type	

Mechanical Dimensions

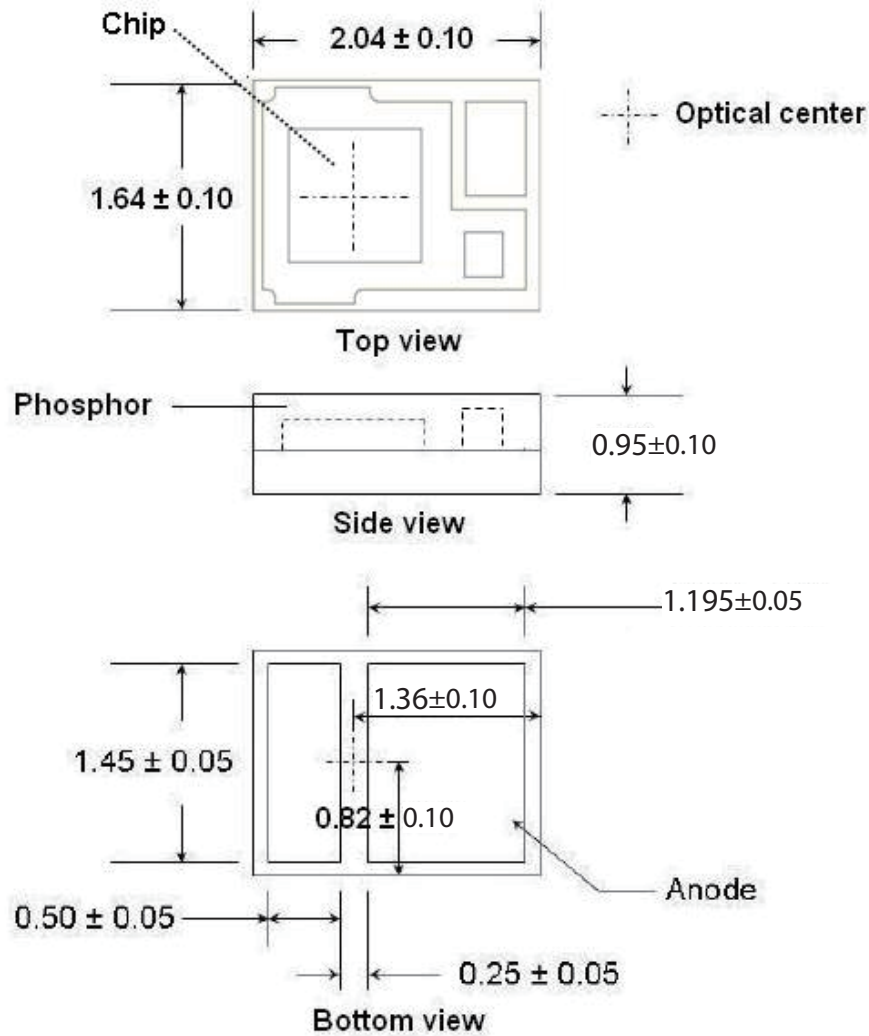


Figure 1. Package Drawings

Notes:

1. All dimensions are in mm.
2. Drawings are not to scale.

Absolute Maximum Ratings

Table 2. Absolute maximum ratings for Flash 2016 series

Parameter	Rating	Unit	Symbol
DC Forward Current	150	mA	I_F
Peak Pulsed Current (<100ms)	1,000	mA	I_{pulse}
Transient Surge Voltage	8	V	V_{TS}
Reverse Voltage ^[1]	Note 1	V	V_R
LED Junction Temperature	150	°C	T_J
Operating Temperature	-40 ~ +80	°C	T_{opr}
Storage Temperature	-40 ~ +120	°C	T_{stg}
HBM ESD Sensitivity	8,000	V	V_B
Allowable Reflow Cycles	3	cycles	
DC Operating Life ^[2]	40,000	hours	
Pulse Operating Life (pulses) ^[3]	100,000	cycles	

Notes:

1. LEDs are not designed to drive in reverse bias.

2. Operating current 150mA, $T_J=90^{\circ}\text{C}$.

3. Operating current 1,000mA, $T_J=90^{\circ}\text{C}$.

Luminous Flux Characteristics

Table 3. Flux Characteristics, Junction Temperature=25°C

Part Name	Color	Forward Current (mA)	Min Luminous Flux		Units
			Group	Flux	
ESEW-1AD1	Cool White	1000	W1	146.2	lm
			W2	168.1	
			X	190	

Notes:

The luminous flux performance is guaranteed within published operating conditions.

Flux is measured with accuracy of $\pm 10\%$.

Characteristics

Optical Characteristics

Table 4. Optical characteristics for Flash 2016, $T_j=25^{\circ}\text{C}$ at 1,000mA

Part Name	Color	Current(mA)	CCT (K)			CRI	Viewing Angle (Degree)
			Min.	Typ.	Max.		
ESEW-1AD1	Cool White	1,000	5,000	--	8,000	67	120

Note:

Edison maintains a tolerance of $\pm 5\%$ on CCT measurement.

Electrical Characteristics

Table 5. Electrical characteristics, $T_j=25^{\circ}\text{C}$

Power Consumption	Part Name	Color	V_F (V)			Forward Current (mA)	Thermal Resistance ($^{\circ}\text{C}/\text{W}$)
			Min.	Typ.	Max.		
1W	ESEW-1AD1	Cool White	3.0	--	3.7	350	13
Pulse			3.5	--	4.5	1,000	13

Note:

Edison maintains a tolerance of 0.06V on forward voltage measurement.

Characteristic Curve

Spectrum

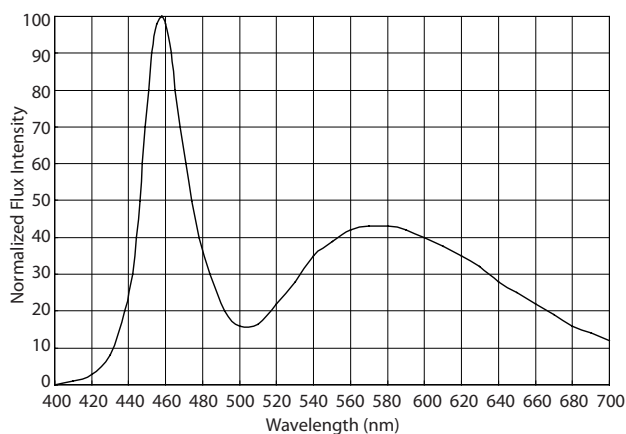


Figure 2. Color Spectrum for cool white

Radiation Diagram

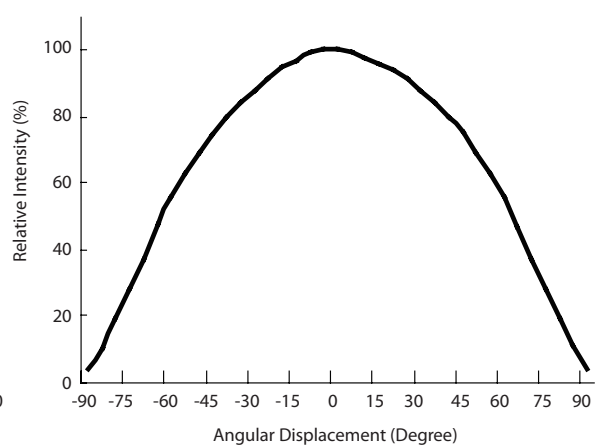


Figure 3. Emission angle for cool white at $T_j=25^{\circ}\text{C}$.

Luminous Flux & Forward Current

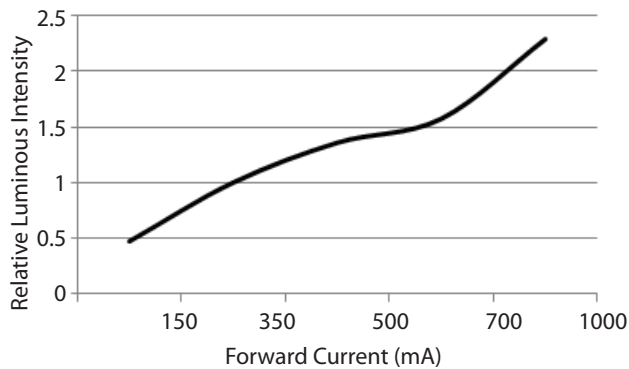


Figure 4. Operating Current vs Relative Luminous Flux for cool white.

Forward Voltage & Forward Current

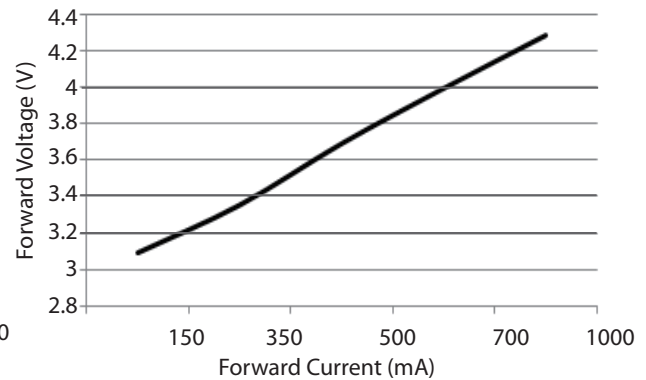


Figure 5. Forward current vs. forward voltage for Cool White.

Luminous Flux & Thermal Pad Temperature CCT & Junction Temperature

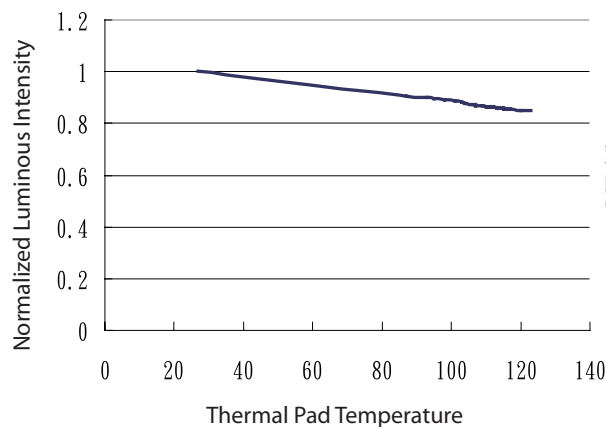


Figure 6. Typical CCT vs. junction temperature for Cool White.

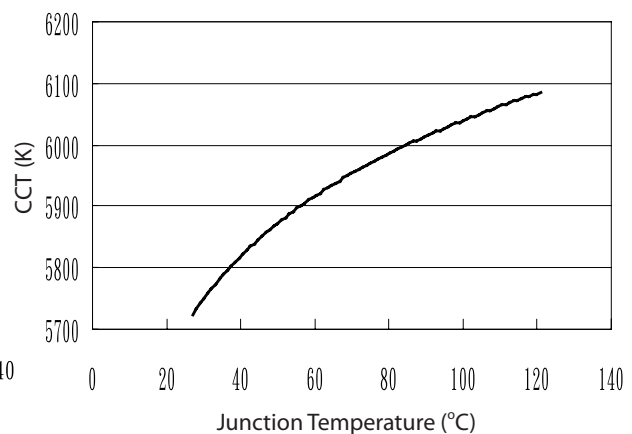


Figure 7. Typical CCT vs. junction temperature for Cool White

CCT & Forward Current

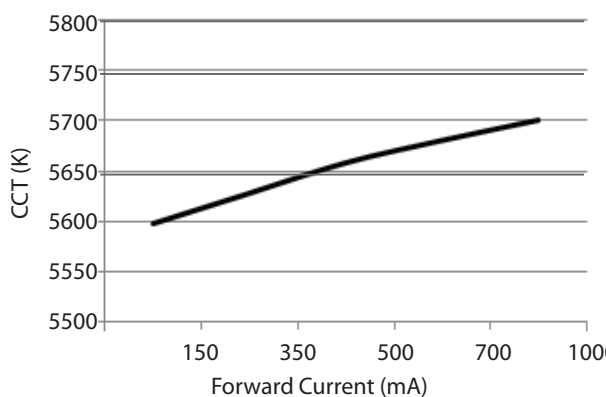


Figure 8. Typical CCT vs. forward current for Cool White.

Luminous Flux & Junction Temperature

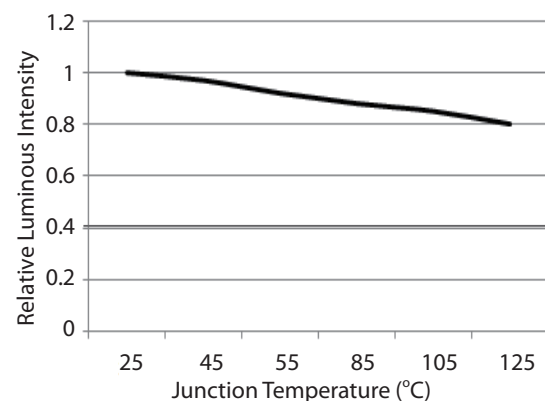


Figure 9. Relative intensity vs. junction temperature for Cool White.



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Revision History

Table 6. Revision history of Flash 2016 series datasheet

Version	Description	Release Date
3	1. Update the layout of datasheet 2. Update the luminous flux with bin group 3. update the mechanical dimensions	2011.08.09

About Edison Opto

Edison Opto is a leading manufacturer of high power LED and a solution provider experienced in LDMS. LDMS is an integrated program derived from the four essential technologies in LED lighting applications- Thermal Management, Electrical Scheme, Mechanical Refinement, Optical Optimization, to provide customer with various LED components and modules. More Information about the company and our products can be found at www.edison-opto.com

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