

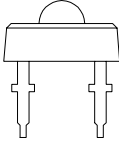
## Standard Features

- Produced with copper leadframe
- 4 leads with stand off as standard
- Water clear epoxy
- Products bin coded for hue and intensity
- Class II ESD Rating

## Special Features

- Long life – 75K hours 50% lumen maintenance (see sheet 4)
- High luminous white emission
- Optical efficiency 38 lm/W
- Low profile and low thermal resistance
- Weather resistant package design
- Suitable for high current operation
- Packaged in tubes for use with automatic insertion equipment

## Electro / Optical Characteristics $I_F = 30 \text{ mA}$ $T_a = 25^\circ \text{ C}$

Lamp Package	LED Part Number	Emitting Colour	Leads	Die Material	Chromaticity Coordinates		Forward Voltage $V_F$		Luminous Intensity $I_V$		Viewing $\angle$ 20 $\frac{1}{2}$
					x	y	typical	max	min	typical	
	FUL-P70WWCCO	White	Std	InGaN/SiC	0.31	0.31	3.40	4.00	-	2500	70
7.6 x 7.6 mm	Units				Typical		V		mcd		deg

## Maximum Ratings $T_a = 25^\circ \text{ C}$ ( Derate above $25^\circ \text{ C}$ )

Characteristic	Condition	Symbol	Rating	Units
Pulse Forward Current	$t \leq 0.1\text{ms}$ , $D = 1/10$	$I_{FP}$	100	mA
DC Forward Current		$I_F$	30	mA
Reverse Voltage	$I_R = 5 \mu\text{A}$	$V_R$	5	V
Power Dissipation		$P_D$	120	mW
Operating Temperature		$T_{opr}$	- 30 to + 85	$^\circ \text{ C}$
Storage Temperature		$T_{stg}$	- 40 to + 100	$^\circ \text{ C}$
Lead soldering temperature	1.5 mm below stopper - max 10 s	$T_s$	240	$^\circ \text{ C}$

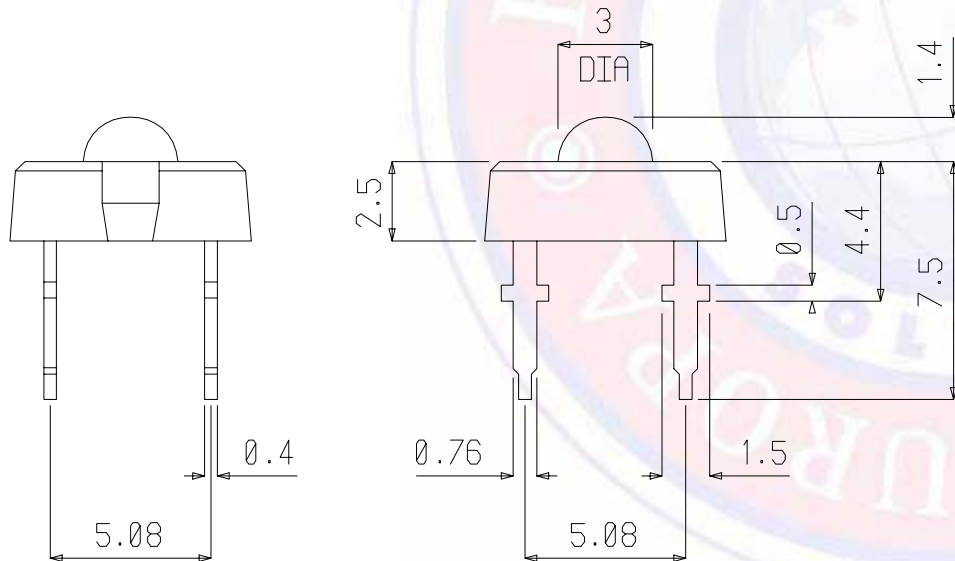
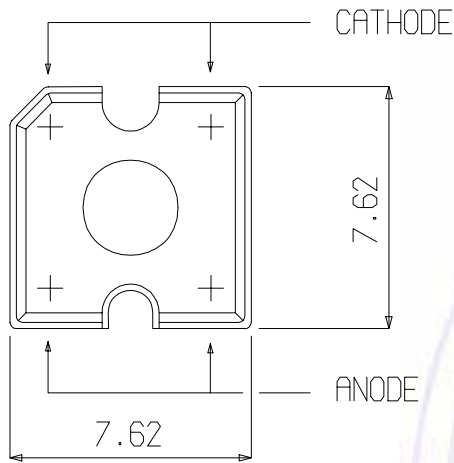
The maximum forward current for LEDs ( $I_F \text{ max}$ ) is determined by the thermal resistance between the LED p-n junction and the ambient environment ( $\theta_{ja}$ ). Since thermal resistance is strongly application dependant, designers should take care to observe design limits.

It is critical to maintain both  $I_F \text{ max}$  and  $\theta_{ja}$  within design limits in order to optimise LED performance in terms of colour and intensity change as a factor of time. Thermal derating characteristics for temperatures above  $T_a = 25^\circ \text{ C}$  are available upon request.

It is the responsibility of the customer to verify the suitability of the product for the application.

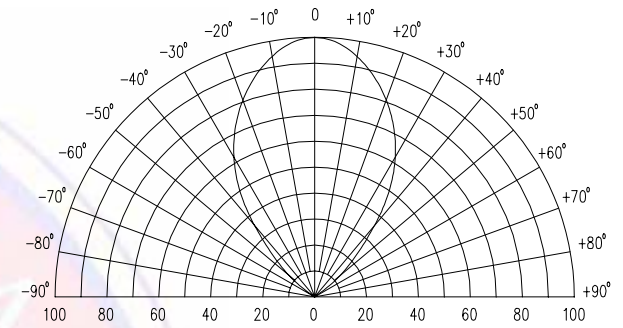
## Package Outlines

Dimensions in mm Tol ± 0.2 mm unless stated



## Radiation Diagram

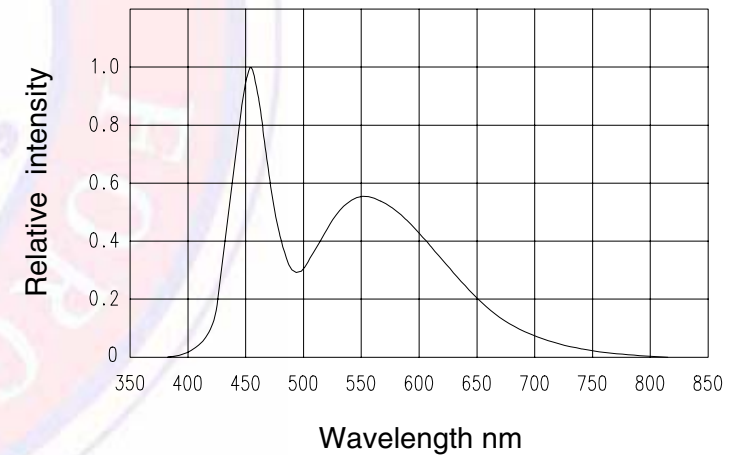
$T_a = 25^\circ\text{C}$   $I_F = 30\text{ mA}$



Relative angular intensity

## Emission Spectrum

$T_a = 25^\circ\text{C}$   $I_F = 30\text{ mA}$



### WARNING

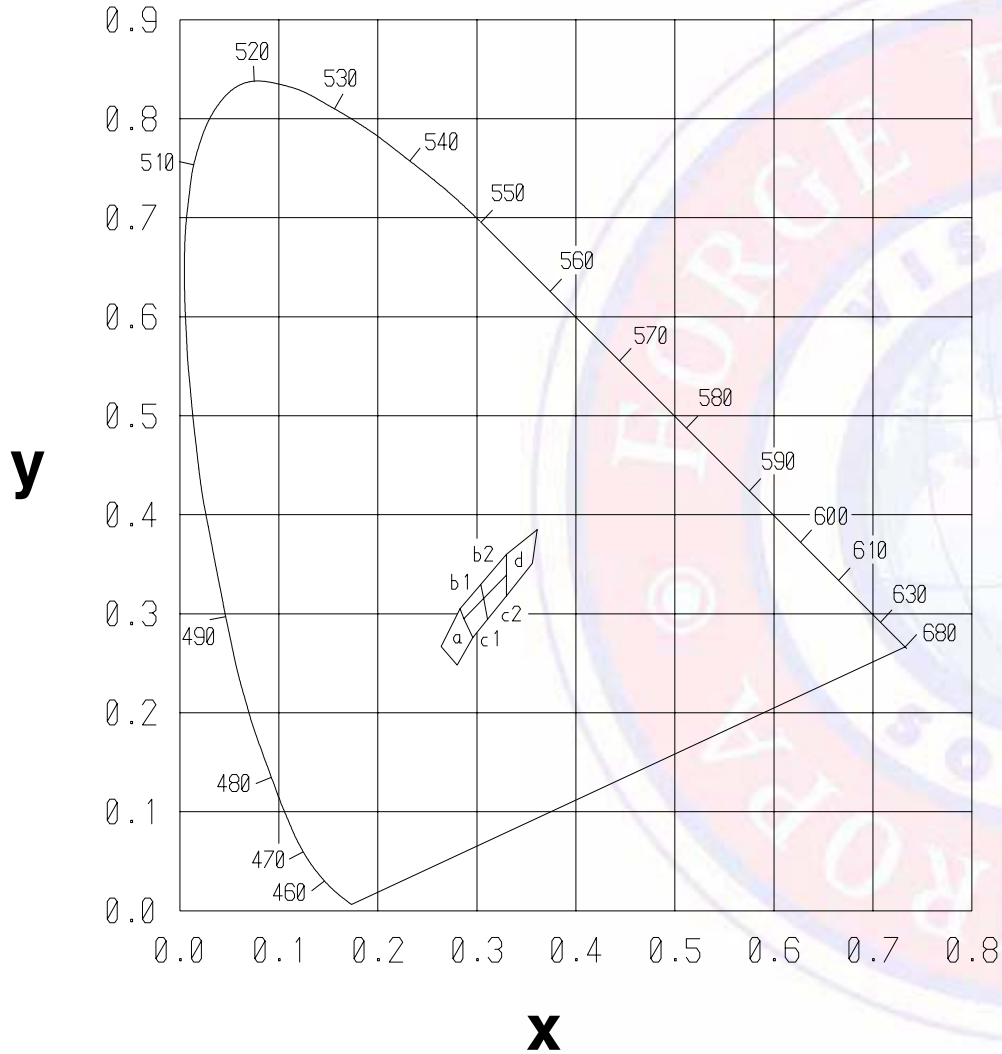
This range of LEDs is produced with die having a high radiant flux. Care must be taken when viewing the product at close range as the light may be intense enough to cause damage to the human eye.

**Note:** Industry standard procedures regarding static must be observed when handling this product.

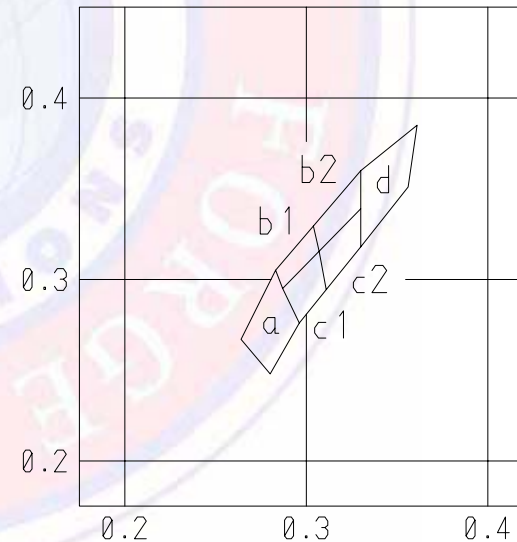
## CIE 1931 - Chromaticity Diagram

## Ranking Codes

Measurement Tolerance x and y ± 0.01



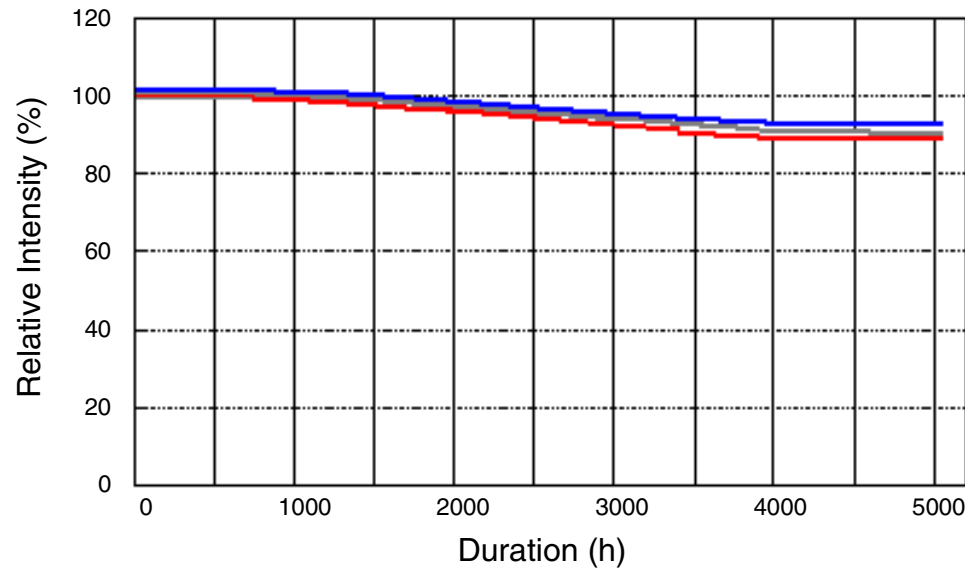
a	X	0.264	0.280	0.296	0.283
	Y	0.267	0.248	0.276	0.305
b1	X	0.283	0.304	0.307	0.287
	Y	0.305	0.329	0.315	0.295
b2	X	0.304	0.330	0.330	0.307
	Y	0.329	0.360	0.339	0.315
c1	X	0.287	0.307	0.311	0.296
	Y	0.295	0.315	0.294	0.276
c2	X	0.307	0.330	0.330	0.311
	Y	0.315	0.339	0.318	0.294
d	X	0.330	0.330	0.356	0.361
	Y	0.360	0.318	0.351	0.385



## Operating Test

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

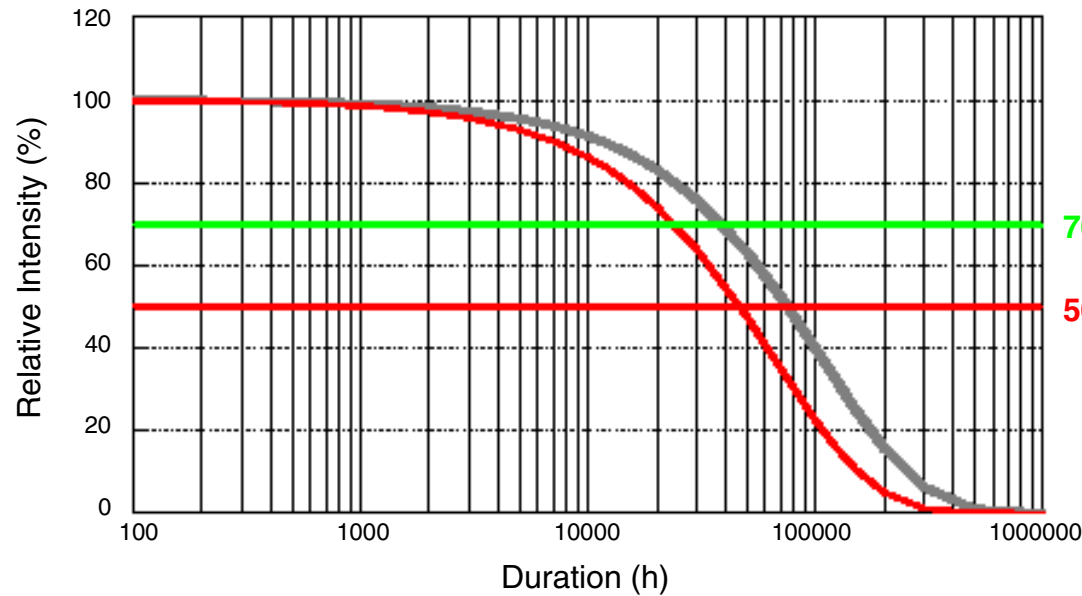
- $I_F = 20\text{mA}$
- $I_F = 30\text{mA}$
- $I_F = 50\text{mA}$



## Life Simulation

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

- $I_F = 20\text{mA}$
- $I_F = 30\text{mA}$



% of Initial Intensity	Test Current	Test Duration
70	20	38000
	30	23000
50	20	75000
	30	46000
	mA	hours