![Microsemi logo]

UPBLEDLPxx

HIGH BRIGHTNESS BLUE LED

PRODUCT PREVIEW

The UPBLEDLPxx blue LED product series incorporates Microsemi's unique, low profile packaging concept. Ideally suited for high density circuitry used in a variety of telecommunication lighting applications. The product offers robust packaging, and low forward voltage for high efficiency as well as modest junction temperature rise.

IMPORTANT: For the most current data, consult *MICROSEMI*'s website: **http://www.microsemi.com**

ABSOLUTE MAXIMUM RATINGS AT 25° C
(UNLESS OTHERWISE SPECIFIED)

Parameters	Symbol	Value	Unit DC
Forward Drive Current	I_F	30	mA
Peak Forward Current	I_{FP}	100	mA
LED Operating Junction Temperature	T_j	-40 to +140	°C
Reverse Voltage	V_R	8	V
Power Dissipation	P_D	125	mW
Operating Temperature	T_{OPR}	-40 to +125	°C
Storage Temperature	T_S	-45 to +140	°C
Electrostatic Discharge	ESD	1000	V
ESD classification		Class 1	
Solder Reflow Peak Temperature (Solder 10")		225	°C

THERMAL CHARACTERISTICS
(UNLESS OTHERWISE SPECIFIED)

Thermal Response	Symbol	Value	Units
Junction Temperature rise at 20ma dc	TJ_{mx}	15	°C
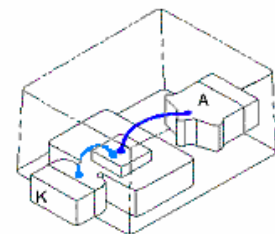
The first "x" of the postscript designates the Intensity bin , i.e. H highest, G lower, F lowest
The second "x" of the postscript designates the forward voltage category L, lowest, S, Standard
See pg. 2 for details.

For operation of these LEDs in pulse mode applications, devices may be used in conjunction with the Microsemi LX1992LED Drivers

KEY FEATURES
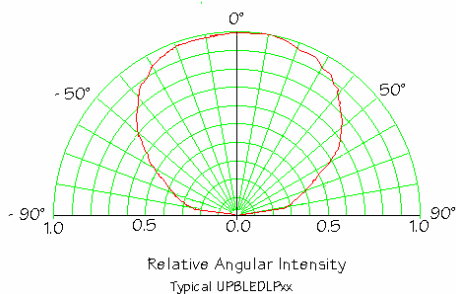
- Low profile (0.35mm;15mils)
- Low Vf available (<3.0V @5mA)
- Wide viewing angle
- High brightness
- Luminous Efficiency
- Rugged Optomite package

APPLICATIONS/BENEFITS

- Mobile Phone Keypad
- Panel, button, switch indicators.
- Backlighting
- Signage
- Signals and Marker Lights

ELECTRICAL PARAMETERS @ 25°C & ID=20 mA (unless otherwise specified)						
Characteristic	**Symbol**	**Test Conditions**	**Min**	**Typ.**	**Max**	**Units**
Radiant Intensity	I_E	"F" DC Drive Current = 20ma "G" DC Drive Current = 20ma "H" DC Drive Current = 20ma		550 750 900		µW/sr
Luminous Intensity	I_V	"F" DC Drive Current = 20ma "G" DC Drive Current = 20ma "H" DC Drive Current = 20ma	35 45 55			mcd
Dominant Wavelength	λ_{DOM}	DC Drive Current = 20ma	460		480	nm
Peak Wavelength	λ_{PK}	DC Drive Current = 20ma		465		nm
Chrom x Chrom y		"F", "G", "H" DC Drive Current = 20ma		0.13 0.07		
Angle Coverage to 50% points	$\alpha 1/2$	DC Drive Current = 20ma to 50ma	125	135		deg.
Radiant Flux	Φ_E	"F" DC Drive Current = 20ma "G" DC Drive Current = 20ma "H" DC Drive Current = 20ma		1.25 1.75 2.0		mW
Luminous Flux	Φ_V	"F" DC Drive Current = 20ma "G" DC Drive Current = 20ma "H" DC Drive Current = 20ma		125 150 175		mlm
Forward Voltage	V_F	"S" DC Drive Current 5ma "L" DC Drive Current 5ma "S" DC Drive Current 10ma "L" DC Drive Current 10ma "S" DC Drive Current 20ma "L" DC Drive Current 20ma		3.4 2.95 3.5 3.0 3.7 3.15	3.5 3.05 3.7 3.125 3.9 3.25	V
Reverse Leakage Current	I_R	Reverse Voltage = 5 V			10	µA

- Change in Radiant Intensity with temperature −1.4µW/sr/°C   (25°C < temp< 85°C)
- Change in Radiant Intensity with temperature 0.7µW/sr/°C   (25°C < temp< -40°C)

Relative Angular Intensity
Typical UPBLEDLPxx

Microsemi
580 Pleasant Street, Watertown, MA. 02472-2408, 617-926-0404, Fax: 617-924-1235
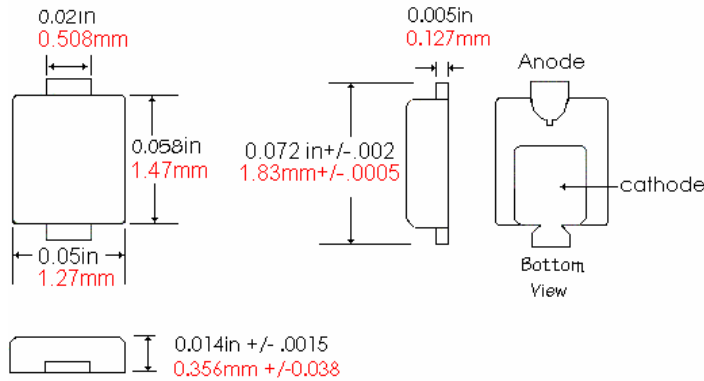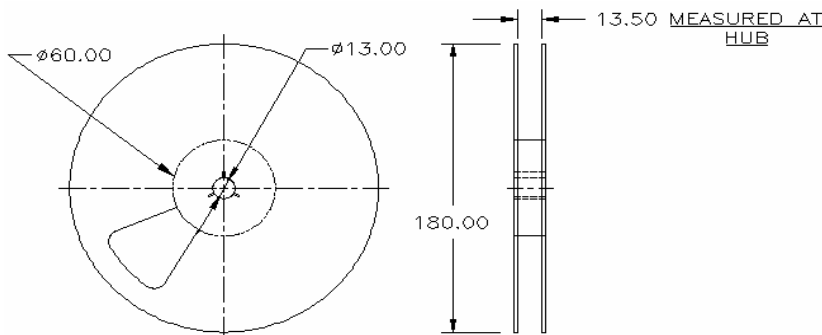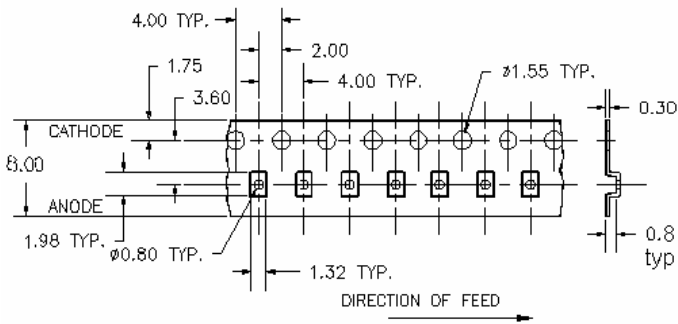
Notes: Anode is identified by observing the underside of the LED.
  (Anode is the smaller of the two base pads)
  Mount to circuit board using 60/40 Pb/Sn or equivalent.
  Maximum solder melt exposure temperature is 225°C for 10 seconds.

TAPE AND REEL
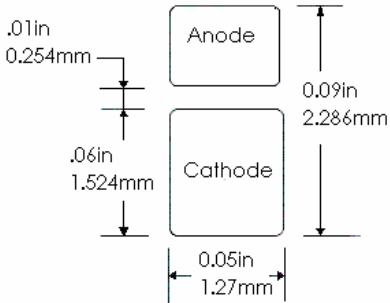**3,000 units/reel**   Notes: Dimensions is shown in metric.
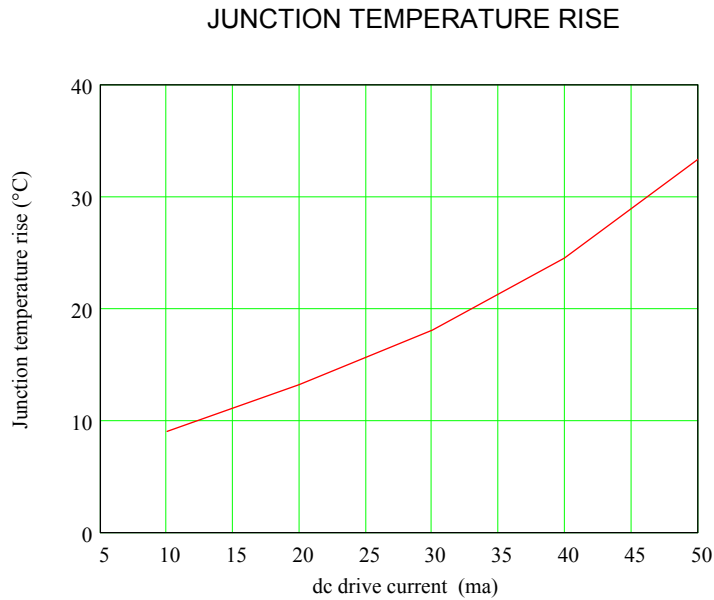
Copyright © 2002
Rev. 2., 2003-06-03

Microsemi
580 Pleasant Street, Watertown, MA. 02472-2408, 617-926-0404, Fax: 617-924-1235

Page 3

WWW.*Microsemi*.COM

UPBLEDLPXX

WWW.*Microsemi*.COM

.01in
0.254mm
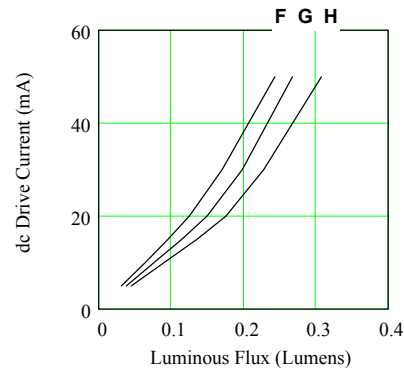
Anode

0.09in
2.286mm

.06in
1.524mm

Cathode

0.05in
1.27mm

Mounting footprint, Copper (note: Silver plating will enhance Luminous Intensity)

JUNCTION TEMPERATURE RISE

THERMAL

WWW.*Microsemi*.COM

L   S

F G H

F   G   H

F G H

chrom y   chrom x
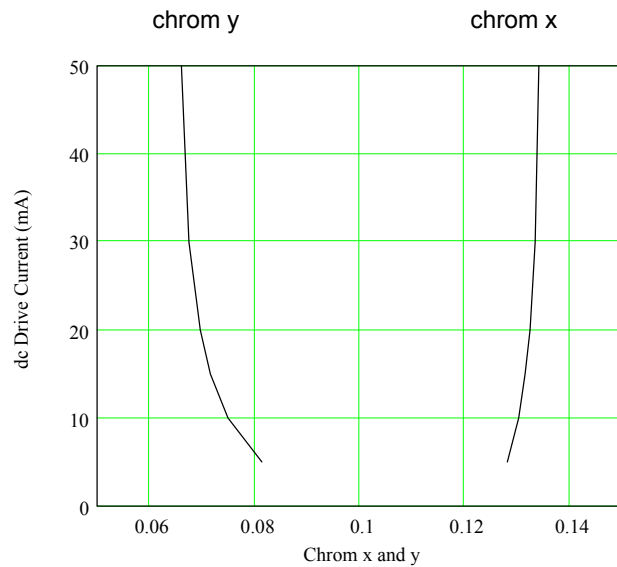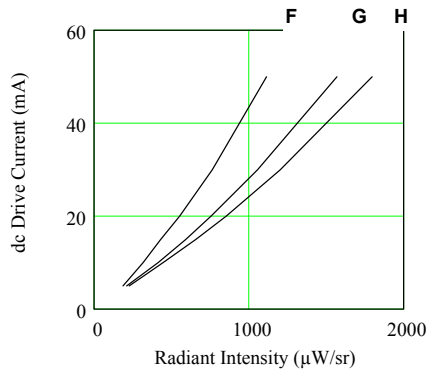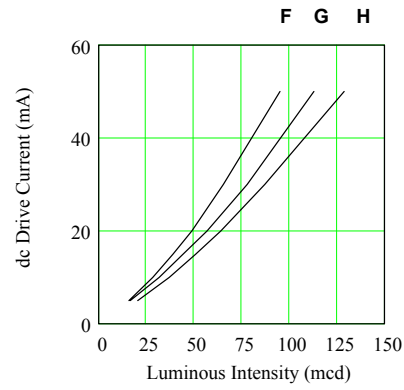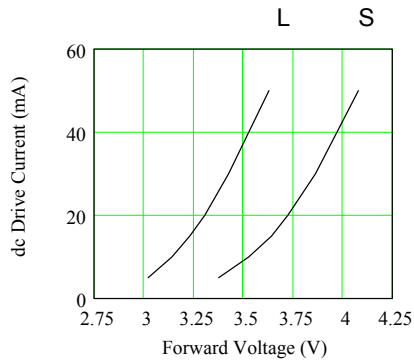
SAFE OPERATION ABOVE THE MAXIMUM dc RATING:

The power dissipation must be held at a level to maintain the junction below the maximum specified operating temperature.

Duty cycle control may be used to establish the safe operating condition using a train of pulses.

LED Junction temperature for dc operation is illustrated in the Junction Temperature Rise graph (see page 5).

Conversion of 1931 x y coordinates to 1960 *u v* coordinates:

$$u = 4x/(-2x + 12y + 3) \,, \quad v = 6y/(-2x + 12y + 3)$$

Conversion of 1960 *u v* coordinates to 1931 *x y* coordinates:

$$x = 3u/(2u - 8v + 4), \quad y = 2v/(2u - 8v + 4).$$

* UPBLEDLPxx SPICE MODEL (typical)

.model UPBLEDLPxx D(Is=2.6f N=4.02 Rs=5.83 Ikf=60.9k Xti=5 Eg=3 Cjo=39p

+   M=5.17k Vj=86k Fc=.5 Isr=1.04p Nr=3.3 Bv=14 Ibv=10m

+   Tt=36n)

UPBLEDLPXX