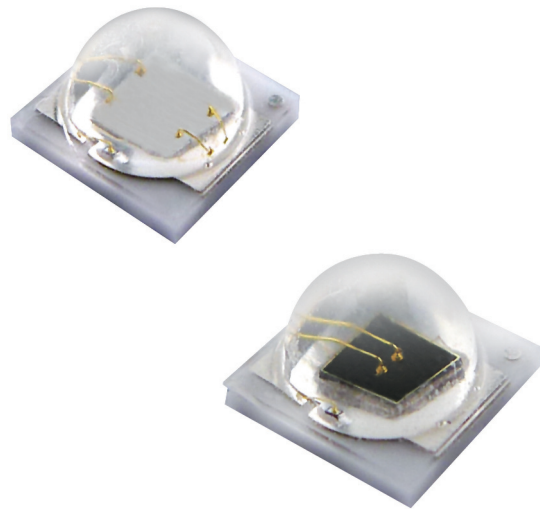


# Federal 3535 UV & IR Datasheet



## Features :

- High power performance
- Promising power maintenance characteristics
- High efficiency package
- Level 1 on JEDEC moisture sensitivity analysis
- RoHS compliant



Lighting Design Manufacturing Service

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## General Information

### Introduction

Federal 3535 UV&IR Series is a smaller and brighter single-chip LED. Federal is a surface mount, compact, high brightness LED that is suitable for various illumination needs such as Machine Vision.

### Product Nomenclature

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

Table 1 . Federal 3535 UV & IR Nomenclature

EF		E X		-		1 B		E 1		
X1	X2	X3	X4	X5	X6	X7				
X1 LED Item		X2 Module		X3 Emitting Color		X4 Serial Number		X5 Dimension		
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	
EF	Edixeon® Federal	E	Emitter	V	Ultraviolet	-	-	B	3.5 x 3.5mm	
		S	Star	E	Deep Red					
				I	IR850					
X6 Housing Item		X7 Serial Number								
Code	Type	Code	Type							
E	E-type	-	-							

## Mechanical Dimensions

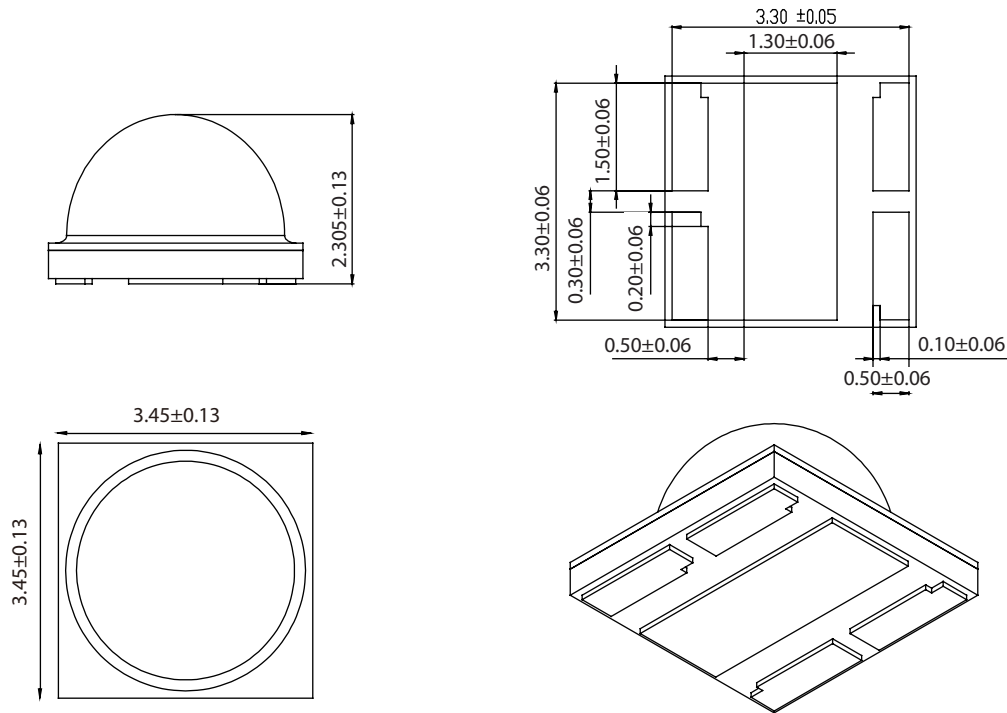


Figure 1. Federal 3535 series Dimension

Notes:

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

## Star PCB Type Dimension

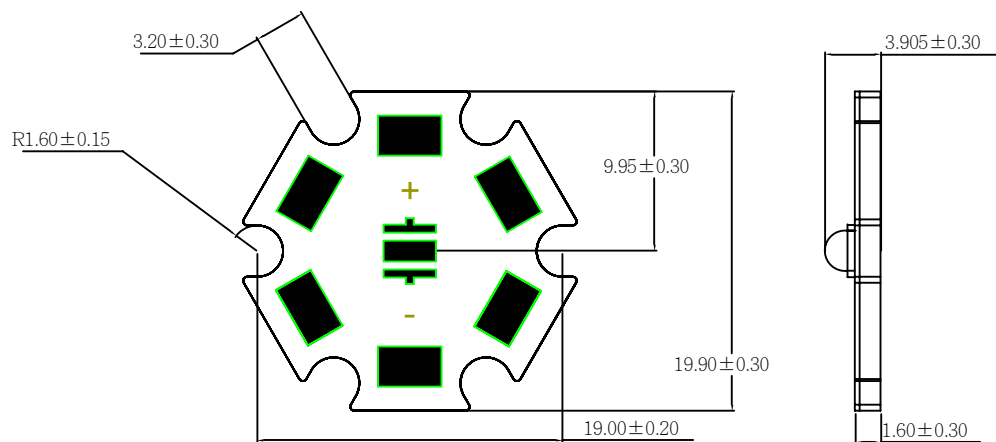
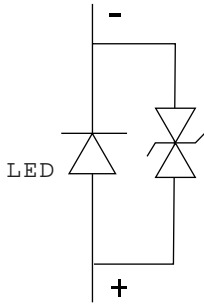


Figure 2. Federal 3535 series Star PCB type Dimension

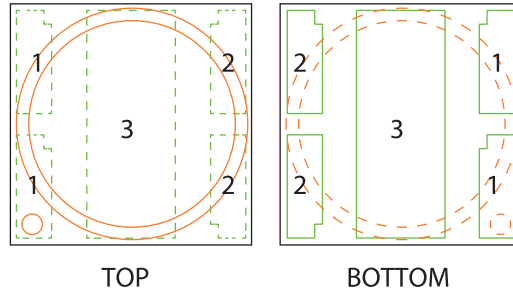
Notes:

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

### Circuit



### PCB Layout



PAD	FUNCTION
1	ANODE
2	CATHODE
3	THERMAL

Figure 3. Federal 3535 series circuit and pcb layout

Note:

The thermal pad is electrically isolated from anode and cathode.

### Solder Pad

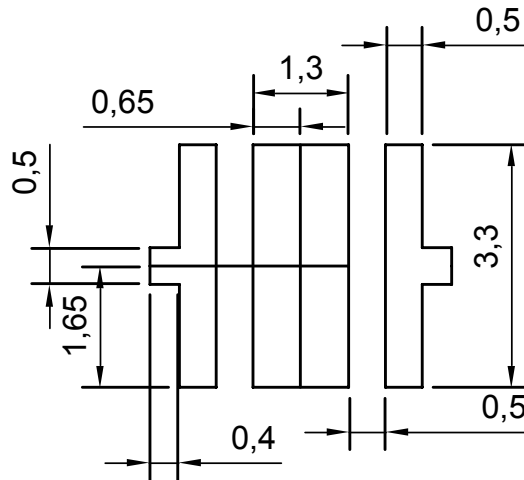


Figure 4. Federal 3535 series solder pad

## Absolute Maximum Ratings

The following tables describe flux of Federal 3535 UV&IR series under various current and different color.

Table 2. Federal 3535 UV&IR series absolute maximum ratings

Parameter	Symbol	EFEV/EFEE	EFEI	Units
DC Forward Current	$I_F$	350	700	mA
Peak Pulsed Current; ( $t_p \leq 100\mu s$ , Duty cycle=0.25)	$I_{pulse}$	700	1000	mA
Transient Surge Voltage		8	3	V
Reverse Voltage	$V_R$	Note 2	Note 2	V
LED Junction Temperature	$T_J$	125	125	°C
Operating Temperature		-40 ~ +80	-40 ~ +80	°C
Storage Temperature		-40 ~ +120	-40 ~ +120	°C
Soldering Temperature		260	260	°C

Notes:

1. Proper current derating must be observed to maintain junction temperature below the maximum at all time.
2. LEDs are not designed to drive in reverse bias.
3. Allowable reflow cycles are 3 times for each LED
4.  $t_p$ : Pulse width time

Warning:

1. The transient surge voltage of EFEI must < 3V, otherwise the components get damaged!



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## Luminous Flux Characteristic

The following tables describe flux of Federal 3535 UV&IR series under various current and different color.

Table 3. Luminous Flux Characteristics,  $I_f=350\text{mA}/700\text{mA}(\text{IR})$  and Thermal Pad= $25^\circ\text{C}$

Part Name	Color	Forward Current (mA)	Min Luminous Flux@350mA/700mA(IR)	
			Group	Power (mW)
EFEV-1BE1	Ultraviolet	350	H	170
			J	256
EFEE-1BE1	Deep Red	350	F	75
			G	113
EFEI-1BE2	IR 850	700	K	384

Note:

1. The luminous flux performance is guaranteed within published operating conditions. Edison maintains a tolerance of  $\pm 10\%$  on flux measurements.

## Characteristics

Table 4. Electrical and optical characteristics,  $I_f=350\text{mA}/700\text{mA}(\text{IR})$  and Thermal Pad= $25^\circ\text{C}$

Part Name	Color	CCT/ Wavelength Range		Viewing Angle (Degree)	$V_f$ (V) /per chip		Thermal Resistance ( $^\circ\text{C}/\text{W}$ )
		Min.	Max.		Min.	Max.	
EFEV-1BE1	Ultraviolet	390nm	410nm	135	3.0	4.0	10
EFEE-1BE1	Deep Red	650 nm	670 nm	125	2.0	3.0	10
EFEI-1BE2	IR 850	835nm	870nm	125	1.4	2.4	10

Notes:

1. Wavelengths are stated as peak wavelength.
2. Edison maintains a tolerance of  $\pm 2\text{nm}$  for peak wavelength.

## Characteristic Curve

### Spectrum

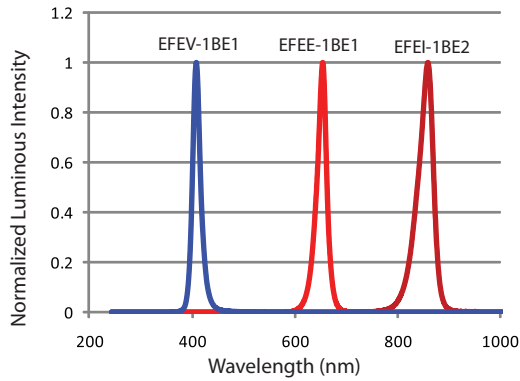


Figure 5. Color Spectrum for White series at  $T_j=25\text{ }^\circ\text{C}$

### Radiation Diagram

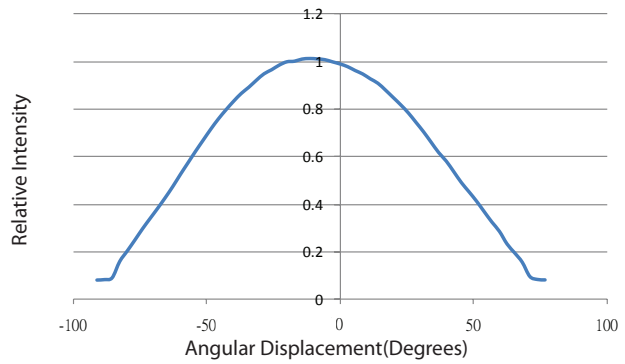


Figure 6. Emission Angle for Federal 3535 IR850

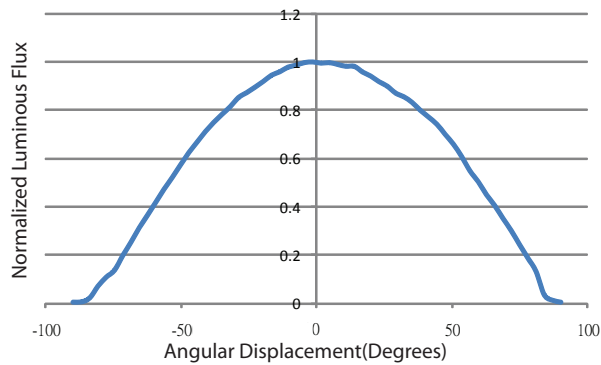


Figure 7. Emission Angle for Federal 3535 UV

### Forward Voltage & Forward Current

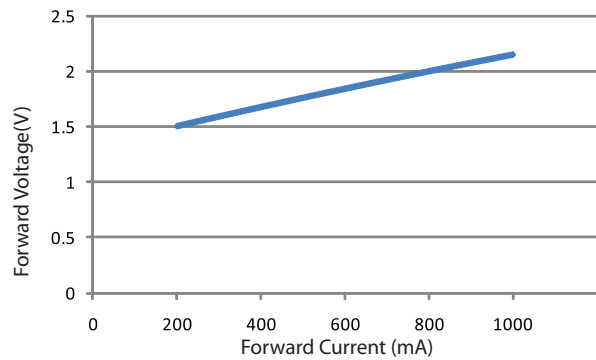


Figure 8. Forward voltage vs. forward current for Federal 3535 IR850

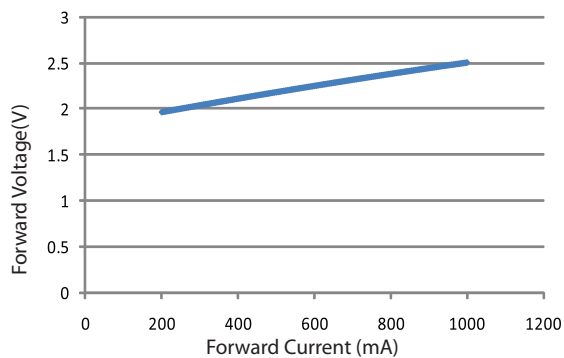


Figure 9. Forward voltage vs. forward current for Federal 3535 IR660

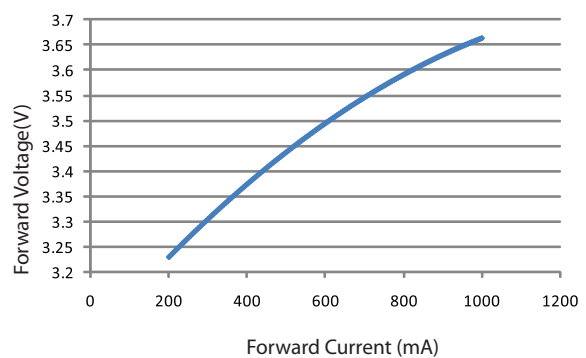


Figure 10. Forward voltage vs. forward current for Federal 3535 UV



### Luminous Flux & Forward Current

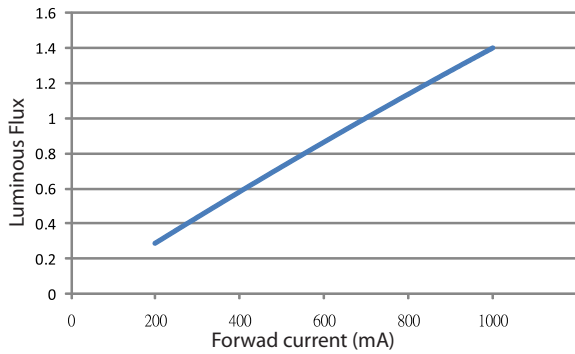


Figure 11. Relative luminous flux vs. forward current for Federal 3535 IR850

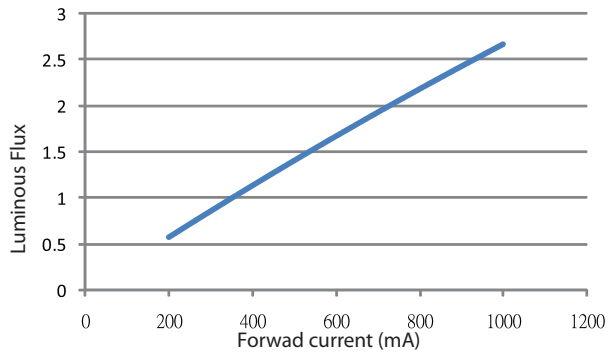


Figure 12. Relative luminous flux vs. forward current for Federal 3535 IR660

### Wavelength & Forward Current

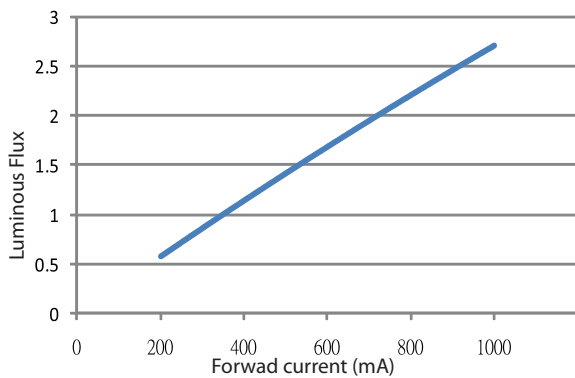


Figure 13. Relative luminous flux vs. forward current for Federal 3535 UV

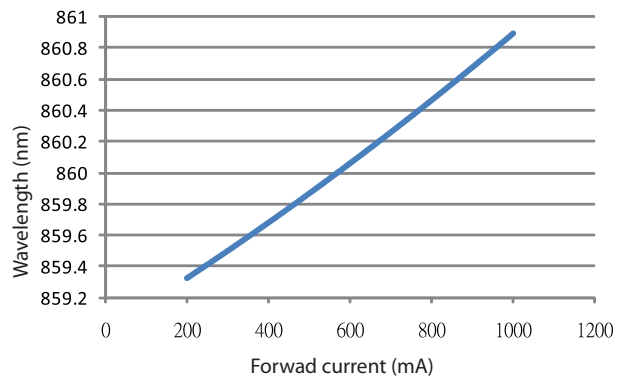


Figure 14. Wavelength vs. forward current for Federal 3535 IR850

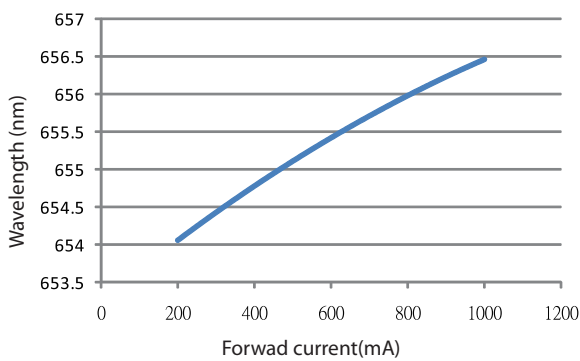


Figure 15. Wavelength vs. forward current for Federal 3535 IR660

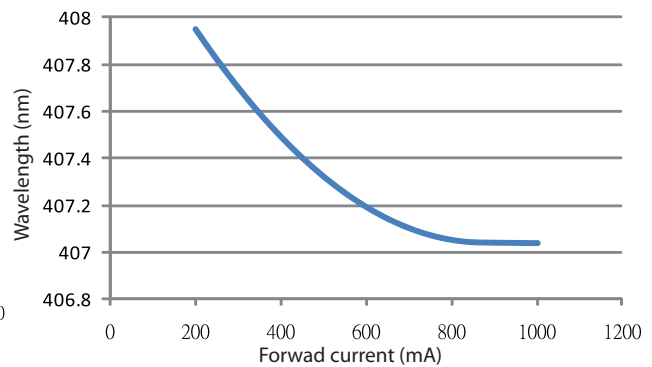


Figure 16. Wavelength vs. forward current for Federal 3535 UV



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### Luminous Flux & Junction Temperature

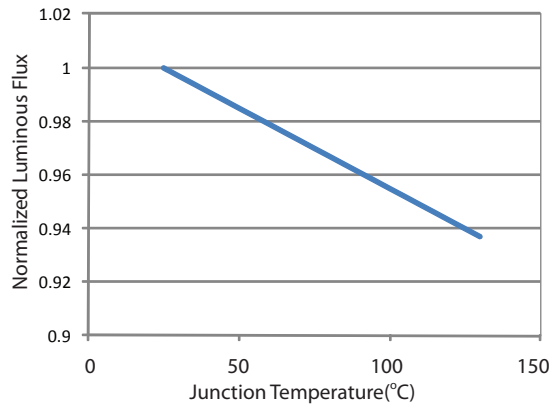


Figure 17. Luminous Flux vs. Junction temperature for Federal 3535 IR850

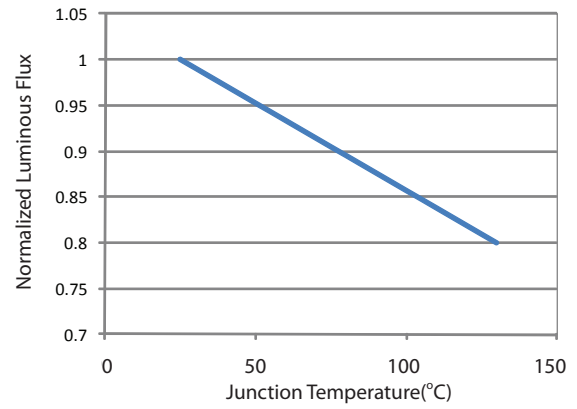
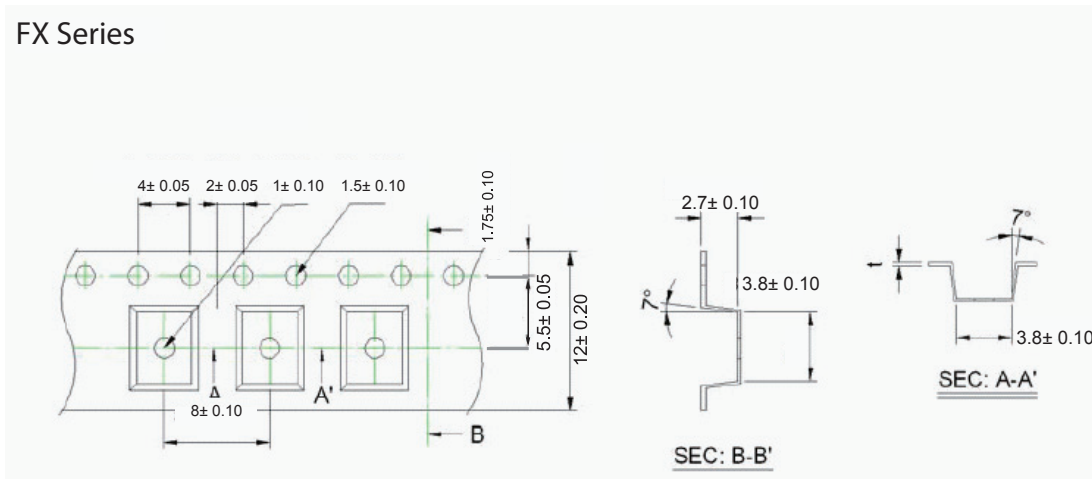


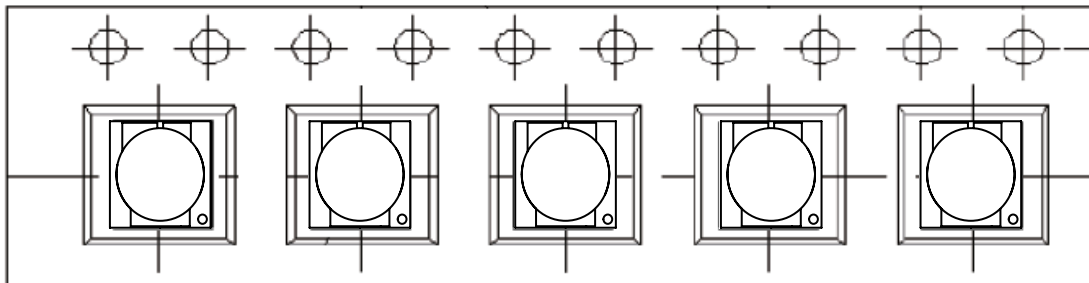
Figure 18. Luminous Flux vs. Junction temperature for Federal 3535 UV

## Product Packaging Information

### FX Series



### CATHODE SIDE



### ANODE SIDE

Figure 19. Federal 3535 Reel Dimensions.

Table 5. Federal 3535 quantity and dimension of product package

Item	Quantity	Total	Dimensions(mm)
Reel	500pcs	500pcs	R-178
Box	4 Reels	2,000pcs	240*235*67
Carton	5 boxes	10,000pcs	353*354*256

Starting with 50pcs empty, and 50pcs empty at the last

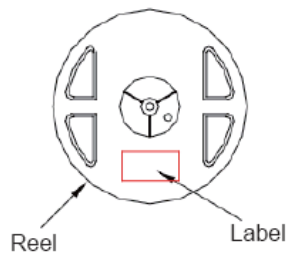


Figure 20. Taping reel dimensions

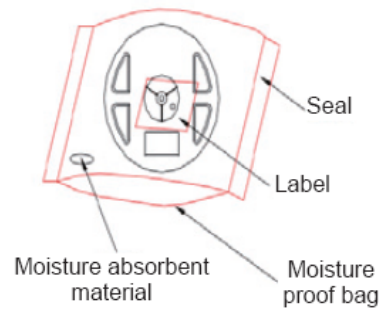


Figure 21. Federal 3535 Package



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## Revision History

Table 6. Revision history of Federal 3535 UV&IR series datasheet

Version	Description	Release Date
1	Establish a datasheet	2012/01/10

## 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](http://www.edison-opto.com)

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