Lighting Design Manufacturing Service

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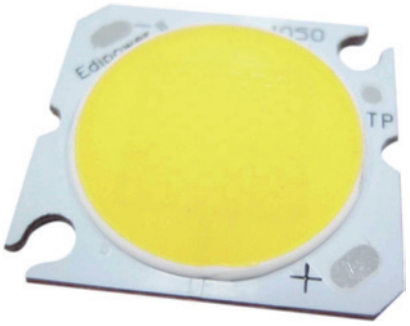
EdiPower® II Series

EdiPower II HR Series Datasheet



Features :

- LED light engine
- High power operation
- Instant on
- Long lifetime

 version : 2

EDISON
Lighting Design Manufacturing Service

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Lighting Design Manufacturing Service

General Information

Introduction

EdiPower II HR Series can provide different operating powers and different colors.
They serve as optical engine and can be utilized in general lighting and special lighting applications, such as MR16 and projectors. Furthermore, the high CRI options allow the customers to optimize the effect in various fields such as interior architecture.

Product Nomenclature

The following table describes the available colors, powers, and lens types. For more flux and forward voltage information, please consult the Bin Group document.

Table 1. EdiPower II HR Series Nomenclature.

EP	S	X	-	H	R	T	1
X1	X2	X3		X4	X5	X6	X7

X1 LED Item		X2 Module		X3 Emitting Color		X4 Serial No.1		X5 Serial No.2		X6 Circuit Series	
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type
EP	EdiPower®	S	Square	W	Cool White	--	--	--	--	1-9	1-9 Series
		C	Star	H	Neutral White					0~B	10~12 Series
				X	Warm White					C~T	13~30 Series

X7 Circuit Parallel	
Code	Type
1-9	1~9 Parallel
0~B	10~12 Series
C~T	13~30Series

Mechanical Dimensions

4W Emiiter Dimensions (EPCX-HRT1)

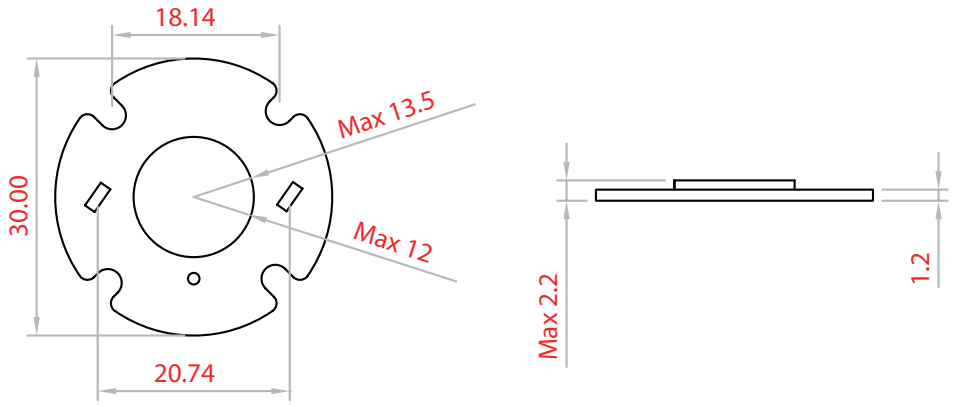


Figure 1. 4W EdiPower II HR Series Dimensions.

Notes:
1. Unit : mm
2. Tolerance : ± 0.2 mm
3. Drawings are not to scale.
4. TP : Thermal measurement point.

7W Emiiter Dimensions (EP8x-HR67)

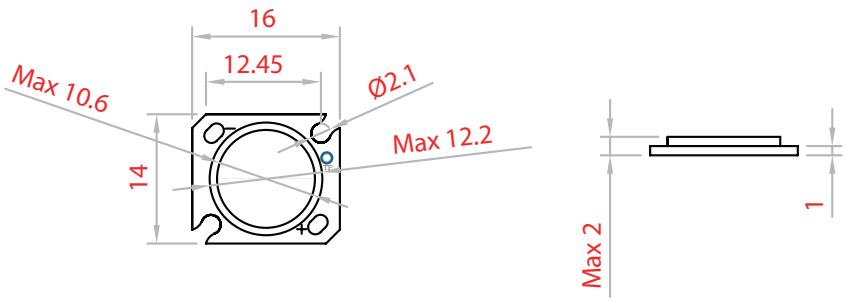


Figure 2. 7W EdiPower II HR Series Dimensions.

Notes:
1. Unit : mm
2. Tolerance : ± 0.2 mm
3. Drawings are not to scale.
4. TP : Thermal measurement point.

9W Emiiter Dimensions (EPCx-HR96)

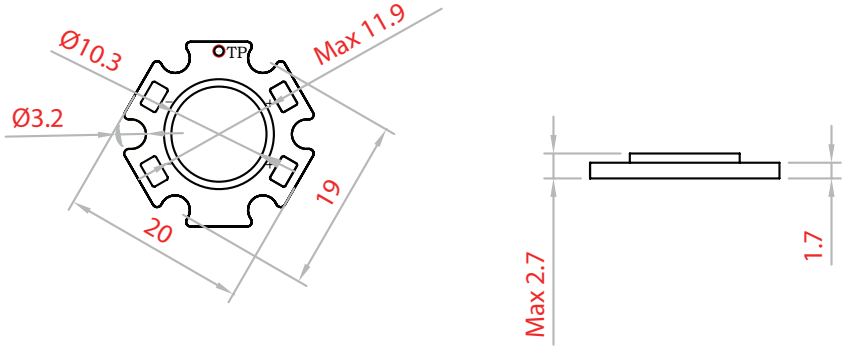


Figure 3. 9W EdiPower II HR Series Dimensions.

Notes:
1. Unit : mm
2. Tolerance : ± 0.2 mm
3. Drawings are not to scale.
4. TP : Thermal measurement point.

13W Emitter Dimensions (EPSx-HRB8)

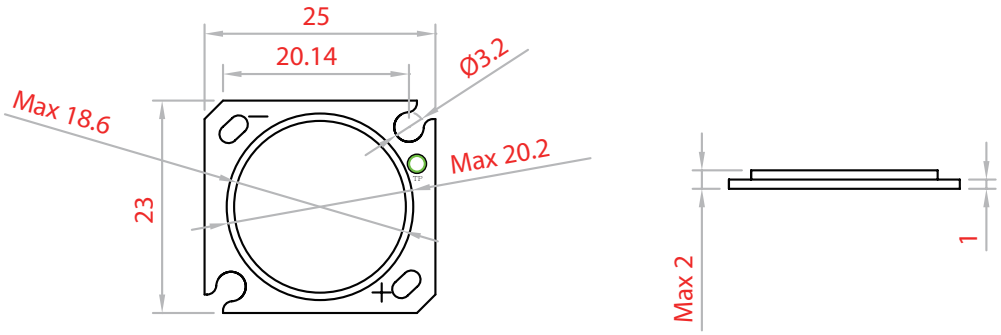


Figure 4. 13W EdiPower II HR Series Dimensions .

Notes:
1. Unit : mm
2. Tolerance : ± 0.2 mm
3. Drawings are not to scale.
4. TP : Thermal measurement point.

24/35W Emitter Dimensions (EPSx-HRBF / EPSx-HRBJ)

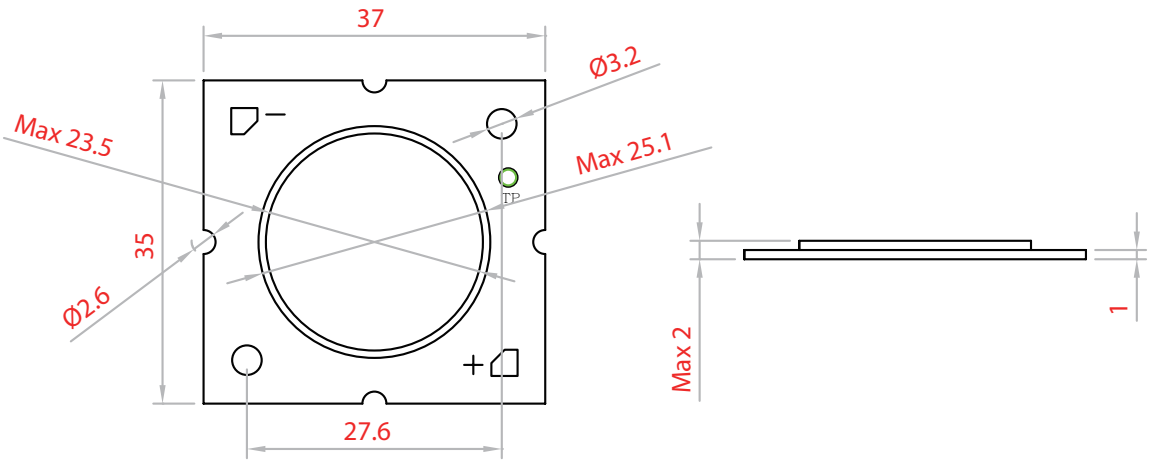


Figure 5. 24/35W EdiPower II HR Series Dimensions.

Notes:
1. Unit : mm
2. Tolerance : ± 0.2 mm
3. Drawings are not to scale.
4. TP : Thermal measurement point.

Emitter Circuit Layout

4W Emitter Circuit Layout (EPCX-HRT1)

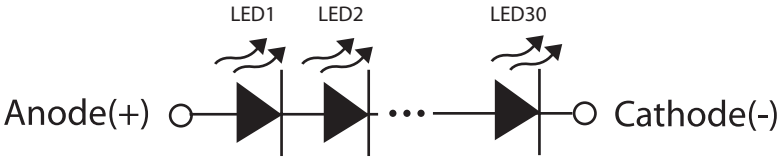


Figure 6.4W EdiPower II HR Series Circuit Layout.

7W Emitter Circuit Layout (EP8X-HR67)

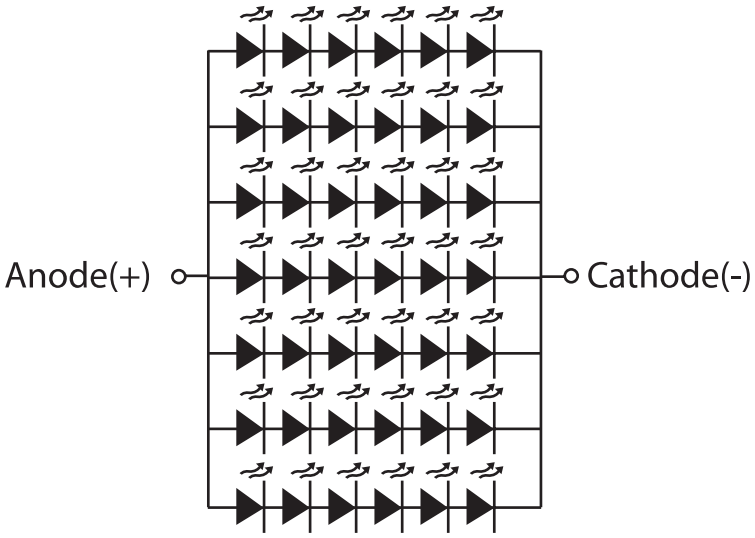


Figure 7.7W EdiPower II HR Series Circuit Layout.

9W Emitter Circuit Layout (EPCx-HR96)

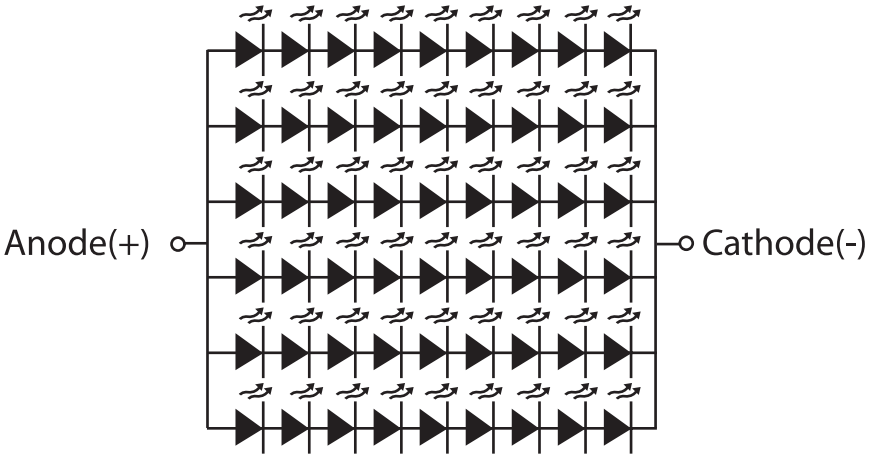


Figure 8.9W EdiPower II HR Series Circuit Layout.

13W Emitter Circuit Layout (EPSx-HRB8)

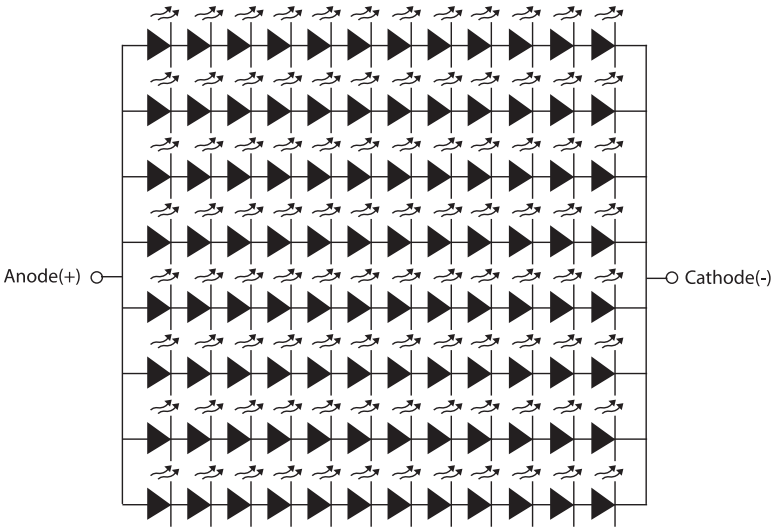


Figure 9.13W EdiPower II HR Series Circuit Layout

24W Emitter Circuit Layout (EPSx-HRBF)

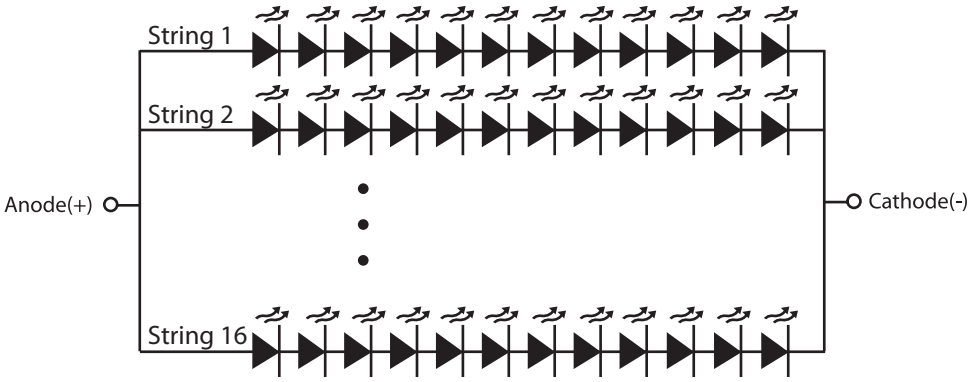


Figure 10.24W EdiPower II HR Series Circuit Layout

35W Emitter Circuit Layout (EPSx-HRBJ)

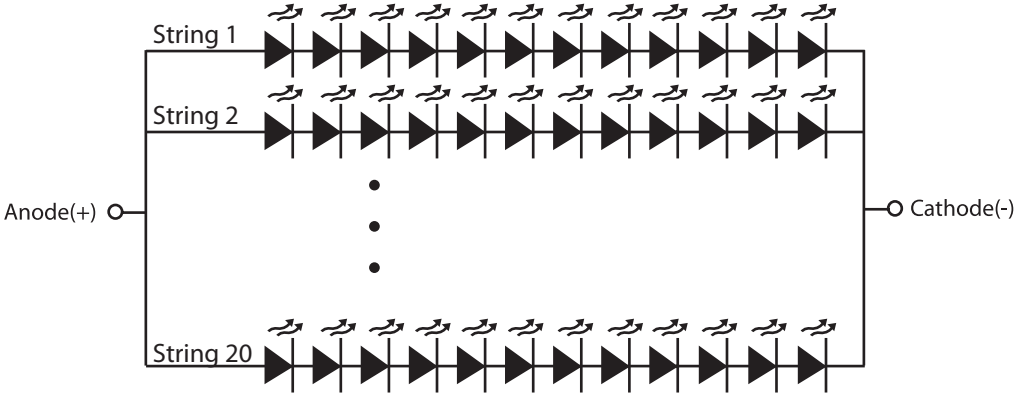


Figure 11.35W EdiPower II HR Series Circuit Layout

Absolute Maximum Ratings

The following table describes absolute maximum ratings of EdiPower II HR Series.

Table 2. Absolute maximum ratings for EdiPower II HR Series.

Test	EPSx-HRB8	EPSx-HRBF	EPSx-HRBJ	Unit	Symbol
DC Forward Current[1]	350	700	1000	mA	I_F
Max Forward Current	500	1000	1200	mA	I_F
Reverse Voltage[2]		Note 2		V	V_R
LED junction Temperature[3]		150		°C	T_J
Storage Temperature		-40 ~ +120		°C	
Thermal Measurement Point (T_P)		<80		°C	T_s
ESD Sensitivity		2,000		V	V_B
Isolation Voltage		1,000		V	

Test	EP8x-HR67	EPCx-HRT1	EPCx-HR96	Unit	Symbol
DC Forward Current[1]	350	40	350	mA	I_F
Max Forward Current	420	60	350	mA	I_F
Reverse Voltage[2]		Note 2		V	V_R
LED junction Temperature[3]		150		°C	T_J
Storage Temperature		-40 ~ +120		°C	
Thermal Measurement Point (T_P)		<80		°C	T_s
ESD Sensitivity		2,000		V	V_B
Isolation Voltage		1,000		V	

Notes:
1. DC forward current should not exceed LED's operating current; the current tolerance should be kept within a range of 5%.
2. LEDs are not designed to be driven in reverse bias.
3. Proper current derating must be observed to maintain junction temperature below the maximum at all time.

Luminous Flux Characteristics

The following tables describe luminous flux of EdiPower II HR Series under various current.

Table 3. Luminous flux characteristics at T_J=25°C for EdiPower II HR Series for cool white.

Part Number	Color	Typical Flux(lm) T_{case}=60°C	Typical Flux(lm) T_J=25°C	CRI (Min)	Typical Forward Voltage V_F (V)	Forward Current (mA)
EP8W-HR67	Cool White	625	700	85	18	350
		720	800	85	18.5	420
EPCW-HR96		810	900	85	25.5	350
EPSW-HRB8		1250	1400	85	37	350
		1800	2000	85	38	500
EPSW-HRBF		2350	2600	85	37	700
		3350	3700	85	38	1000
EPSW-HRBJ		3450	3800	85	37	1000
		4980	5450	85	38	1200

Table 4. Luminous flux characteristics at T_J=25°C for EdiPower II HR Series for Neutral white.

Part Number	Color	Typical Flux(lm) T_{case}=60°C	Typical Flux(lm) T_J=25°C	CRI (Min)	Typical Forward Voltage V_F (V)	Forward Current (mA)
EP8W-HR67	Neutral White	625	700	85	18	350
		720	800	85	18.5	420
EPCW-HR96		810	900	85	25.5	350
EPSH-HRB8		1250	1400	85	36	350
		1800	2000	85	37	500
EPSH-HRBF		2350	2600	85	36	700
		3350	3700	85	37	1000
EPSH-HRBJ		3450	3800	85	36	1000
		4980	5450	85	37	1200

Note: EPxx-HRBx:Forward Voltage has ±3.6V tolerance.

Table 5. Luminous flux characteristics at T_J=25°C for EdiPower II HR Series for Warm white

Part Number	Color	Typical Flux(lm) T_{case}=60°C	Typical Flux(lm) T_J=25°C	CRI (Min)	Typical Forward Voltage V_F (V)	Forward Current (mA)
EPCX-HRT1	Warm White	360	400	85	89	40
EP8X-HR67		625	700	85	17.5	350
		720	800	85	18	420
EPCX-HR96		810	900	85	25	350
EPSX-HRB8		1250	1400	85	34	350
		1800	2000	85	35	500
EPSX-HRBF		2350	2600	85	34	700
		3350	3700	85	35	1000
EPSX-HRBJ		3450	3800	85	34	1000
		4980	5450	85	35	1200

Notes:
1.EPxx-HRTx:Forward Voltage has ±9V tolerance.
2.EPxx-HR9x:Forward Voltage has ±2.7V tolerance.
3.EPxx-HRBx:Forward Voltage has ±3.6V tolerance.
4.EPxx-HR67:Forward Voltage has ±1.8V tolerance.

Characteristics

Thermal Resistance Junction Characteristics

Table 6. Temperature Coefficient of Forward Voltage & Thermal Resistance Junction to Case Characteristics at TJ=25°C for EdiPower II HR.

Part Name	Test Current (mA)	ΔVF/ΔT		$R\theta_{J-B}$	
		Typ.	Unit	Typ.	Unit
EPSx-HRB8	350	-5 to -12	mV/°C	1.2	°C/W
EPSx-HRBF	700	-8 to -16	mV/°C	0.6	°C/W
EPSx-HRBJ	1000	-8 to -18	mV/°C	0.5	°C/W
EPCx-HRT1	40	-8 to -14	mV/°C	3.6	°C/W
EPCx-HR96	350	-8 to -16	mV/°C	3.6	°C/W
EP8x-HR67	350	-8 to -18	mV/°C	3.6	°C/W

Optical Characteristics

Table 7. Dominant Wavelength or Color Temperature Characteristics at T_J=25°C for EdiPower II HR.

Part Name	Color	λd/CCT		Unit
		Min.	Max.	
EPxW-HRxx	Cool White	5,000	10,000	K
EPxH-HRxx	Neutral White	3,800	5,000	K
EPxX-HRxx	Warm White	2,670	3,800	K

Notes:
1. CCT is measured with an accuracy of ± 5%.
2. Wavelength is measured with an accuracy of ± 0.5nm.

Characteristic Curve

Spectrum

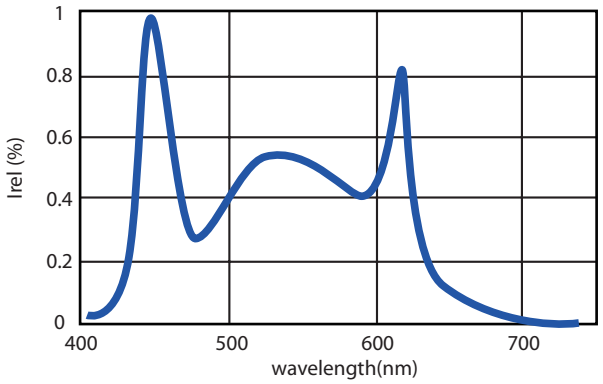


Figure 12. Color spectrum for EdiPower HR series cool white

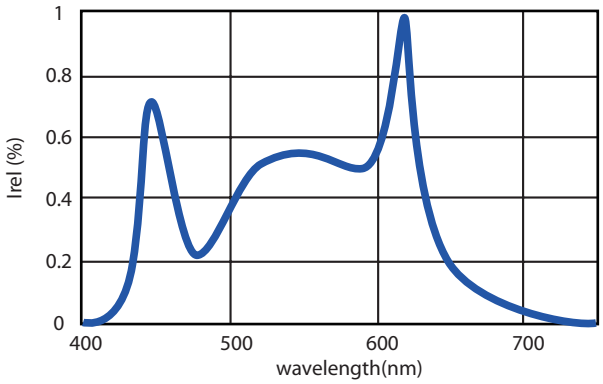


Figure 13. Color spectrum for EdiPower HR series Neutral white

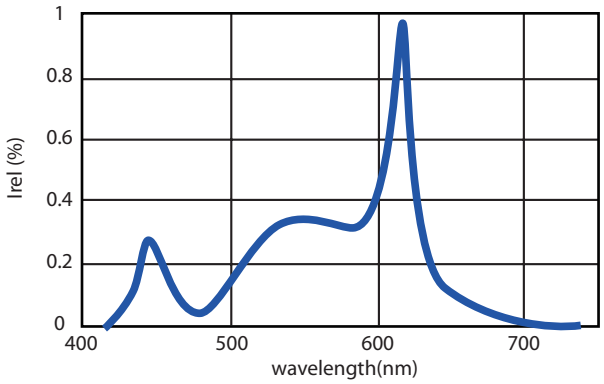


Figure 14. Color spectrum for EdiPower HR series warm white

Luminous Flux vs. Junction Temperature

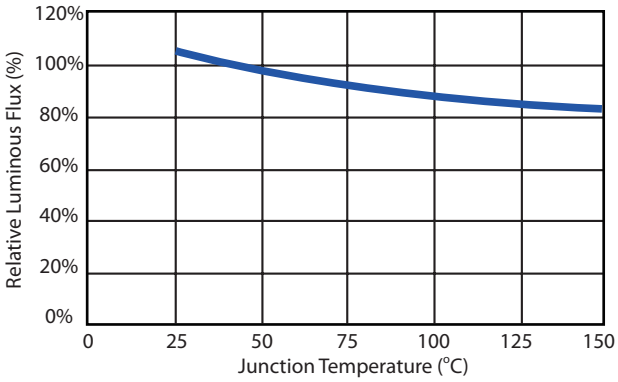


Figure 15. Relative Luminous Flux vs. Junction Temperature for cool white

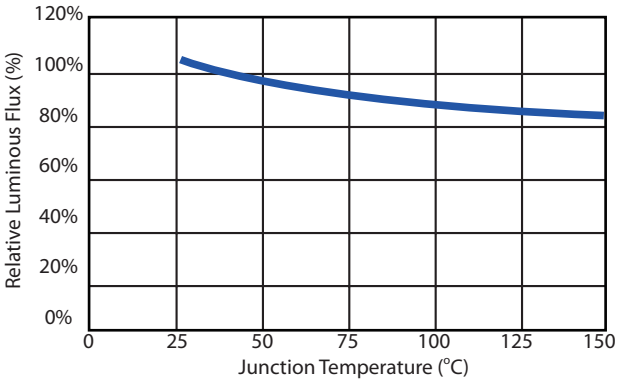


Figure 16. Relative Luminous Flux vs. Junction Temperature for neutral white

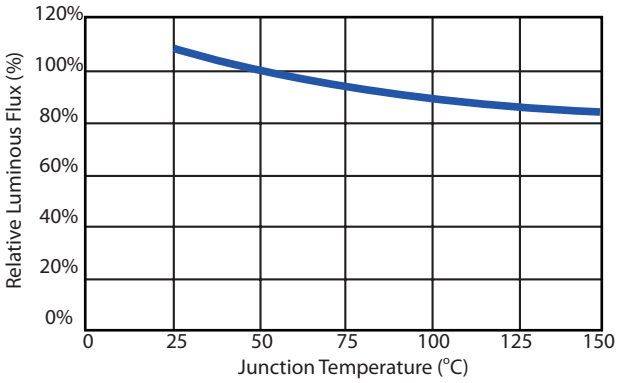


Figure 17. Relative Luminous Flux vs. Junction Temperature for warm white

CCT vs. Junction Temperature

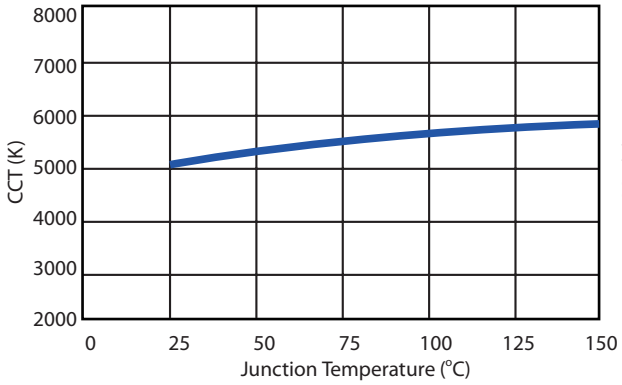


Figure 18. Typical CCT vs. junction temperature for cool white

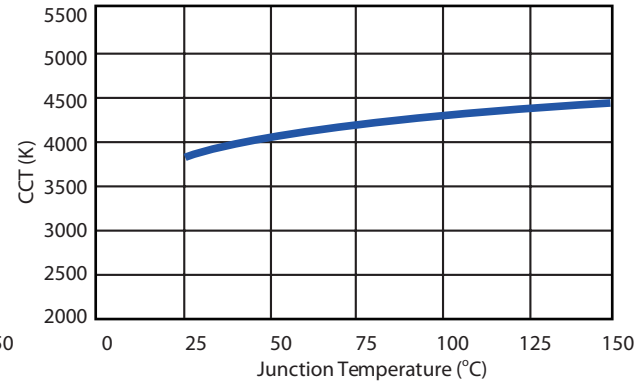


Figure 19. Typical CCT vs. junction temperature for neutral white

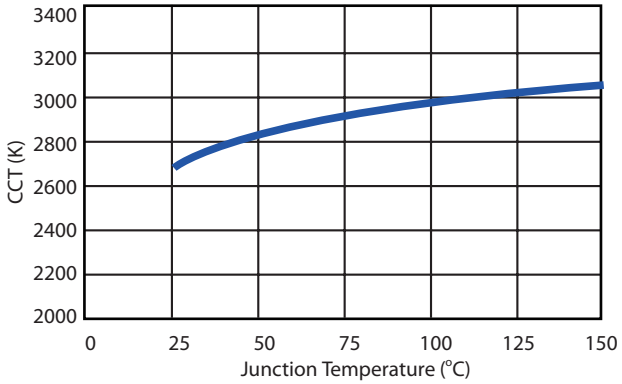


Figure 20. Typical CCT vs. junction temperature for warm white

CCT vs. Forward Current

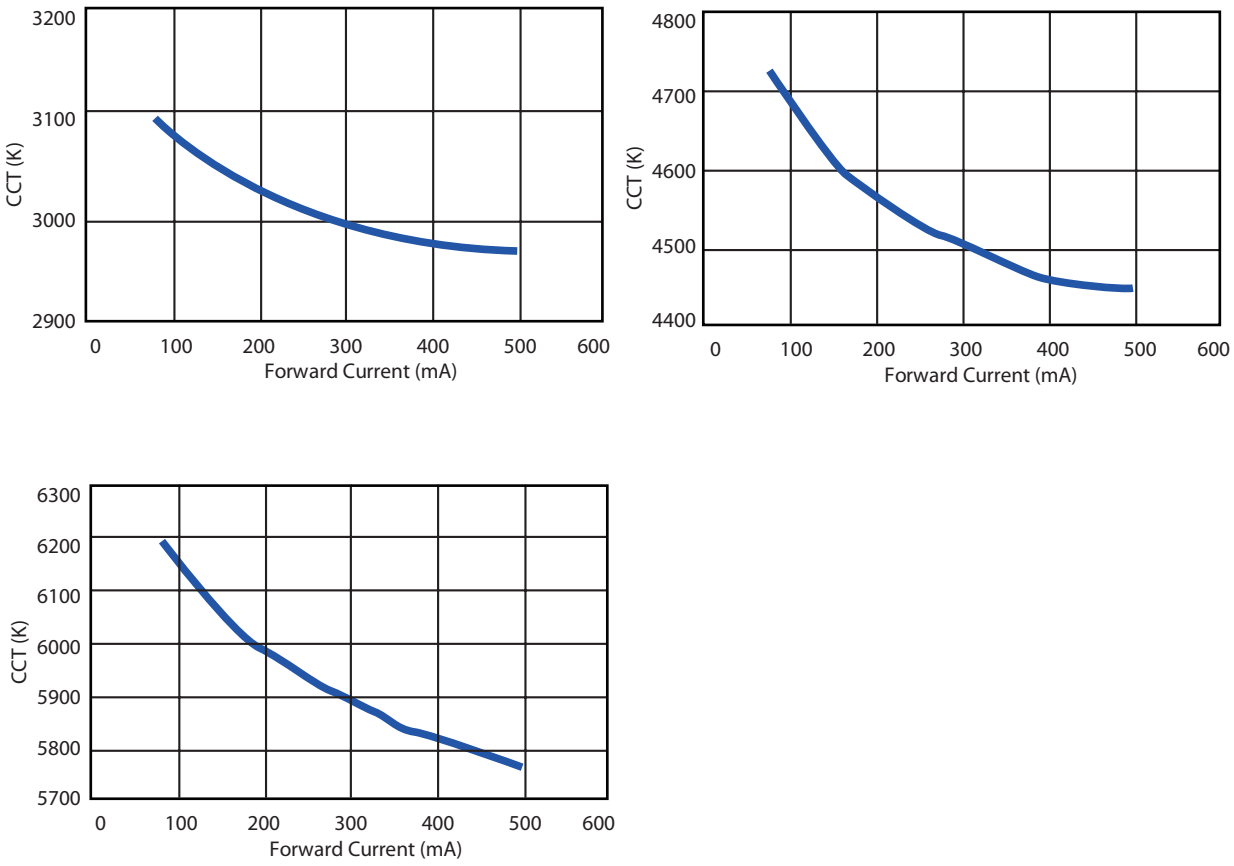
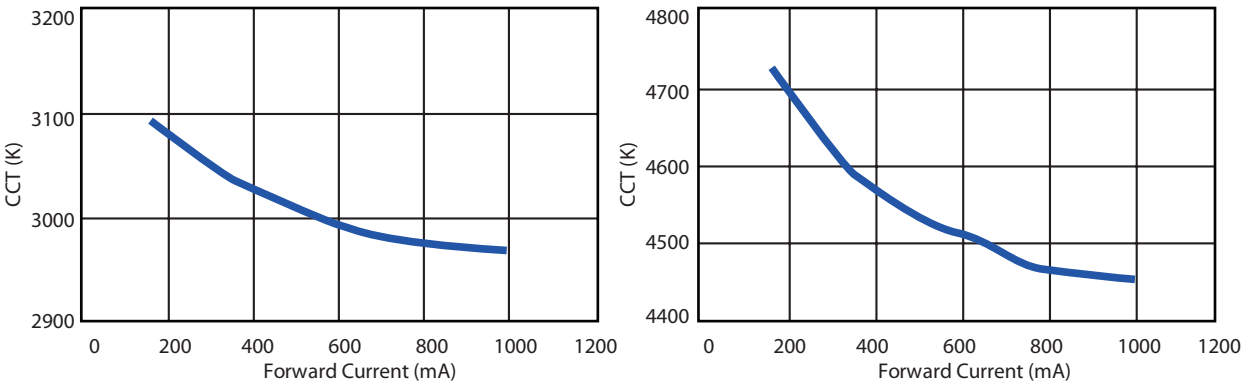


Figure 21. Correlated Color Temperatu re vs. Forward Current f or EPSx-HRB8.



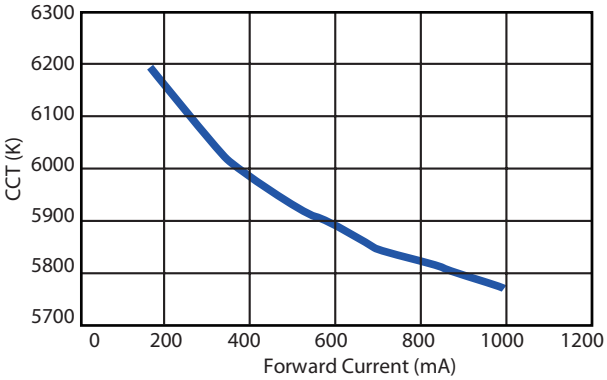
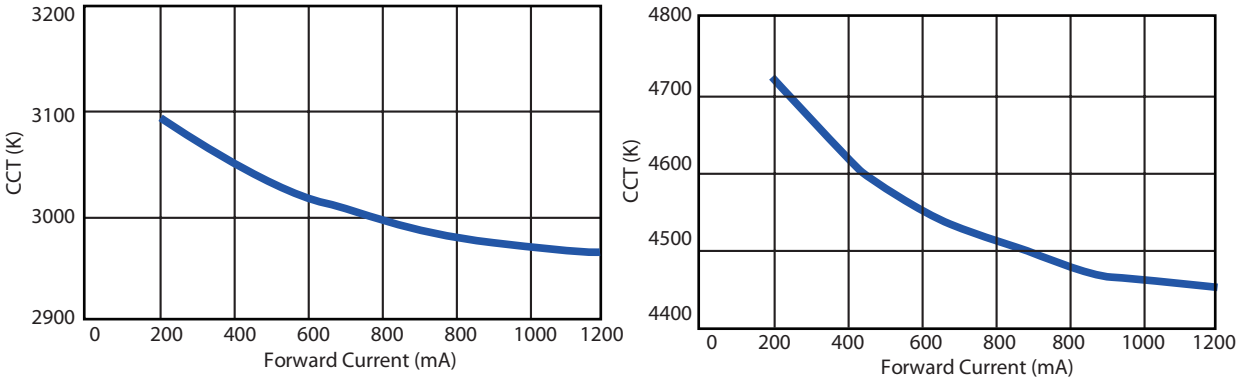


Figure 22. Correlated Color Temperatu re vs. Forward Current f or EPSx-HRBF.



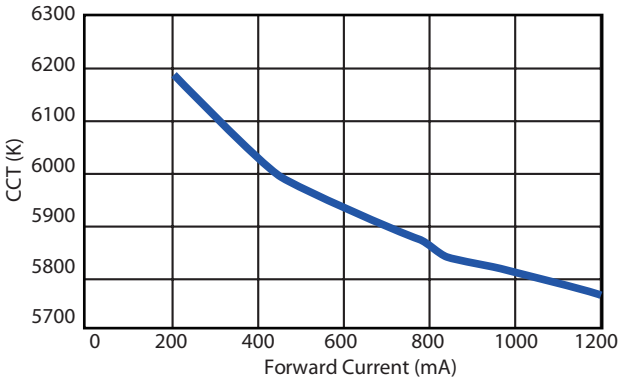


Figure 23. Correlated Color Temperatu re vs. Forward Current f or EPSx-HRBJ.

CCT & Forward Current

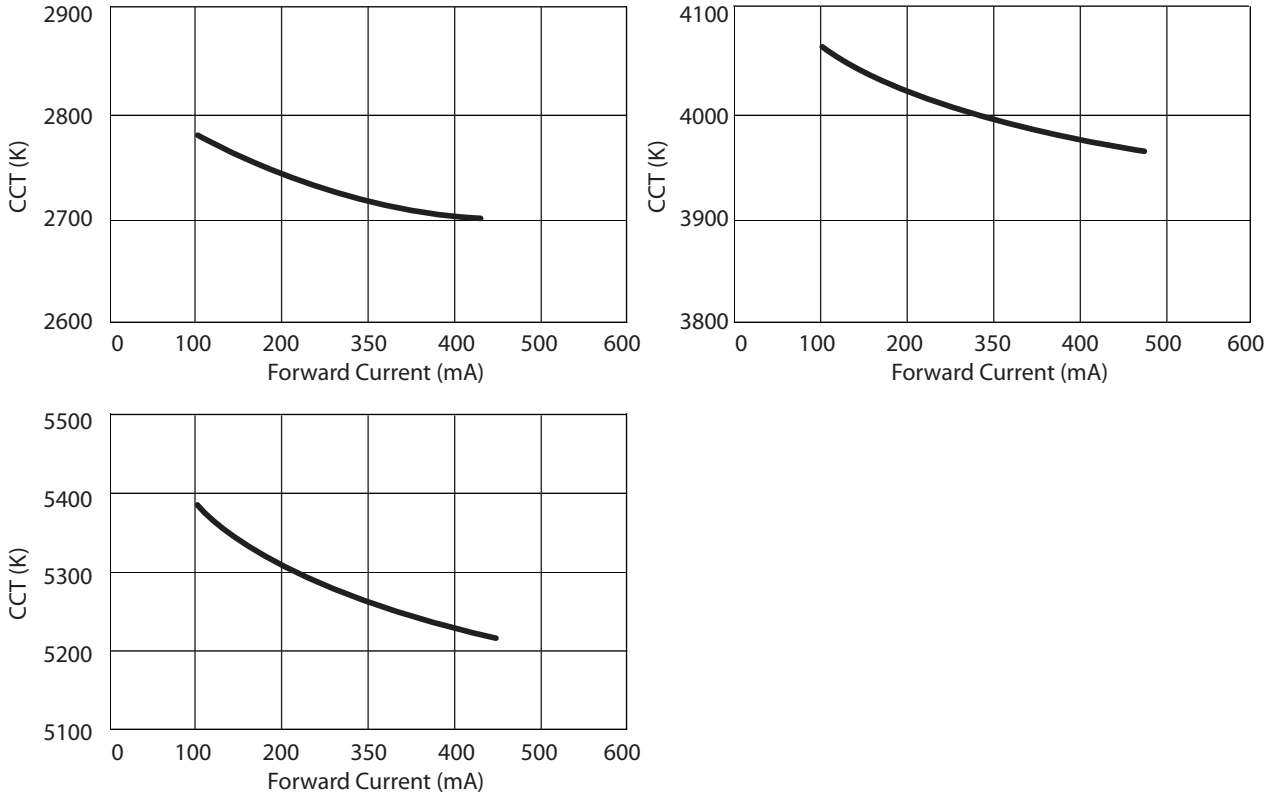


Figure 24. Correlated Color Temperatu re vs. Forward Current f or EP8x-HR67.

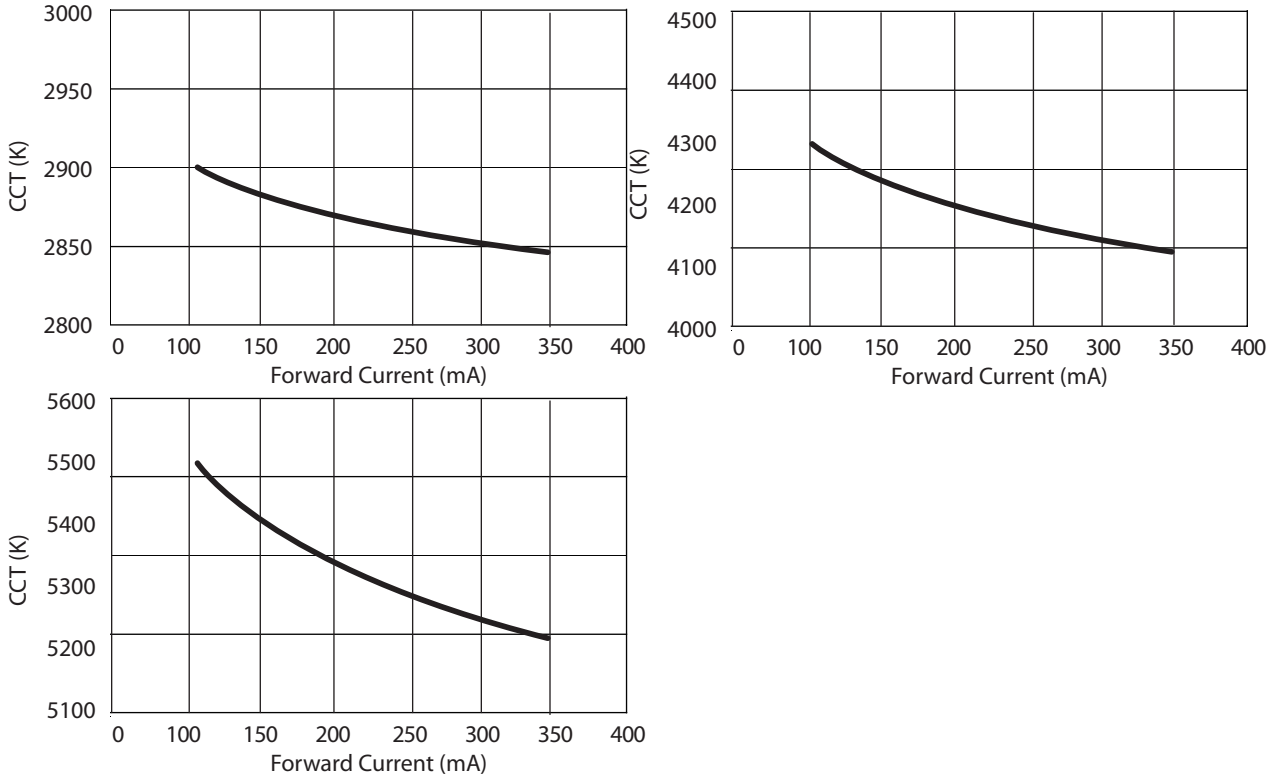


Figure 25. Correlated Color Temperatu re vs. Forward Current f or EPCx-HR96.

Forward Current vs. Luminous Flux

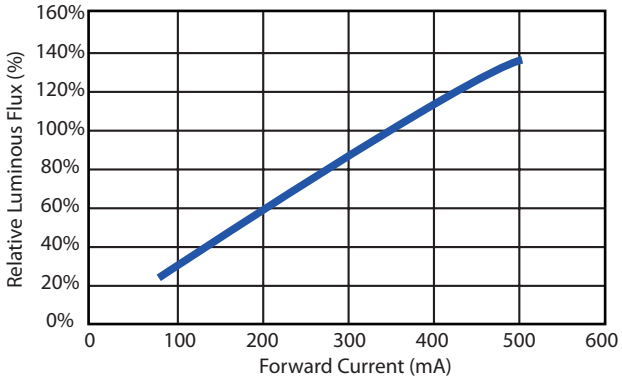


Figure 26. Forward current vs. Relative luminous flux for EPSx-HRB8

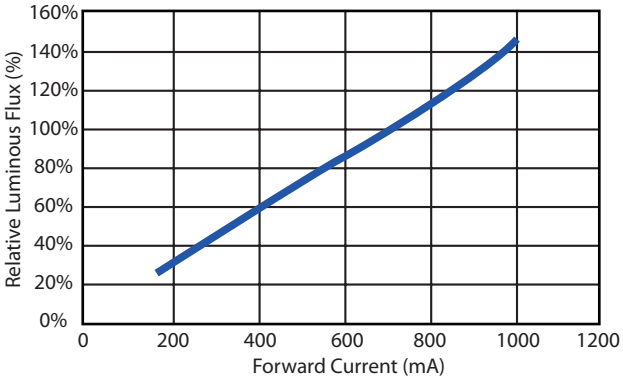


Figure 27. Forward current vs. Relative luminous flux for EPSx-HRBF

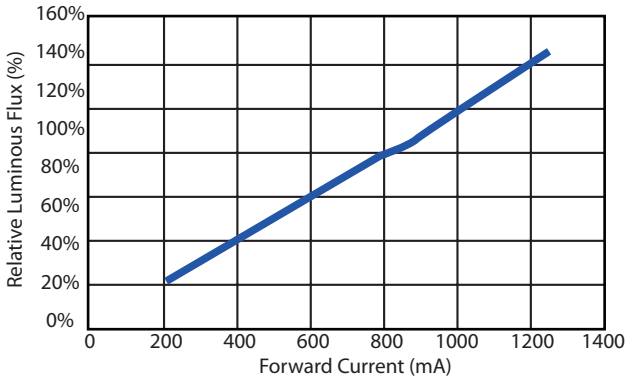


Figure 28. Forward current vs. Relative luminous flux for EPSx-HRBJ.

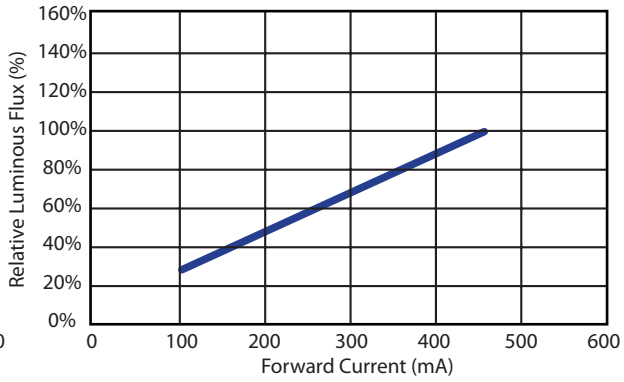


Figure 29.Forward current vs. Relative luminous flux for EP8x-HR67.

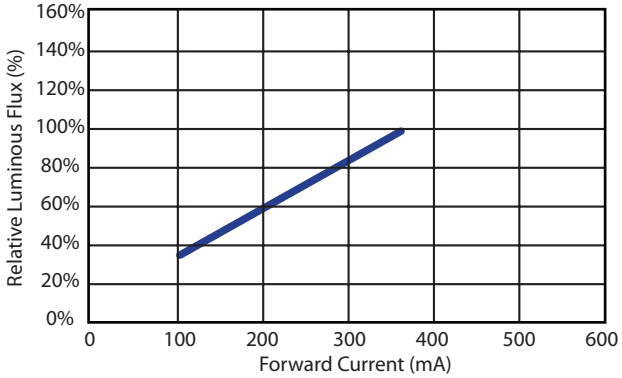


Figure 30. Forward current vs. Relative luminous flux for EPCx-HR96.

Lighting Design Manufacturing Service

Revision History

Table 8. Revision history of EdiPower II HR Star series datasheet.

Version	Description	Release Date
1	1.Establish a datasheet	2012/03/02
2	1.Add 7W Emitter Circuit Layout (EP8X-HR67) 2.Add 9W Emitter Circuit Layout (EPCX-HR96)	2012/06/08

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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