ASMT-UWB2-Nxxxx
OneWhite Surface Mount PLCC-2 LED Indicator

Avago
TECHNOLOGIES

Data Sheet

Lead (Pb) Free
RoHS 6 fully
compliant
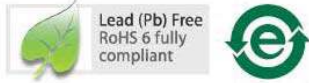
Description

This family of SMT LEDs is packaged in the industry standard PLCC-2 package. These SMT LEDs have high reliability performance and are designed to work under a wide range of environmental conditions. This high reliability feature makes them ideally suited to be used as interior signs application conditions.

These LEDs are compatible with reflow soldering process.

The wide viewing angle at 120° makes these LEDs ideally suited for panel, push button, offi ce equipment, industrial equipment, and home appliances. The fl at top emitting surface makes it easy for these LEDs to mate with light pipes. With the built-in refl ector pushing up the intensity of the light output, these LEDs are also suitable to be used as LED pixels in interior electronic signs.

Features

- High reliability package with silicone encapsulation
- Compatible with refl ow soldering process
- High optical effi ciency with 100 lm/W
- Available in 8 mm carrier tape with reel diameter 180mm
- JEDEC MSL 3 product
- ESD threshold of 1000 V (HBM model) per Jedec

Applications

- Non-automotive use
- General Signage backlighting
- Amusement machine backlighting
- Industrial lighting
- Light strips

CAUTION: ASMT-UWB2-Nxxxx LEDs are Class 1C ESD sensitive. Please observe appropriate precautions during handling and processing. Refer to Avago Application Note AN-1142 for additional details.

Package Dimensions

CATHODE MARKING
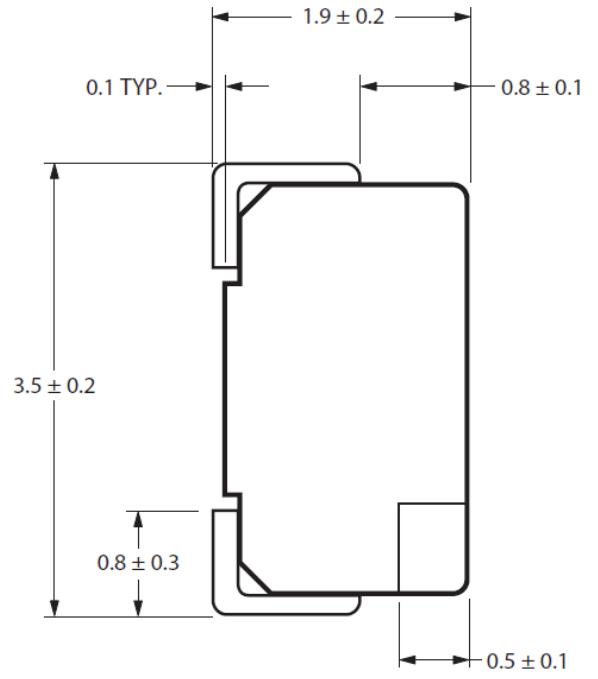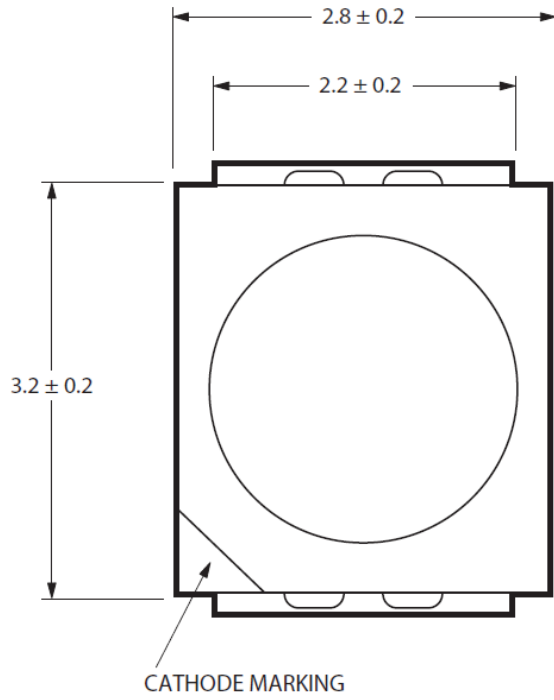
Notes:
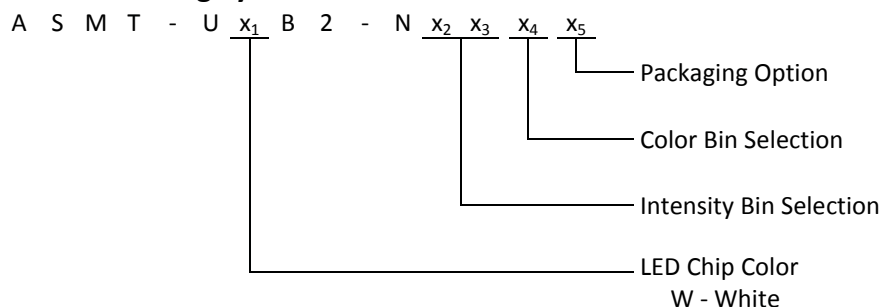1. All dimensions in millimeters.
2. Terminal finish = Ag plating.

Device Selection Guide

Color	Part Number	CCT (K)	Luminous Intensity (mcd) [1,2] Min	Max	Test Current (mA)	Chip
White	ASMT-UWB2-NX302	4500 ~ 8000	1800.00	3550.00	20	InGaN
White	ASMT-UWB2-NX312	2700 ~ 4000	1800.00	3550.00	20	InGaN
White	ASMT-UWB2-NX3A2	8000	1800.00	3550.00	20	InGaN
White	ASMT-UWB2-NX3B2	6500	1800.00	3550.00	20	InGaN
White	ASMT-UWB2-NX3C2	5700	1800.00	3550.00	20	InGaN
White	ASMT-UWB2-NX3D2	5000	1800.00	3550.00	20	InGaN
White	ASMT-UWB2-NX3E2	4500	1800.00	3550.00	20	InGaN
White	ASMT-UWB2-NX3F2	4000	1800.00	3550.00	20	InGaN
White	ASMT-UWB2-NX3G2	3500	1800.00	3550.00	20	InGaN
White	ASMT-UWB2-NX3H2	3000	1800.00	3550.00	20	InGaN
White	ASMT-UWB2-NX3J2	2700	1800.00	3550.00	20	InGaN

Notes:
1. The luminous intensity IV, is measured at the mechanical axis of the lamp package. The actual peak of the spatial radiation pattern may not be aligned with this axis.
2. IV Tolerance = ±12%

Part Numbering System

```
A  S  M  T  -  U  x₁  B  2  -  N  x₂  x₃  x₄  x₅
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- Packaging Option
- Color Bin Selection
- Intensity Bin Selection
- LED Chip Color
  W - White

Table 2. Absolute Maximum Ratings (T$_A$ = 25 °C)

Parameters	Rating
DC Forward Current [1]	30mA
Peak Forward Current [2]	100mA
Power Dissipation	108 mW
Junction Temperature	110 °C
Operating Temperature	- 40 °C to + 85°C
Storage Temperature	- 40 °C to + 100 °C

Notes:
1. Derate linearly as shown in derating curve.
2. Duty Factor = 10%, Frequency = 1kHz. ommended.

Table 3. Optical Characteristics (T$_A$ = 25 °C)

Color	Part Number	Dice Technology	Typ. Chromaticity Coordinates (1) X	y	Viewing Angle 2θ$_½$ [2] (Degrees) Typ.	Luminous Efficiency η$_e$ (lm/W) Typ.	Total Flux / Luminous Intensity θ$_V$(lm) / Iv(cd) Typ.	CRI Min.
White	ASMT-UWB2-N	InGaN	0.33	0.34	120	100	2.7	80

Notes:
1. The chromaticity coordinates are derived from the CIE 1931 Chromaticity Diagram and represent the perceived color of the device
2. θ$_½$ is the off-axis angle where the luminous intensity is ½ the peak intensity.

Table 4. Electrical Characteristics (T$_A$ = 25 °C)

Color	Part Number	Forward Voltage V$_F$ (Volts) @ I$_F$ = 20mA Min.	Max.	Reverse Voltage V$_R$ [1] @ 10µA Min.	Thermal Resistance Rθ$_{J-P}$ (°C/W)
White	ASMT-UWB2-N	2.8	3.6	5	150

Note:

1. Reverse Voltage indicates product fi nal test condition. Long term reverse bias is not recommended.
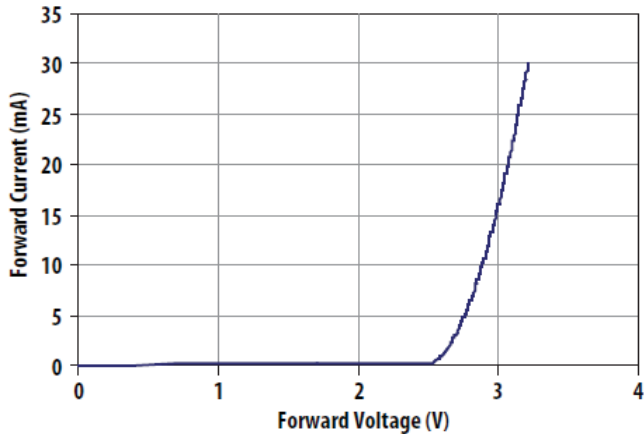
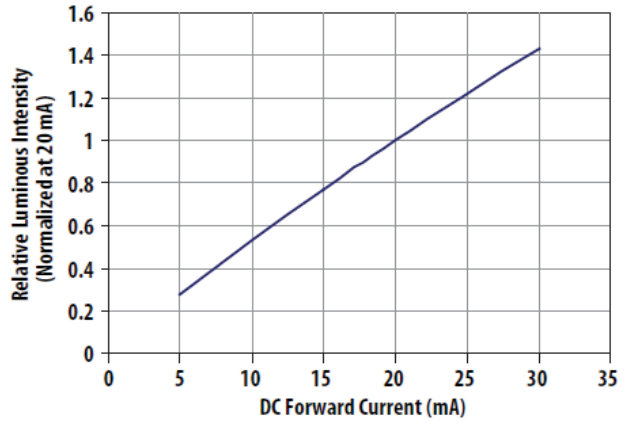Figure 1. Forward Current Vs. Forward Voltage

Figure 2. Relative Intensity Vs. Forward Current
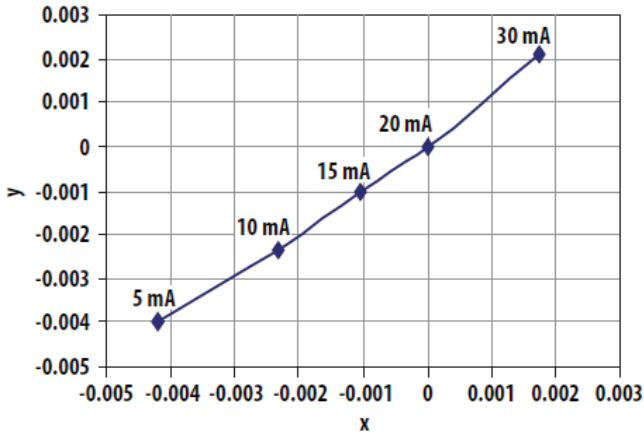

Figure 3. Chromaticity shift vs. current
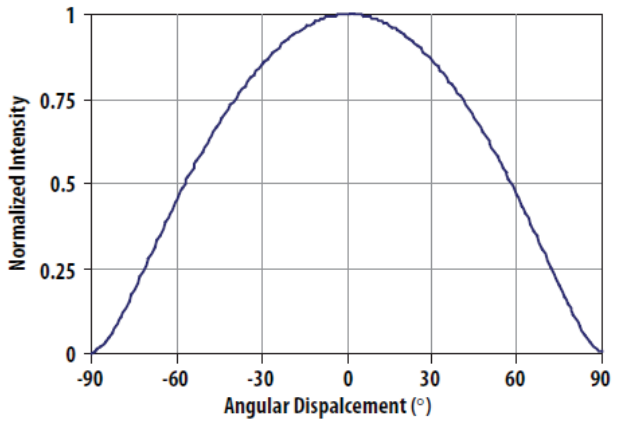

Figure 4. Radiation pattern
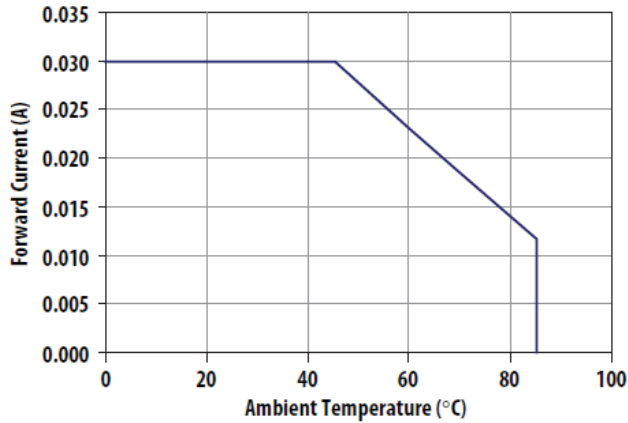

Figure 5. Maximum forward current vs. ambient temperature. Derated based on Tjmax 110° C, Rthja 600°C/W
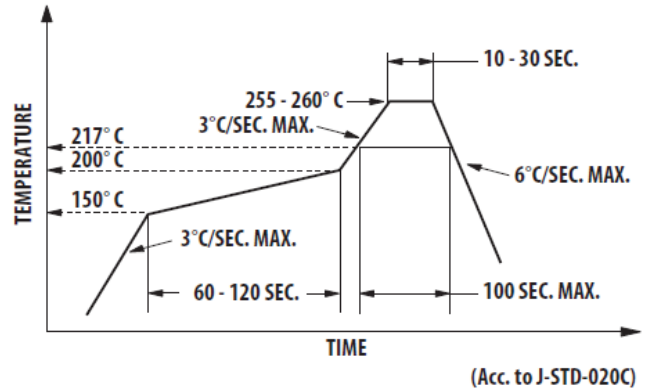
Figure 6. Recommended Pb-free refl ow soldering profi le
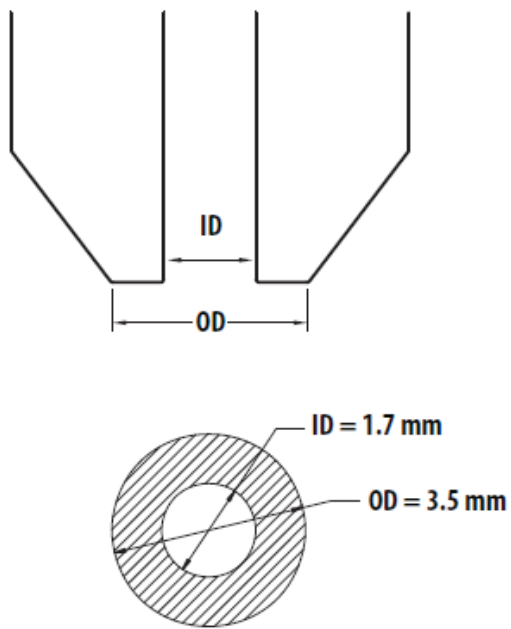
Figure 7. Recommended Pick and Place Nozzle Size

ID = 1.7 mm

OD = 3.5 mm

2.60

1.50

4.50

SOLDER RESIST
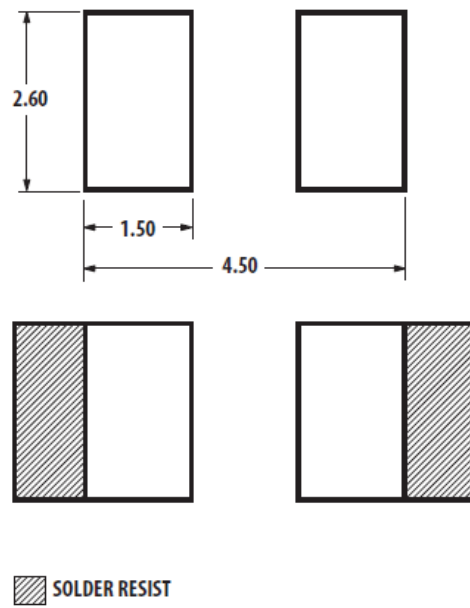
Figure 8. Recommended Soldering Pad Pattern

END

START

THERE SHALL BE A MINIMUM OF 160 mm OF EMPTY COMPONENT POCKETS SEALED WITH COVER TAPE.

MOUNTED WITH COMPONENTS

THERE SHALL BE A MINIMUM OF 400 mm OF EMPTY COMPONENT POCKETS SEALED WITH COVER TAPE.

USER FEED DIRECTION
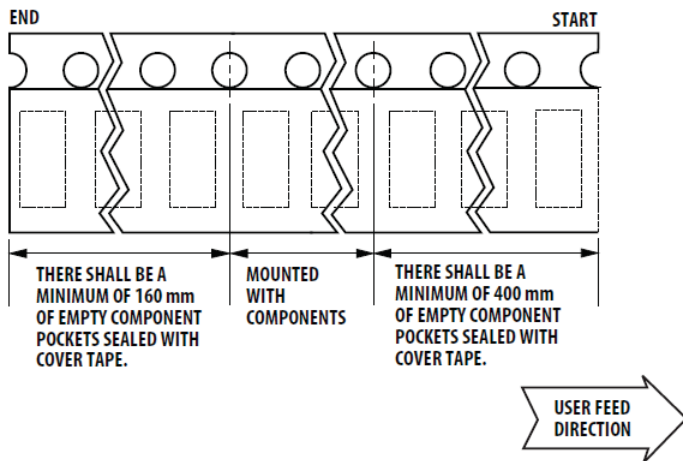
Figure 9. Tape Leader and Trailer Dimensions

2.00 ±0.05

4.00 ±0.1

Cathode Marking

1.55 ±0.05

1.75 ±0.1

3.5 ±0.1

8.00 ±0.1

3.85 ±0.1

2.15 ±0.1

3.10 ±0.1

4.00 ±0.1

Figure 10. Tape Dimensions (Unit: mm)

Intensity Bin Select (X_2X_3)

Individual reel will contain parts from one half bin only

X_2	Min I_V Bin

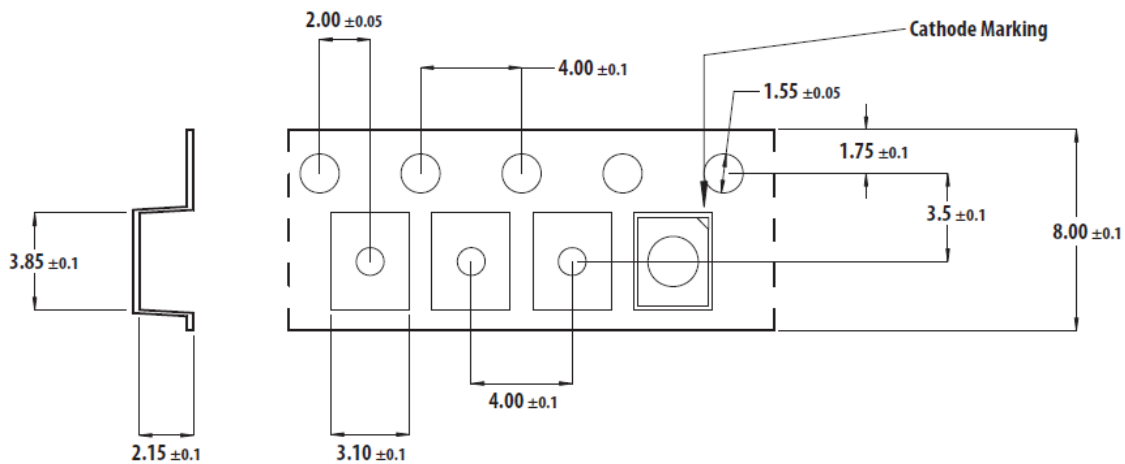| X_3	
0	Full Distribution
3	3 half bins starting from $X_2$1
4	4 half bins starting from $X_2$1
5	2 half bins starting from $X_2$1
B	1 half bins starting from $X_2$2
6	2 half bins starting from $X_2$2
7	3 half bins starting from $X_2$2
8	4 half bins starting from $X_2$2
9	2 half bins starting from $X_2$2

Intensity Bin Limits

Bin ID	Min. (mcd)	Max. (mcd)
X1	1800.00	2240.00
X2	2240.00	2850.00
Y1	2850.00	3550.00

Tolerance of each bin limit = ± 12%

Color Bin Select (X_4)

Individual reel will contain parts from one full bin only.

X_4 Bin	Color Bin ID
A	1A, 1B, 1C, 1D
B	2A, 2B, 2C, 2D
C	3A, 3B, 3C, 3D
D	4A, 4B, 4C, 4D
E	5A, 5B, 5C, 5D
F	6A, 6B, 6C, 6D
G	7A, 7B, 7C, 7D
H	8A, 8B, 8C, 8D
J	9A, 9B, 9C, 9D
K	1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D,
L	2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D
M	3A, 3B, 3C, 3D, 4A, 4B, 4C, 4D
N	4A, 4B, 4C, 4D, 5A, 5B, 5C, 5D
Q	6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D
R	7A, 7B, 7C, 7D, 8A, 8B, 8C, 8D
S	8A, 8B, 8C, 8D, 9A, 9B, 9C, 9D
0	1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D, 4A, 4B, 4C, 4D, 5A, 5B, 5C, 5D
1	6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D, 8A, 8B, 8C, 8D, 9A, 9B, 9C, 9D

Colro Bin ID Limits

Color Bin ID		Chromaticity Coordinates Limits				Color Bin ID		Chromaticity Coordinates Limits			
1A	x	0.2950	0.2920	0.2984	0.3009	6A	x	0.3670	0.3702	0.3825	0.3783
	y	0.2970	0.3060	0.3133	0.3042		y	0.3578	0.3722	0.3798	0.3646
1B	x	0.2920	0.2895	0.2962	0.2984	6B	x	0.3702	0.3736	0.3869	0.3825
	y	0.3060	0.3135	0.3220	0.3133		y	0.3722	0.3874	0.3958	0.3798
1C	x	0.2984	0.2962	0.3028	0.3048	6C	x	0.3825	0.3869	0.4006	0.3950
	y	0.3133	0.3220	0.3304	0.3207		y	0.3798	0.3958	0.4044	0.3875
1D	x	0.2984	0.3048	0.3068	0.3009	6D	x	0.3783	0.3825	0.3950	0.3898
	y	0.3133	0.3207	0.3113	0.3042		y	0.3646	0.3798	0.3875	0.3716
2A	x	0.3048	0.3130	0.3144	0.3068	7A	x	0.3889	0.3941	0.4080	0.4017
	y	0.3207	0.3290	0.3186	0.3113		y	0.3690	0.3848	0.3916	0.3751
2B	x	0.3028	0.3115	0.3130	0.3048	7B	x	0.3941	0.3996	0.4146	0.4080
	y	0.3304	0.3391	0.3290	0.3207		y	0.3848	0.4015	0.4089	0.3916
2C	x	0.3115	0.3205	0.3213	0.3130	7C	x	0.4080	0.4146	0.4299	0.4221
	y	0.3391	0.3481	0.3373	0.3290		y	0.3916	0.4089	0.4165	0.3984
2D	x	0.3130	0.3213	0.3221	0.3144	7D	x	0.4017	0.4080	0.4221	0.4147
	y	0.3290	0.3373	0.3261	0.3186		y	0.3751	0.3916	0.3984	0.3814
3A	x	0.3215	0.3290	0.3290	0.3222	8A	x	0.4147	0.4221	0.4342	0.4259
	y	0.3350	0.3417	0.3300	0.3243		y	0.3814	0.3984	0.4028	0.3853
3B	x	0.3207	0.3290	0.3290	0.3215	8B	x	0.4221	0.4299	0.443	0.4342
	y	0.3462	0.3538	0.3417	0.3350		y	0.3984	0.4165	0.4212	0.4028
3C	x	0.3290	0.3376	0.3371	0.3290	8C	x	0.4342	0.4430	0.4562	0.4465
	y	0.3538	0.3616	0.3490	0.3417		y	0.4028	0.4212	0.426	0.4071
3D	x	0.3290	0.3371	0.3366	0.3290	8D	x	0.4259	0.4342	0.4465	0.4373
	y	0.3417	0.3490	0.3369	0.3300		y	0.3853	0.4028	0.4071	0.3893
4A	x	0.3371	0.3451	0.3440	0.3366	9A	x	0.4373	0.4465	0.4582	0.4483
	y	0.3490	0.3554	0.3427	0.3369		y	0.3893	0.4071	0.4099	0.3919
4B	x	0.3376	0.3463	0.3451	0.3371	9B	x	0.4465	0.4562	0.4687	0.4582
	y	0.3616	0.3687	0.3554	0.349		y	0.4071	0.4260	0.4289	0.4099
4C	x	0.3463	0.3551	0.3533	0.3451	9C	x	0.4582	0.4687	0.4813	0.4700
	y	0.3687	0.3760	0.3620	0.3554		y	0.4099	0.4289	0.4319	0.4126
4D	x	0.3451	0.3533	0.3515	0.3440	9D	x	0.4483	0.4582	0.4700	0.4593
	y	0.3554	0.3620	0.3487	0.3427		y	0.3919	0.4099	0.4126	0.3944
5A	x	0.3530	0.3615	0.3590	0.3512						
	y	0.3597	0.3659	0.3521	0.3465						
5B	x	0.3548	0.3641	0.3615	0.3530						
	y	0.3736	0.3804	0.3659	0.3597						
5C	x	0.3641	0.3736	0.3702	0.3615						
	y	0.3804	0.3874	0.3722	0.3659						
5D	x	0.3615	0.3702	0.3670	0.3590						
	y	0.3659	0.3722	0.3578	0.3521						

Tolerance of each bin limit = ±0.01 (right column, after 9D)

Tolerance of each bin limit = ±0.01
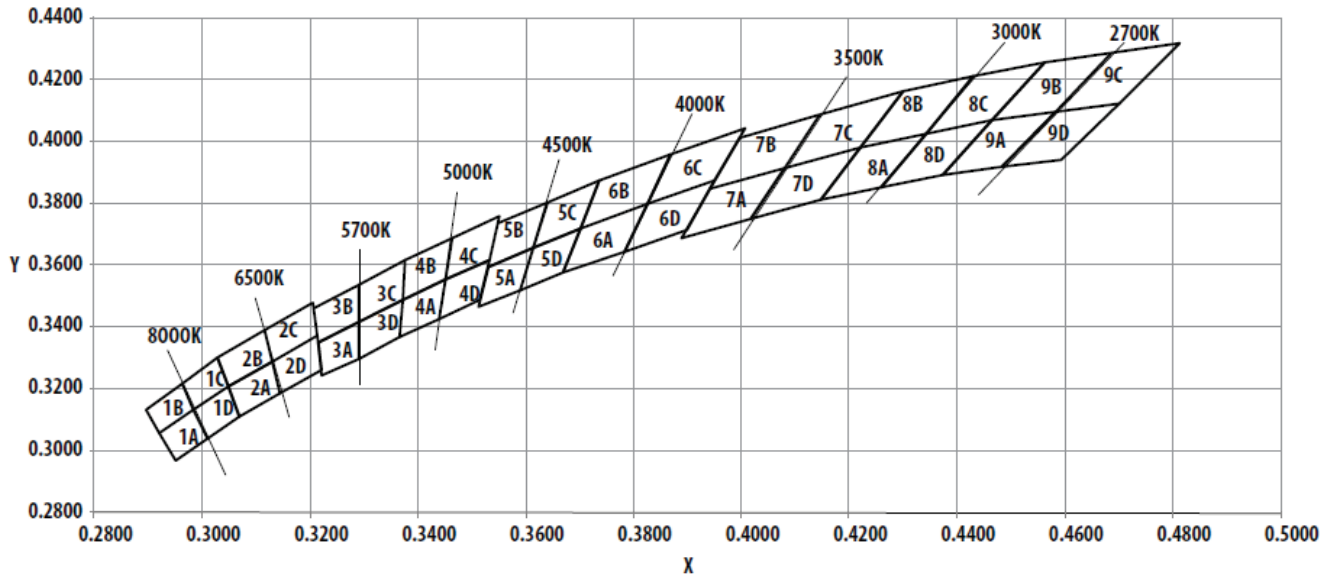
Figure 11. Color Bins

Packaging Option (X5)

Option	Test Current	Package Type	Reel Size
2	20mA	Top Mount	7 Inch

Forward Voltage Bin

Bin ID	Min	Max
F05	2.8	3.0
F06	3.0	3.2
F07	3.2	3.4
F08	3.4	3.6

Tolerance of each bin limit = ±0.1 V

For product information and a complete list of distributors, please go to our web site:
www.avagotech.com

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T E C H N O L O G I E S