

ASMA-LYG1 / ASMT-LYH1
0.5W Warm White Power PLCC4
Surface Mount LED
Datasheet



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

Description

The Avago Technologies ASMA-LYx1 series 0.5W Warm White Power PLCC4 SMT LED lamps use InGaN chip technology and superior package design to enable them to produce higher light output with better flux performance. They can be driven at high current and are able to dissipate the heat more efficiently resulting in better performance with higher reliability. These lamps are able to operate under a wide range of environment conditions making them ideal for various applications including fluorescent lamp replacement, under cabinet lighting, retail display lighting, panel lights and cove lighting.

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.

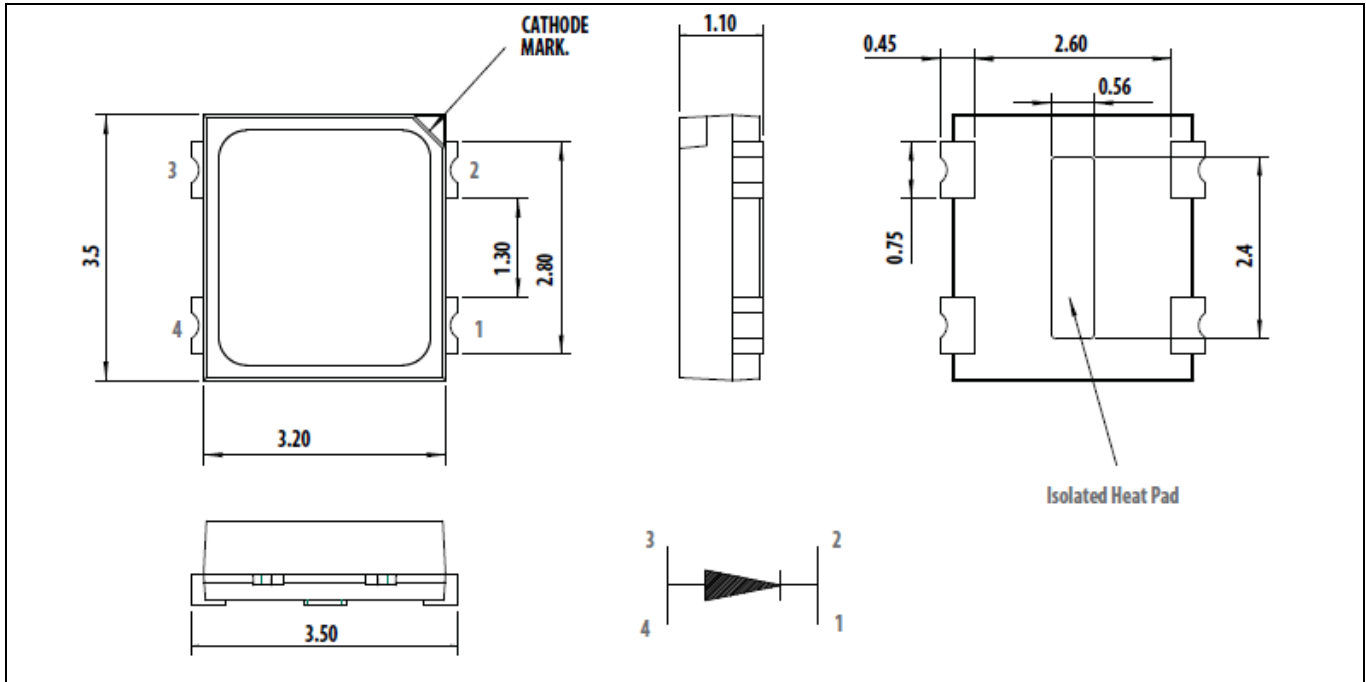
Features

- (1) 2700K to 3500K CCT
- (2) ANSI bin
- (3) Wide view angle 120°
- (4) High reliability package with enhanced silicone resin encapsulation

Applications

- (1) Fluorescent Lamp replacement
- (2) Under cabinet lighting
- (3) Panel lights
- (4) Retails display lighting
- (5) Cove Lighting

Package Drawing



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

Device Selection Guide

Color	Part Number	CCT (K)	CRI	Luminous Flux (lm) ^{1,2}			Test Current (mA)	Chip
				Typ	Min	Max		
Warm White	ASMA-LYG1-ZDF1E	2700~3500	85	35.2	40.0	51.7	150	InGaN
Warm White	ASMA-LYG1-ZDFGE	3500	85	35.2	40.0	51.7	150	InGaN
Warm White	ASMA-LYG1-ZDFHE	3000	85	35.2	40.0	51.7	150	InGaN
Warm White	ASMA-LYG1-ZDFJE	2700	85	35.2	40.0	51.7	150	InGaN
Warm White	ASMA-LYG1-ZDFRE	3000~3500	85	35.2	40.0	51.7	150	InGaN
Warm White	ASMA-LYG1-ZDFSE	2700~3000	85	35.2	40.0	51.7	150	InGaN
Warm White	ASMA-LYH1-ZEG1E	2700~3500	75	39.8	43.0	56.8	150	InGaN
Warm White	ASMA-LYH1-ZEGGE	3500	75	39.8	43.0	56.8	150	InGaN
Warm White	ASMA-LYH1-ZEGHE	3000	75	39.8	43.0	56.8	150	InGaN
Warm White	ASMA-LYH1-ZEGJE	2700	75	39.8	43.0	56.8	150	InGaN
Warm White	ASMA-LYH1-ZEGRE	3000~3500	75	39.8	43.0	56.8	150	InGaN
Warm White	ASMA-LYH1-ZEGSE	2700~3000	75	39.8	43.0	56.8	150	InGaN

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

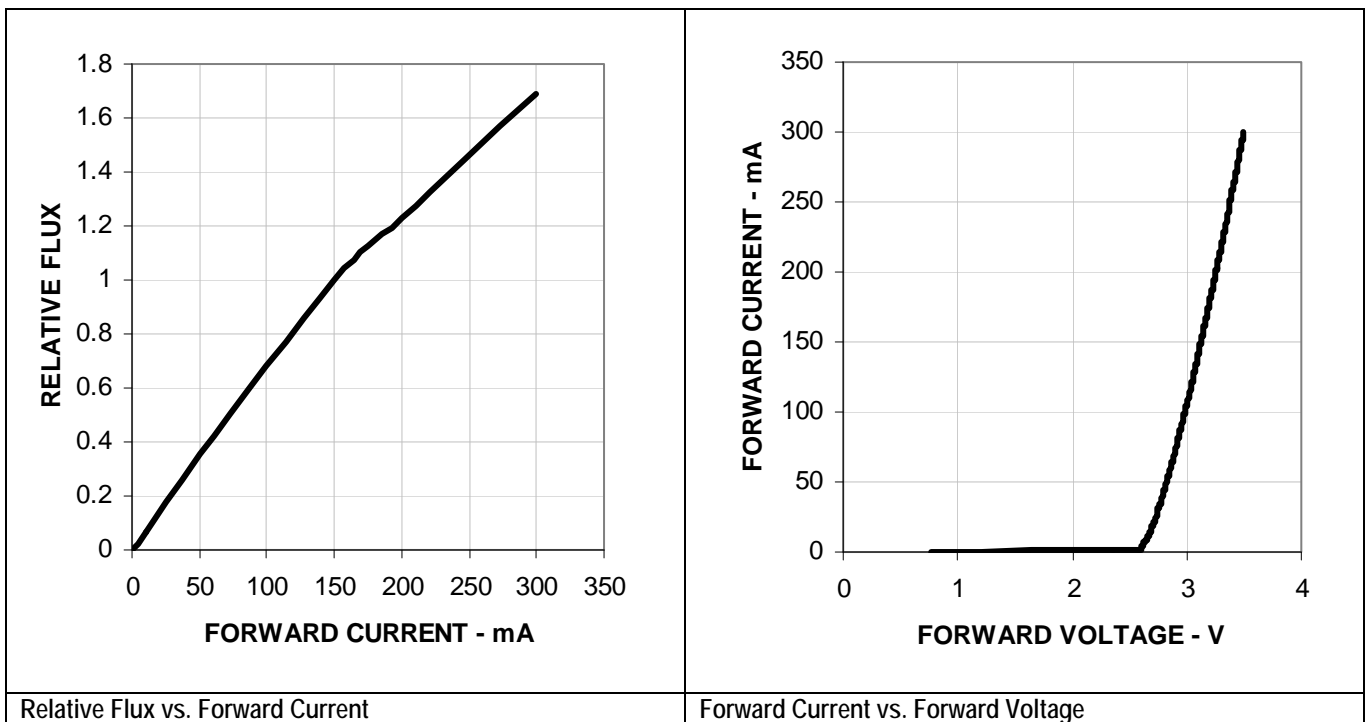
Absolute Maximum Ratings ($T_A = 25\text{ }^\circ\text{C}$)

Parameter	Rating	Unit
DC Forward Current	150	mA
Peak Forward Current (Duty Factor 10%, Frequency 1kHz)	300	mA
Power Dissipation	525	mW
Reverse Voltage	Not recommended	V
Junction Temperature	125	$^\circ\text{C}$
Operating Temperature	-40 to 100	$^\circ\text{C}$
Storage Temperature	-40 to 100	$^\circ\text{C}$

Optical / Electrical Characteristics ($T_J = 25\text{ }^\circ\text{C}$)

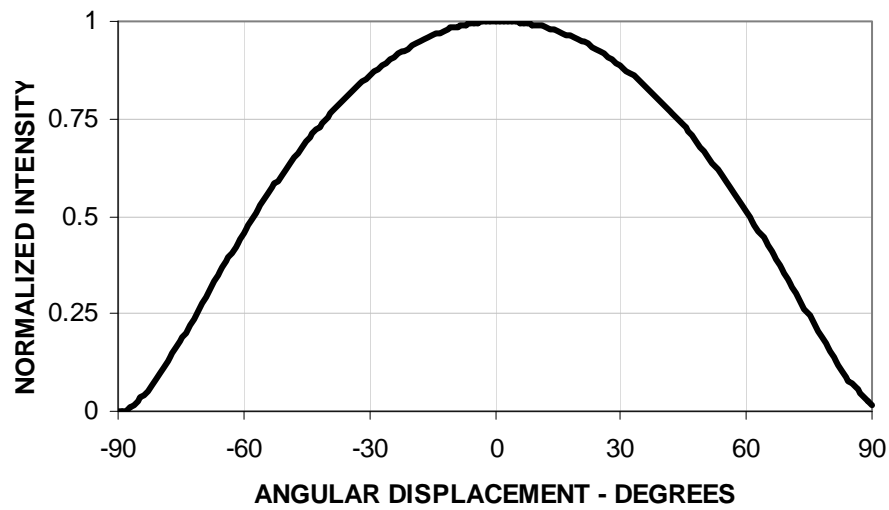
Parameter	Test Condition	Min	Typ	Max	Unit
Viewing Angle $2\theta_{1/2}$ ¹	$I_F = 20\text{mA}$		120		degree
Forward Voltage V_F ²	$I_F = 150\text{mA}$	2.8	3.2	3.5	V
Thermal Resistance R_{th}	junction to pin		50		$^\circ\text{C/W}$

- $\theta_{1/2}$ is the off-axis angle where the luminous intensity is $\frac{1}{2}$ the peak intensity.
- Tolerance $\pm 0.1\text{V}$.

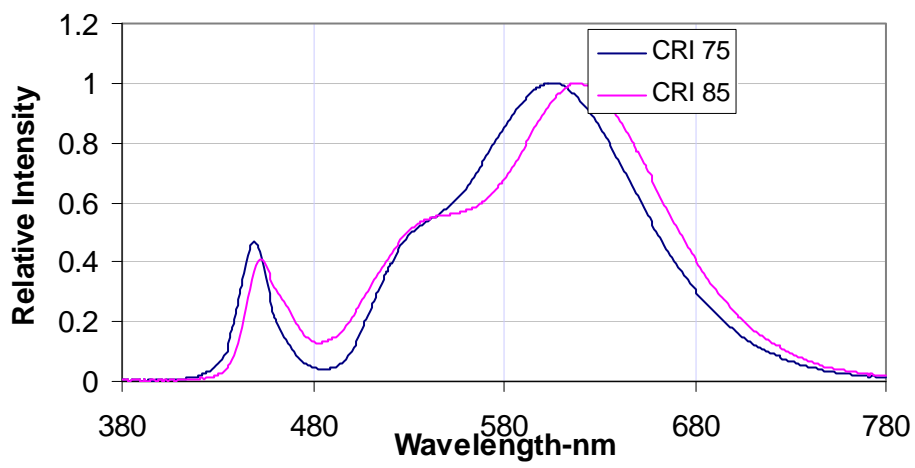


Relative Flux vs. Forward Current

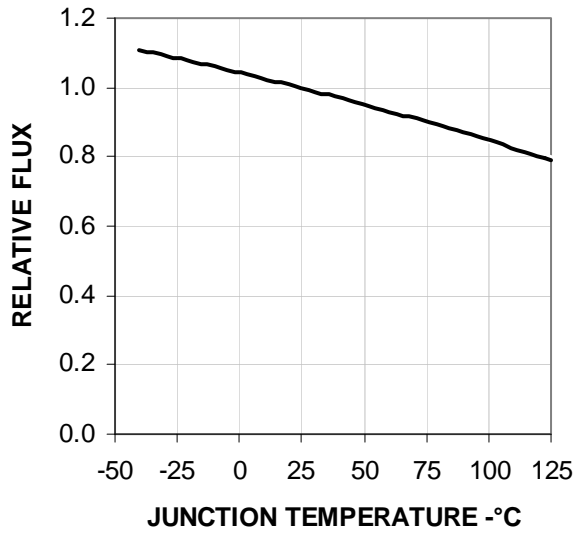
Forward Current vs. Forward Voltage



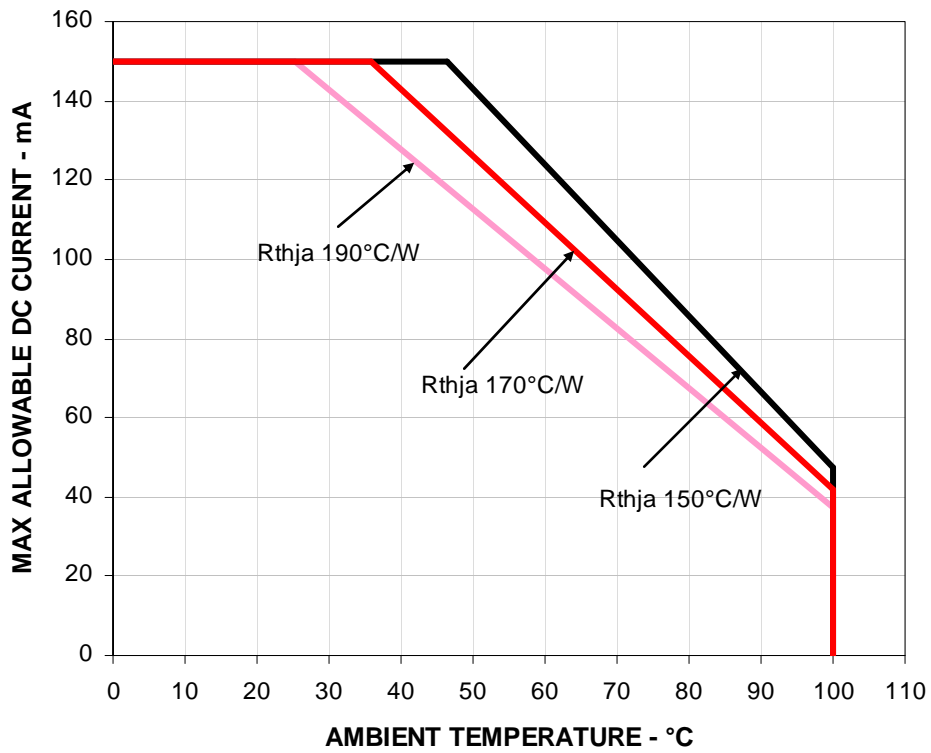
Radiation Pattern



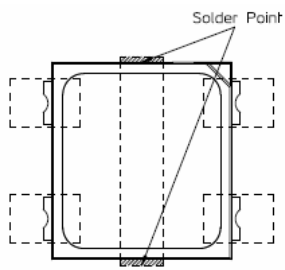
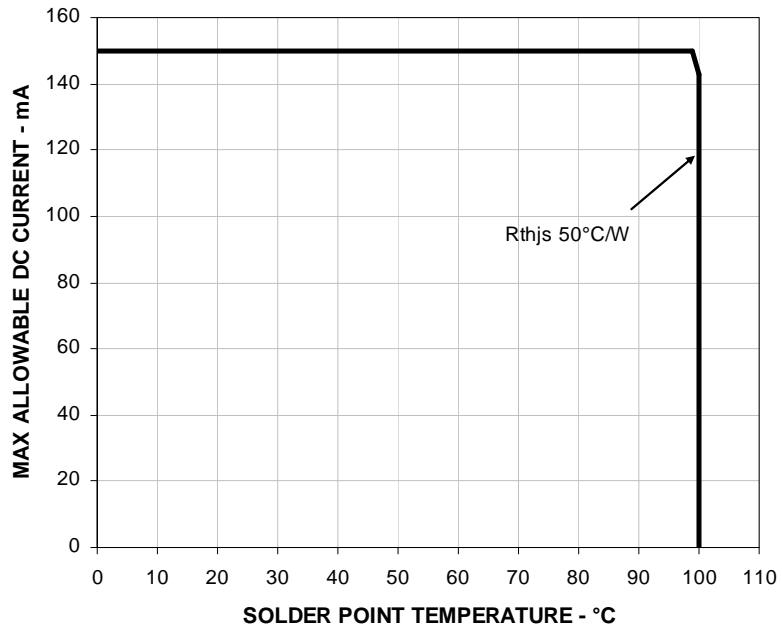
Relative Intensity vs. Wavelength



Relative Flux vs. Temperature

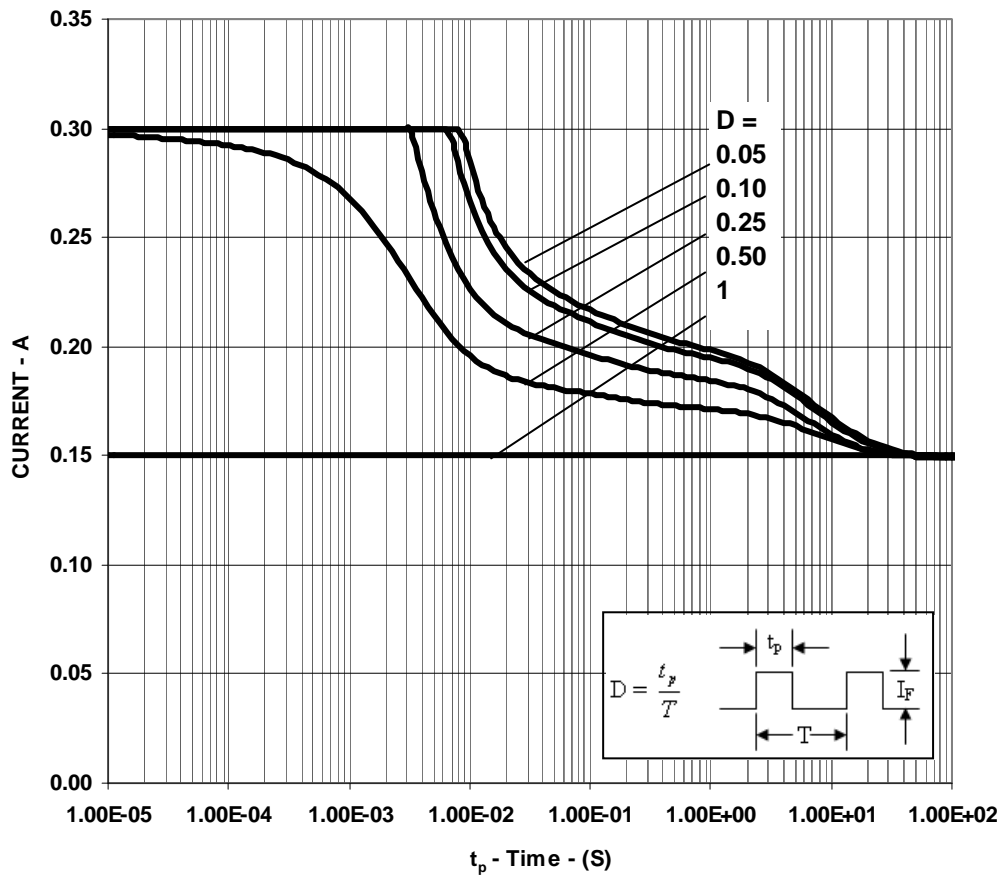


Maximum DC Current vs. Ambient Temperature



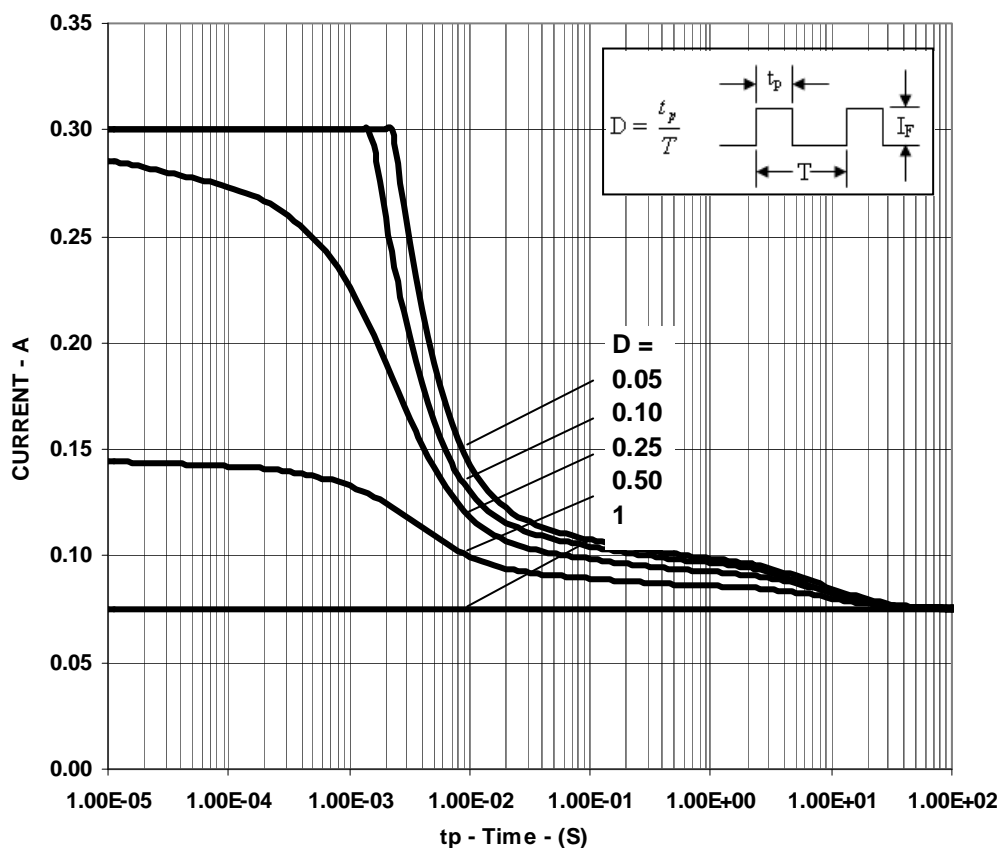
Maximum DC Current vs. Solder Point Temperature

Duty cycle D = parameter, T_A = 25°C

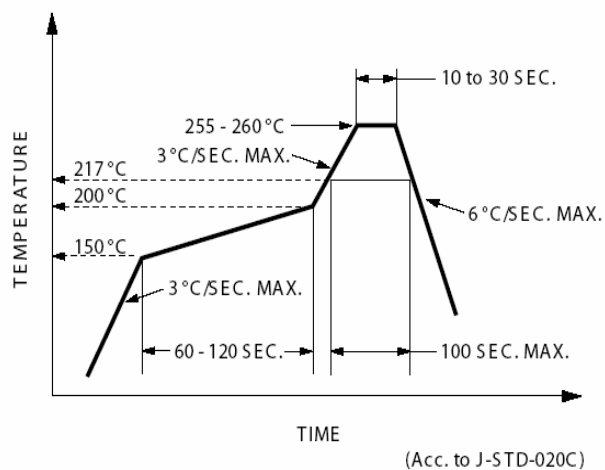


Maximum Pulse Current vs. Time

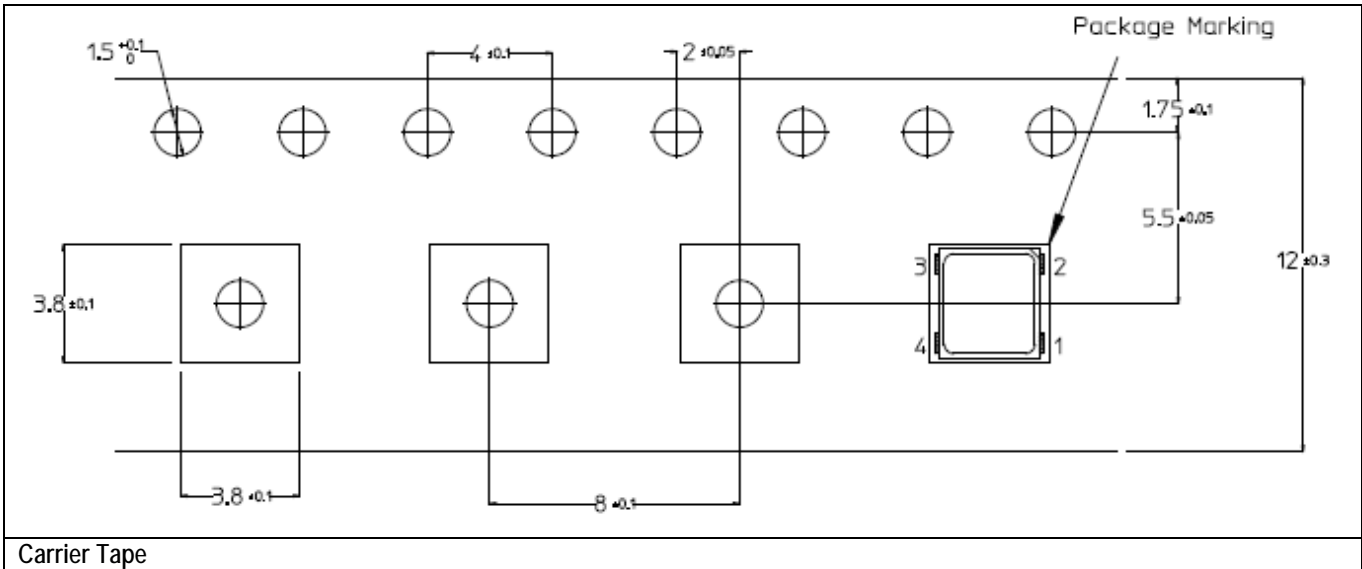
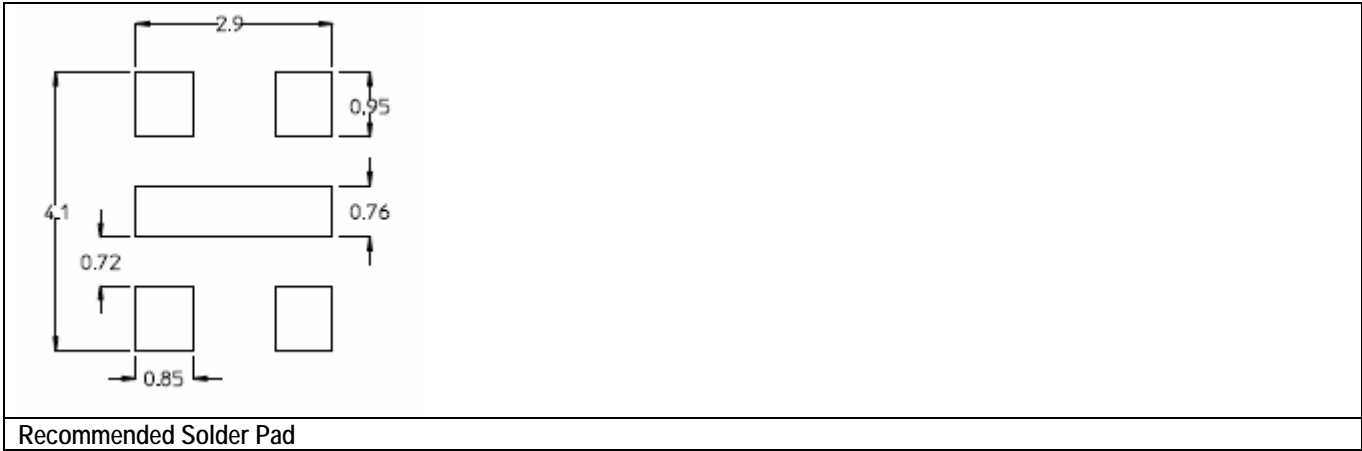
Duty cycle $D =$ parameter, $T_A = 85^\circ\text{C}$



Maximum Pulse Current vs. Time



Recommended Pb Free Reflow Soldering Profile



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.

Part Numbering System

ASMA-LYG1-NX1X2X3E

ASMA-LYH1-NX1X2X3E

G: Color Rendering Index ≥ 80

H: Color Rendering Index ≥ 70

X1: Min Flux Bin

X2: Max Flux Bin

X3: Color Bin

E: Packaging Option

Flux Bin

Individual reel will contain parts from one bin only.

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 $\pm 12\%$

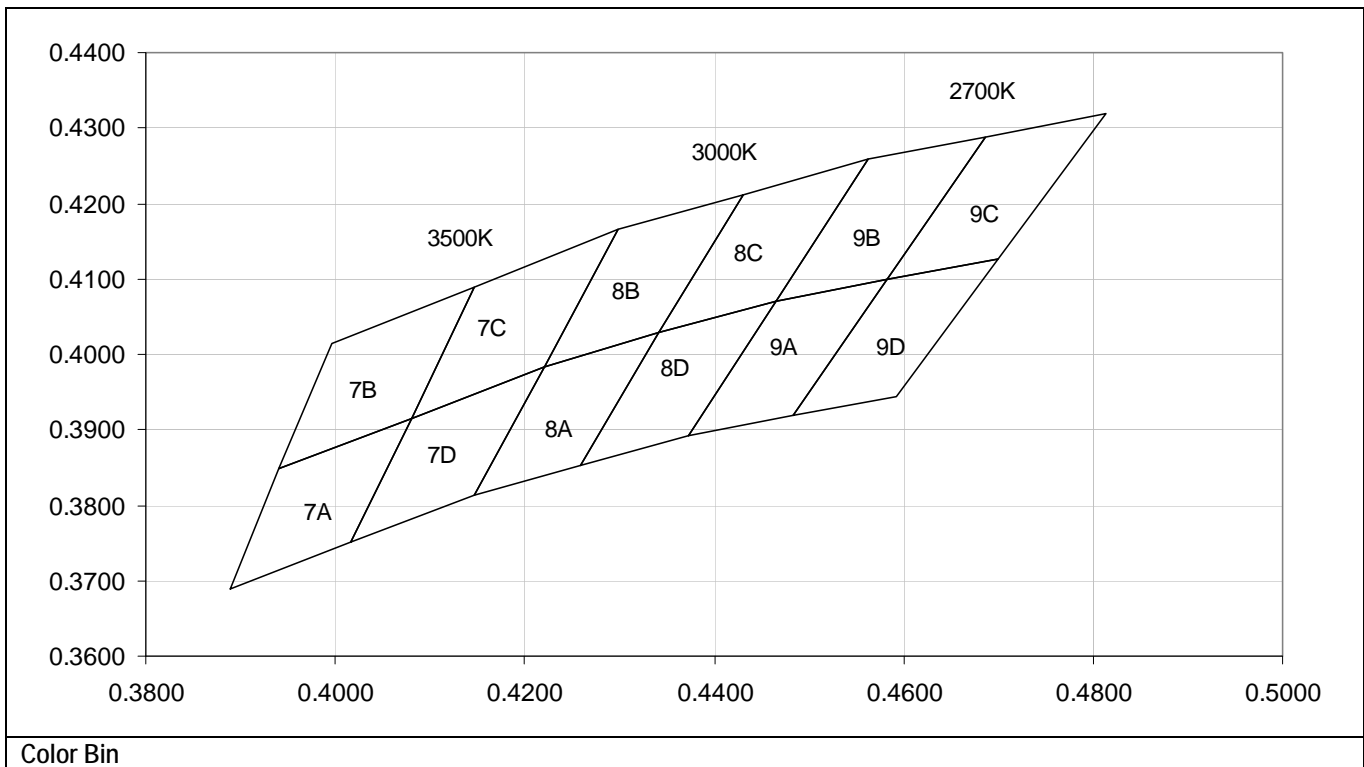
Color Bin

Individual reel will contain parts from one sub bin only.

Bin	Sub Bin
G	7A, 7B, 7C, 7D
H	8A, 8B, 8C, 8D
J	9A, 9B, 9C, 9D
R	7A, 7B, 7C, 7D, 8A, 8B, 8C, 8D
S	8A, 8B, 8C, 8D, 9A, 9B, 9C, 9D
1	7A, 7B, 7C, 7D, 8A, 8B, 8C, 8D, 9A, 9B, 9C, 9D

Sub Bin	Chromaticity Coordinates				
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



Packaging Option

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

Forward Voltage Bin

Bin	Min (V)	Max (V)
F05	2.8	3.0
F06	3.0	3.2
F07	3.2	3.4
F08	3.4	3.6

Tolerance $\pm 0.1V$

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