ASMT-QWBG / ASMT-QWBH / ASMT-QWBJ
0.5W Cool White Power PLCC4
Surface Mount LED
Datasheet

CAUTION: Static sensitive device. Please observe appropriate precautions during handling and processing.

Description

The 0.5W Cool White Power PLCC4 SMT LED is using InGaN chip technology. The package can be driven at high current due to its superior package design. The product is able to dissipate the heat more efficiently. These LEDs produce higher light output with better flux performance.

The 0.5W Cool White Power PLCC4 SMT LEDs are designed for higher reliability, better performance, and operate under a wide range of environmental conditions.

To facilitate easy pick and place assembly, the LEDs are packed in EIA-compliant tape and reel. Every reel is shipped in single intensity and color bin, to provide close uniformity.

Features

(1) 4000K to 8000K CCT

(2) ANSI bin

(3) Wide view angle 120°

(4) High reliability package with enhanced silicone resin encapsulation

Applications

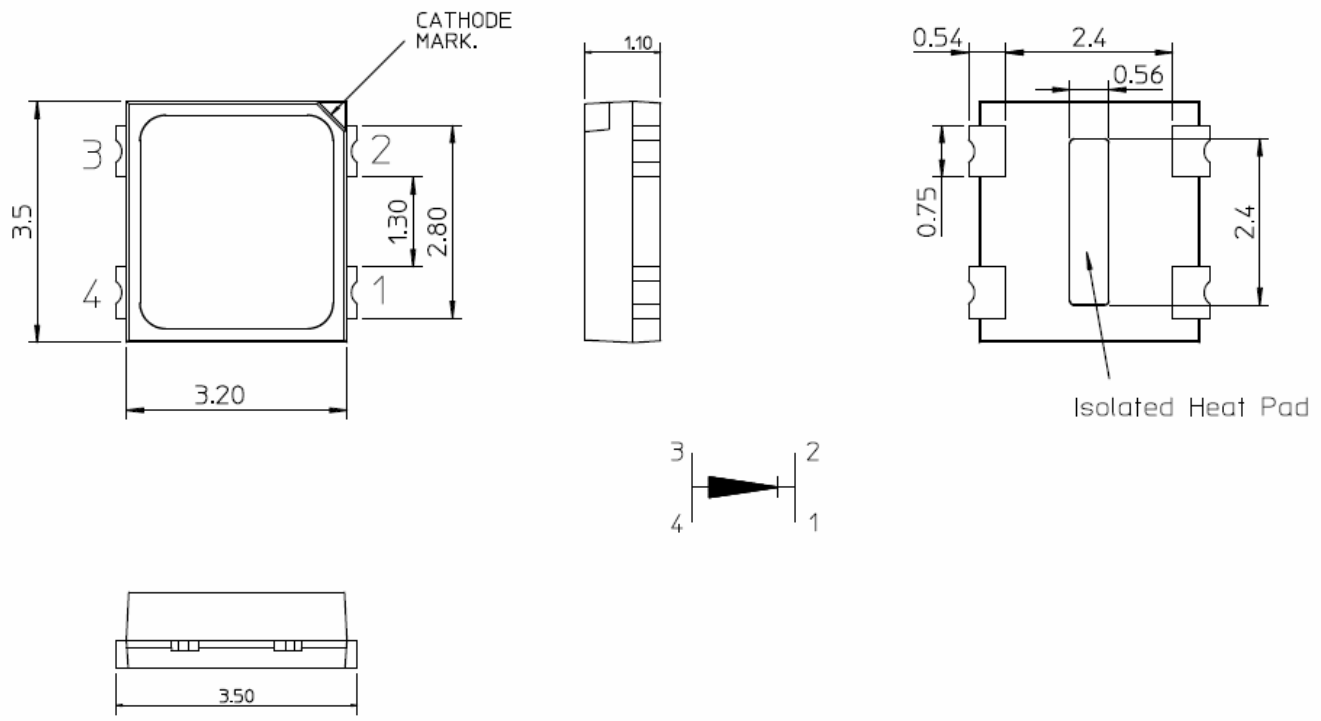
(1) Fluorescent replacement

(2) Under cabinet lighting

(3) Panel lights

(4) Retails display lighting

Package Drawing



1. Dimensions in mm.
2. Terminal Finish: Ag plating.

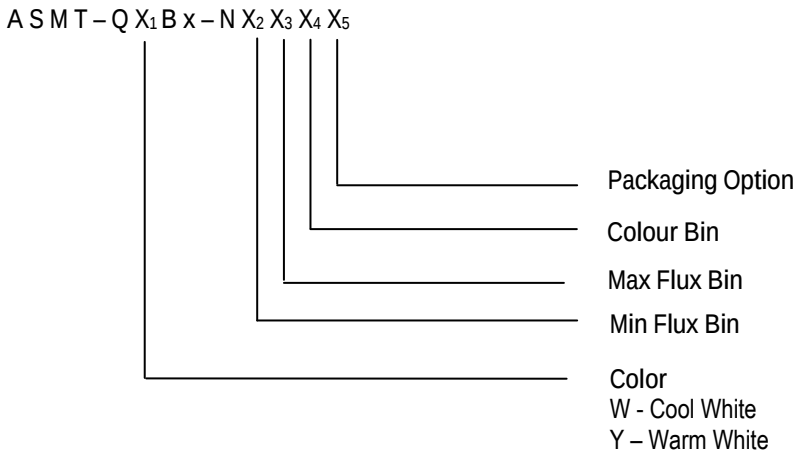
Device Selection Guide (T_J = 25 °C)

Color	Part Number	CCT (K)	CRI	Luminous Flux (lm)[1,2]			Test Current (mA)	Chip
			Typ	Min	Typ	Max		
Cool White	ASMT-QWBG-NFH0E	4000 ~ 8000	85	45.7	48.0	62.0	150	InGaN
Cool White	ASMT-QWBG-NFHAE	8000	85	45.7	48.0	62.0	150	InGaN
Cool White	ASMT-QWBG-NFHBE	6500	85	45.7	48.0	62.0	150	InGaN
Cool White	ASMT-QWBG-NFHCE	5700	85	45.7	48.0	62.0	150	InGaN
Cool White	ASMT-QWBG-NFHDE	5000	85	45.7	48.0	62.0	150	InGaN
Cool White	ASMT-QWBG-NFHEE	4500	85	45.7	48.0	62.0	150	InGaN
Cool White	ASMT-QWBG-NFHFE	4000	85	45.7	48.0	62.0	150	InGaN
Cool White	ASMT-QWBH-NGJ0E	4000 ~ 8000	75	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBH-NGJAE	8000	75	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBH-NGJBE	6500	75	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBH-NGJCE	5700	75	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBH-NGJDE	5000	75	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBH-NGJEE	4500	75	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBH-NGJFE	4000	75	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBJ-NGJ0E	4000 ~ 8000	60	51.7	54.3	67.2	150	InGaN

Cool White	ASMT-QWBJ-NGJAE	8000	60	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBJ-NGJBE	6500	60	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBJ-NGJCE	5700	60	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBJ-NGJDE	5000	60	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBJ-NGJEE	4500	60	51.7	54.3	67.2	150	InGaN
Cool White	ASMT-QWBJ-NGJFE	4000	60	51.7	54.3	67.2	150	InGaN

1. Luminous flux is the total luminous flux output as measured with an integrating sphere at mono pulse conditions.
2. Tolerance ±12%.

Part Numbering System



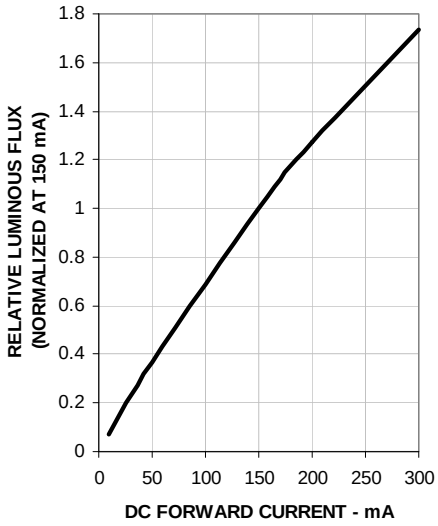
Absolute Maximum Ratings (T_A = 25 °C)

Parameter	Rating	Unit
DC Forward Current	180	mA
Peak Forward Current (D = 10%, f = 1kHz)	300	mA
Power Dissipation	640	mW
Reverse Voltage	Not recommended	V
Junction Temperature	125	°C
Operating Temperature	-40 to 100	°C
Storage Temperature	-40 to 100	°C

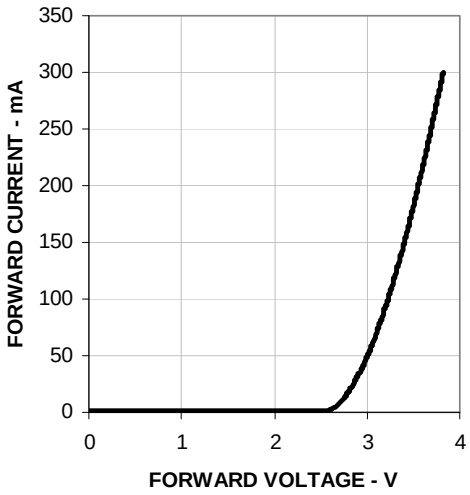
Optical / Electrical Characteristics (T_J = 25 °C)

Parameter	Test Condition	Min	Typ	Max	Unit
Viewing Angle $2\theta_{1/2}$ [1]			120		degree
Forward Voltage V_F [2]	I_F = 150mA		3.4	3.6	V
Thermal Resistance RTH	junction to pin		40		°C/W

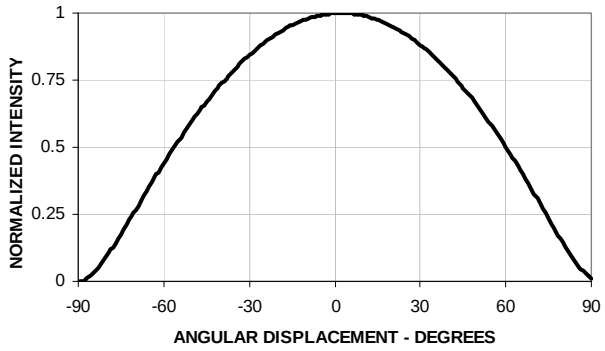
1. $\theta_{½}$ is the off-axis angle where the luminous intensity is ½ the peak intensity.
2. Tolerance ±0.1V.



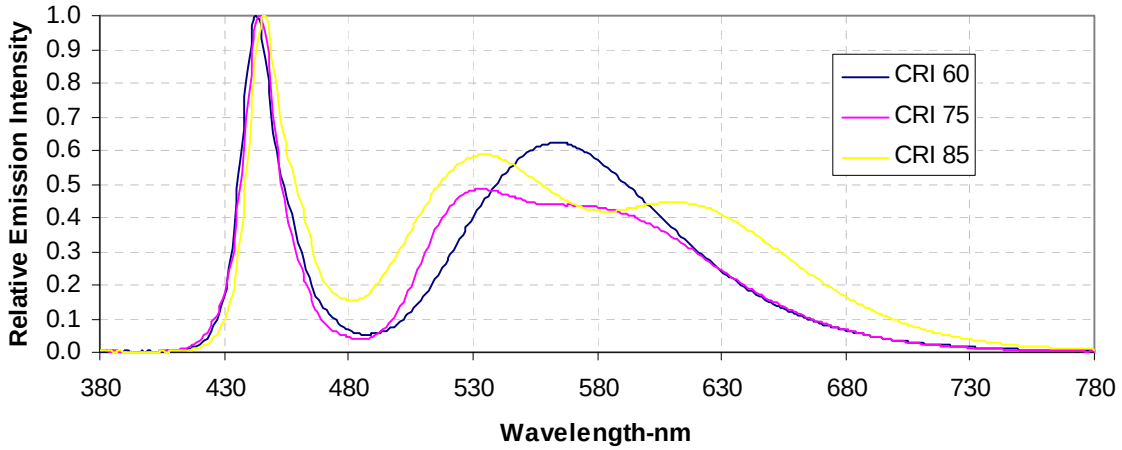
Relative Luminous Flux vs. Forward Current



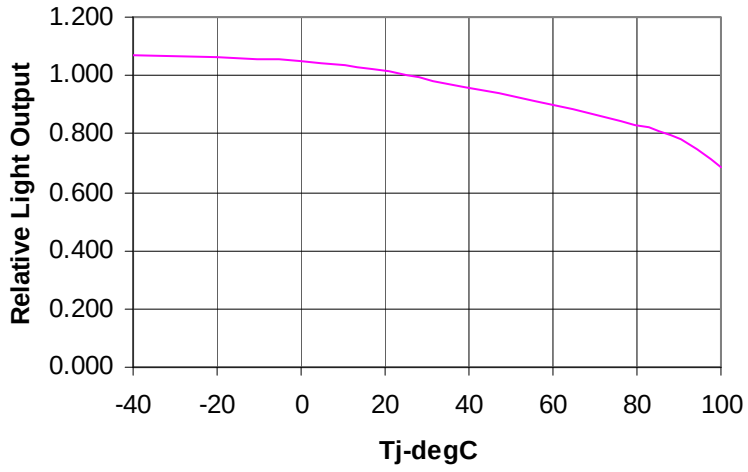
Forward Current vs. Forward Voltage



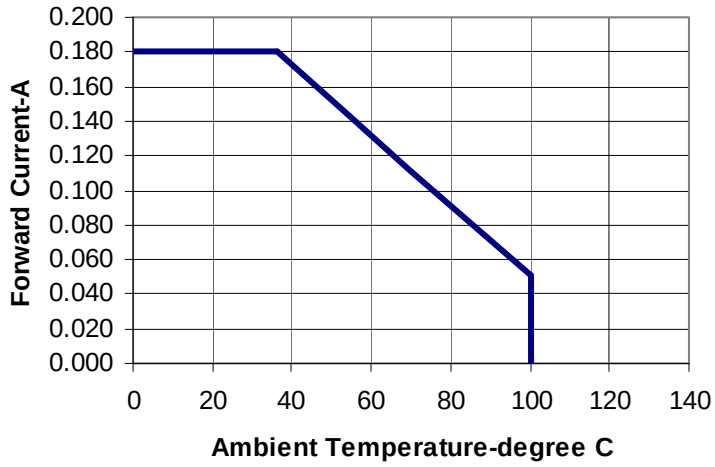
Radiation Diagram



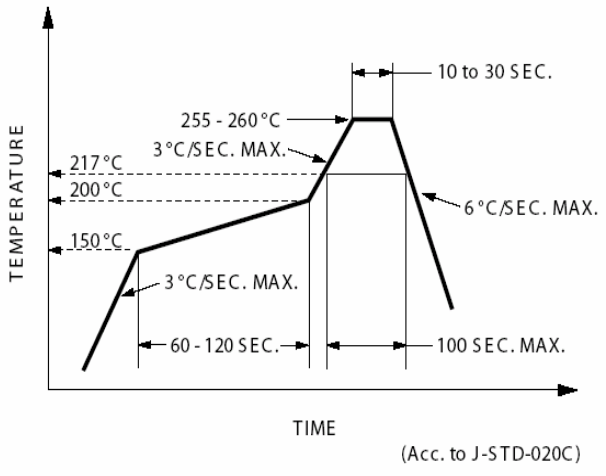
Spectrum Distribution



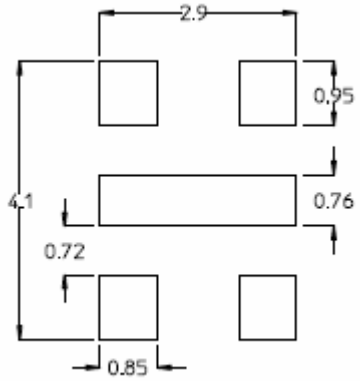
Relative Light Output



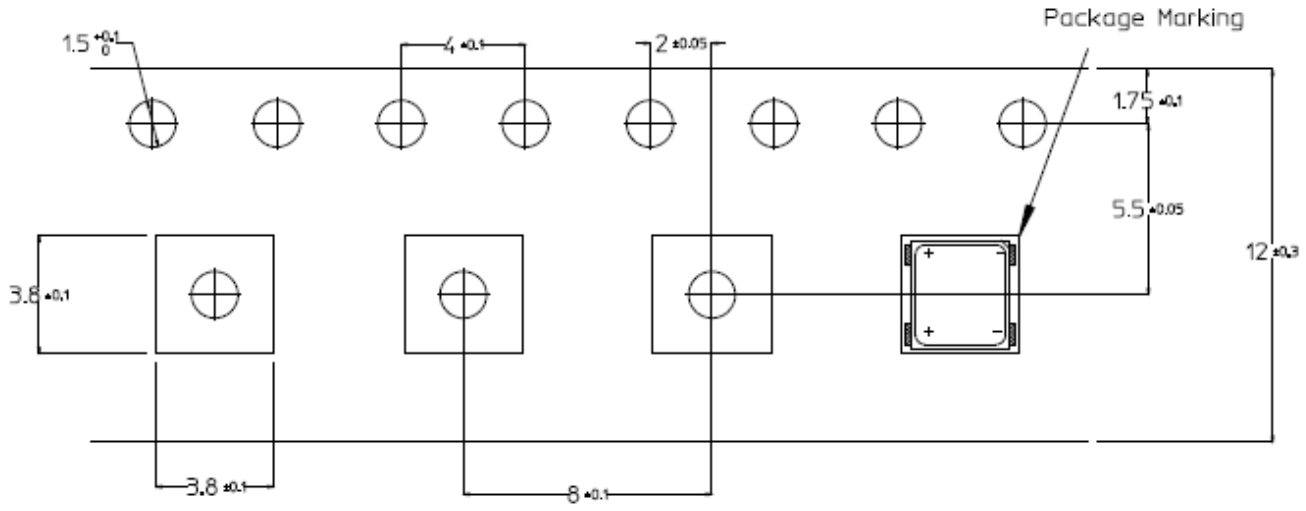
Forward Current Derating Curve. RTHja 130°C/W.



Recommended Pb Free Reflow Soldering Profile



Recommended Solder Pad



Carrier Tape

Handling Precaution

The encapsulation material of the product is made of silicone for better reliability of the product. As silicone is a soft material, please do not press on the silicone or poke a sharp object onto the silicone. These might damage the product and cause premature failure. During assembly or handling, the unit should be held on the body only.

Device Color (X_1)

W	Cool White
Y	Warm White

Flux Bin (X_2X_3)

Individual reel will contain parts from one bin only.

X_2	Min Flux Bin
X_3	Max Flux Bin

Bin	Min (lm)	Max (lm)
A	18.1	23.5
B	23.5	30.6
C	30.6	35.2
D	35.2	39.8
E	39.8	45.7
F	45.7	51.7
G	51.7	56.8
H	56.8	62

J	62.0	67.2
K	67.2	73.9

Tolerance ± 12%

Color Bin (X_4)

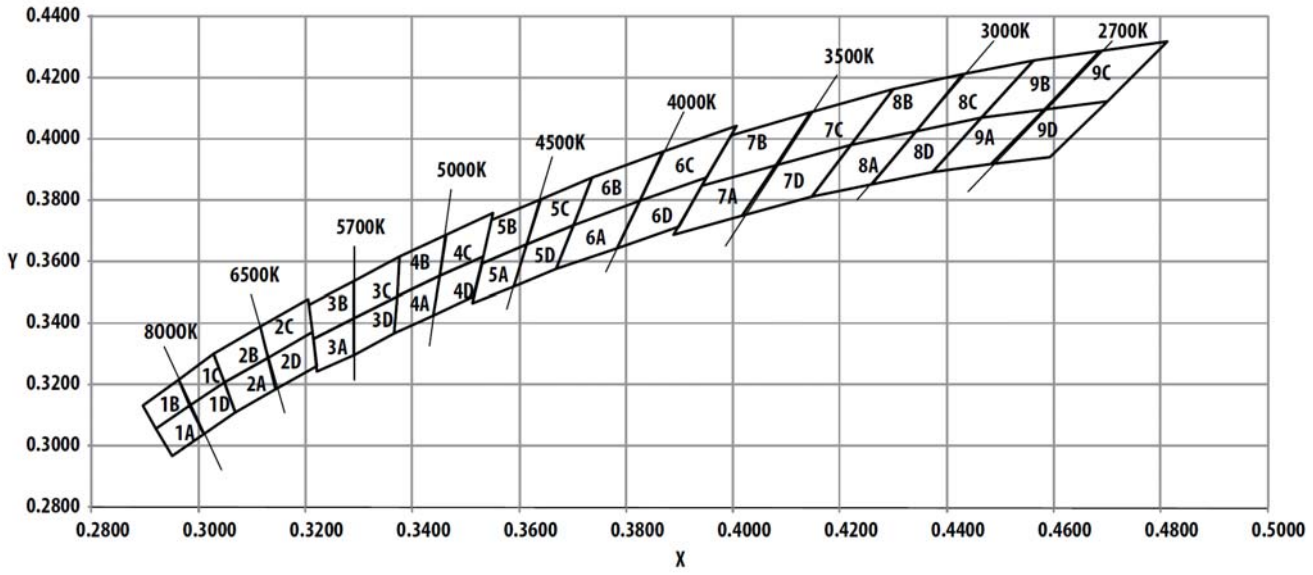
Individual reel will contain parts from one sub bin only.

Bin	Sub Bin
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
P	5A, 5B, 5C, 5D, 6A, 6B, 6C, 6D
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, 6A, 6B, 6C, 6D
1	7A, 7B, 7C, 7D, 8A, 8B, 8C, 8D, 9A, 9B, 9C, 9D

Sub Bin	Chromaticity Coordinates					
1A	x	0.2950	0.2920	0.2984	0.3009	
	y	0.2970	0.3060	0.3133	0.3042	
1B	x	0.2920	0.2895	0.2962	0.2984	
	y	0.3060	0.3135	0.3220	0.3133	
1C	x	0.2984	0.2962	0.3028	0.3048	
	y	0.3133	0.3220	0.3304	0.3207	
1D	x	0.2984	0.3048	0.3068	0.3009	
	y	0.3133	0.3207	0.3113	0.3042	
2A	x	0.3048	0.3130	0.3144	0.3068	
	y	0.3207	0.3290	0.3186	0.3113	
2B	x	0.3028	0.3115	0.3130	0.3048	
	y	0.3304	0.3391	0.3290	0.3207	
2C	x	0.3115	0.3205	0.3213	0.3130	
	y	0.3391	0.3481	0.3373	0.3290	
2D	x	0.3130	0.3213	0.3221	0.3144	
	y	0.3290	0.3373	0.3261	0.3186	
3A	x	0.3215	0.3290	0.3290	0.3222	
	y	0.3350	0.3417	0.3300	0.3243	
3B	x	0.3207	0.3290	0.3290	0.3215	
	y	0.3462	0.3538	0.3417	0.3350	
3C	x	0.3290	0.3376	0.3371	0.3290	
	y	0.3538	0.3616	0.3490	0.3417	
3D	x	0.3290	0.3371	0.3366	0.3290	
	y	0.3417	0.3490	0.3369	0.3300	
4A	x	0.3371	0.3451	0.3440	0.3366	
	y	0.3490	0.3554	0.3427	0.3369	
4B	x	0.3376	0.3463	0.3451	0.3371	
	y	0.3616	0.3687	0.3554	0.3490	

4C	x	0.3463	0.3551	0.3533	0.3451
	y	0.3687	0.3760	0.3620	0.3554
4D	x	0.3451	0.3533	0.3515	0.3440
	y	0.3554	0.3620	0.3487	0.3427
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
6A	x	0.3670	0.3702	0.3825	0.3783
	y	0.3578	0.3722	0.3798	0.3646
6B	x	0.3702	0.3736	0.3869	0.3825
	y	0.3722	0.3874	0.3958	0.3798
6C	x	0.3825	0.3869	0.4006	0.3950
	y	0.3798	0.3958	0.4044	0.3875
6D	x	0.3783	0.3825	0.3950	0.3898
	y	0.3646	0.3798	0.3875	0.3716
7A	x	0.3889	0.3941	0.4080	0.4017
	y	0.3690	0.3848	0.3916	0.3751
7B	x	0.3941	0.3996	0.4146	0.4080
	y	0.3848	0.4015	0.4089	0.3916
7C	x	0.4080	0.4146	0.4299	0.4221
	y	0.3916	0.4089	0.4165	0.3984
7D	x	0.4017	0.4080	0.4221	0.4147
	y	0.3751	0.3916	0.3984	0.3814
8A	x	0.4147	0.4221	0.4342	0.4259
	y	0.3814	0.3984	0.4028	0.3853
8B	x	0.4221	0.4299	0.4430	0.4342
	y	0.3984	0.4165	0.4212	0.4028
8C	x	0.4342	0.4430	0.4562	0.4465
	y	0.4028	0.4212	0.4260	0.4071
8D	x	0.4259	0.4342	0.4465	0.4373
	y	0.3853	0.4028	0.4071	0.3893
9A	x	0.4373	0.4465	0.4582	0.4483
	y	0.3893	0.4071	0.4099	0.3919
9B	x	0.4465	0.4562	0.4687	0.4582
	y	0.4071	0.4260	0.4289	0.4099
9C	x	0.4582	0.4687	0.4813	0.4700
	y	0.4099	0.4289	0.4319	0.4126
9D	x	0.4483	0.4582	0.4700	0.4593
	y	0.3919	0.4099	0.4126	0.3944

Tolerance ±0.01



Color Bin

Packaging Option (X_5)

Option	Test Current	Package Type	Reel Size
E	150mA	Top Mount	7 Inch