

ASMT-MY00

1W Power LED Light Source



Data Sheet



Lead (Pb) Free
RoHS 6 fully
compliant



Description

Avago Technologies' 1W Warm White Power LED is a high performance energy efficient device which can handle high thermal and high driving current. The exposed pad design has excellent heat transfer from the package to the motherboard.

The Warm White Power LED is available in various color temperature ranging from 2600K to 4000K. The product has high Color Rendering Index (CRI) which provides excellent color perception and visual clarity.

The package provides an all in all ease of assembly by automated soldering processes. The low package profile is ideal for assemblies with height constraints.

Applications

- Reading light
- Architectural lighting
- Garden lighting
- Decorative lighting
- Specialty lighting

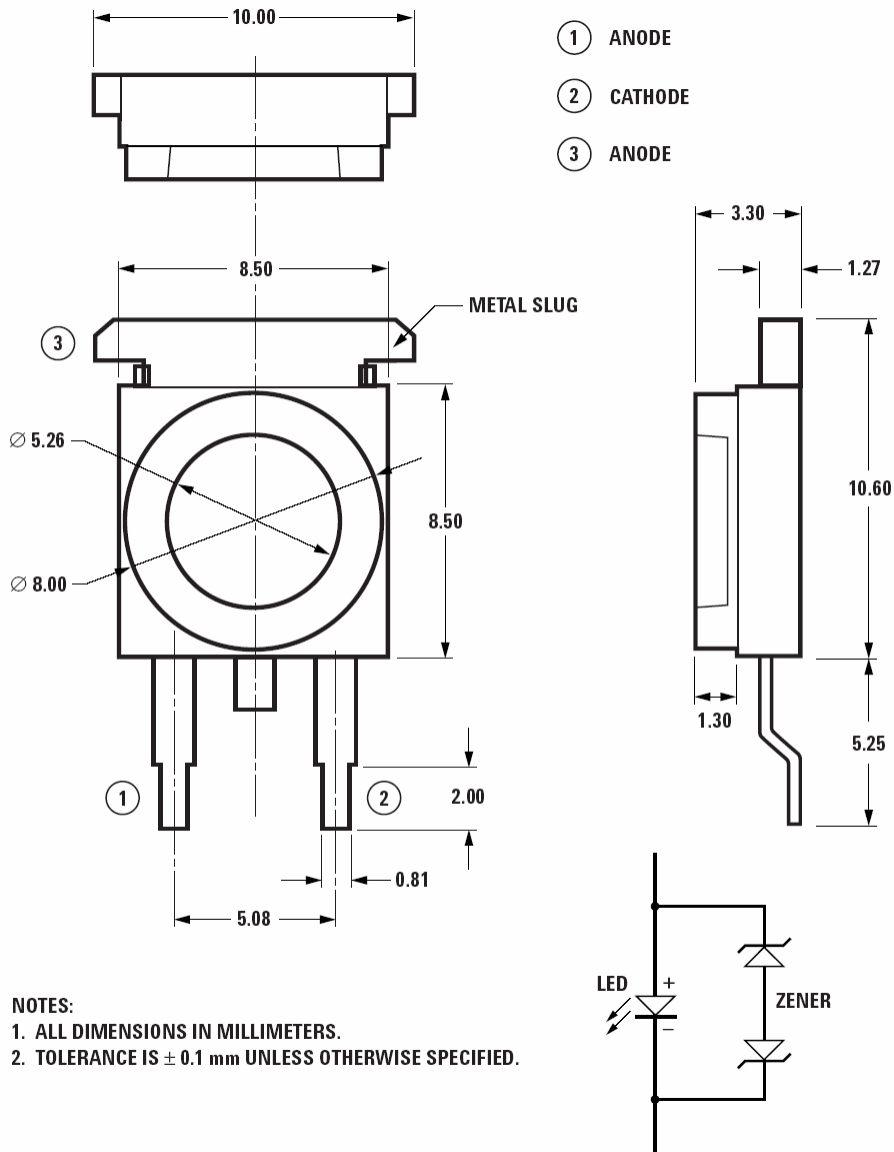
Features

- Available in Warm White color.
- Energy efficient
- Exposed pad for excellent heat transfer.
- Suitable for reflow soldering process.
- High current operation.
- Long operation life.
- Wide viewing angle.
- Silicone encapsulation
- Non ESD sensitive
- MSL 2A

Specifications

- InGaN Technology
- 3.6V, 350 mA (Typ.)
- 110 viewing angle

Package Dimensions



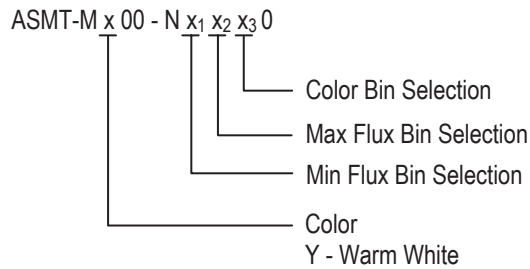
Device Selection Guide at Junction Temperature $T_j = 25^\circ\text{C}$

Color	Part Number	Luminous Flux, $\Phi_v^{[1,2]}$ (lm)			Test Current (mA)	Dice Technology
		Min	Typ	Max		
Warm White	ASMT-MY00	43.0	50.0	73.0	350	InGaN

Notes:

1. Φ_v is the total luminous flux output as measured with an integrating sphere at 25ms mono pulse condition.
2. Flux tolerance is $\pm 10\%$

Part Numbering System



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

Parameter	ASMT-MY00	Units
DC Forward Current ^[1]	350	mA
Peak Pulsing Current ^[2]	500	mA
Power Dissipation	1400	mW
LED Junction Temperature	110	$^\circ\text{C}$
Operating Ambient Temperature Range	-40 to +85	$^\circ\text{C}$
Storage Temperature Range	-40 to +100	$^\circ\text{C}$
Soldering Temperature	Refer to figure 6	

Note:

1. DC forward current – derate linearly based on Figure 5.
2. Pulse condition duty factor = 10%, Frequency = 1kHz.

Optical Characteristics ($T_A = 25^\circ\text{C}$)

Part Number	Color	Correlated Color Temperature, CCT (Kelvin)		Viewing Angle $2\theta_{1/2}$ ^[1] (Degrees)	Luminous Efficiency (lm/W)
		Min	Max	Typ	Typ
ASMT-MY00	Warm White	2600	4000	110	40

Notes:

1. $\theta_{1/2}$ is the off-axis angle where the luminous intensity is $1/2$ the peak intensity.

Electrical Characteristic ($T_A = 25^\circ\text{C}$)

Dice Type	Forward Voltage V_F (Volts) @ $I_F = 350\text{mA}$		Reverse Voltage V_R ^[1]	Thermal Resistance $R\theta_{j-ms}$ ($^\circ\text{C/W}$) ^[2]
	Typ	Max.		Typ.
InGaN	3.6	4.0	Not recommended	10

Note:

1. Not designed for reverse bias operation.
2. $R\theta_{j-ms}$ is Thermal Resistance from LED junction to metal slug.

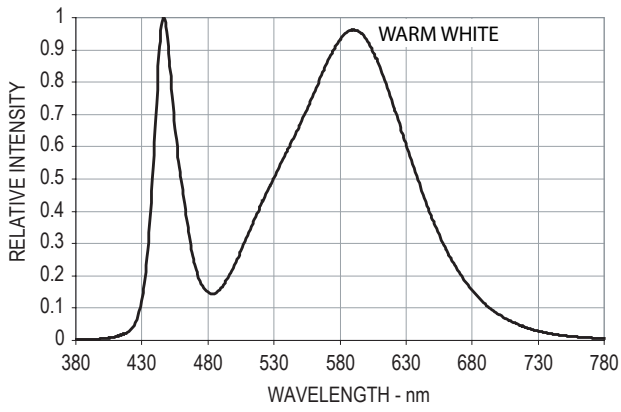


Figure 1. Relative intensity vs. wavelength

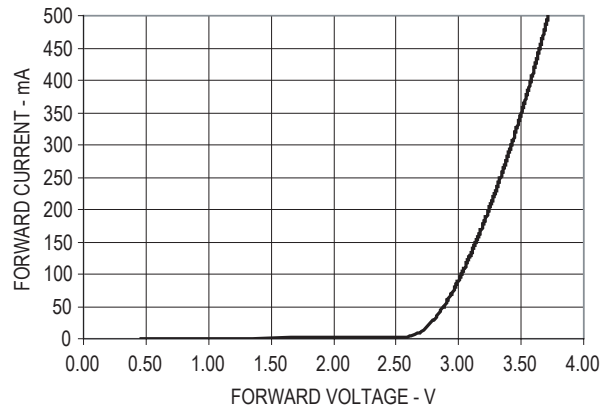


Figure 2. Forward Current vs Forward Voltage

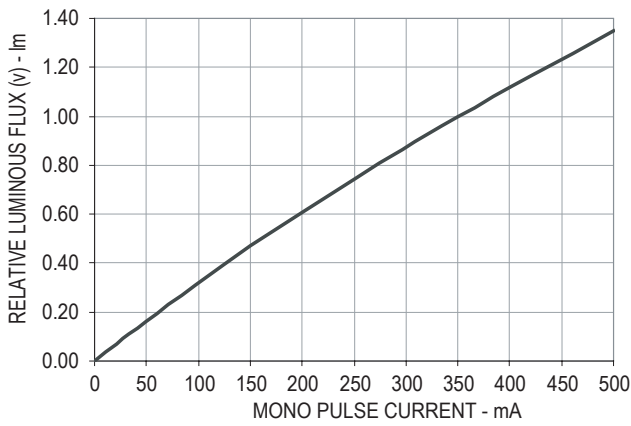


Figure 3. Relative Luminous Flux vs. Mono Pulse Current

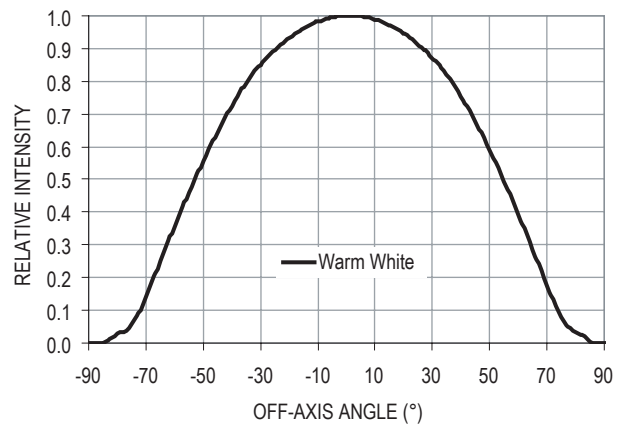


Figure 4. Radiation Pattern

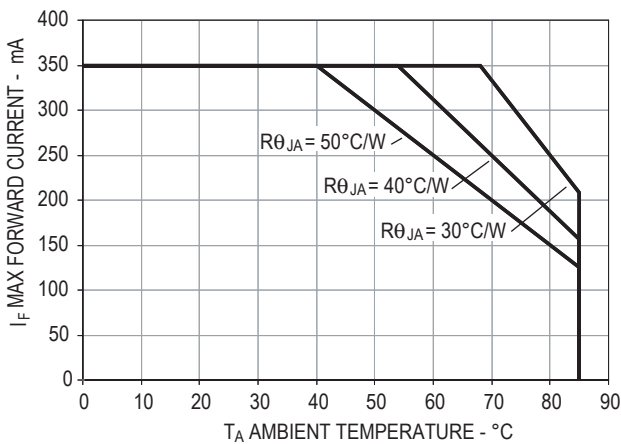


Figure 5. Maximum forward current vs. ambient temperature
 Derated based on $T_{JMAX} = 110^{\circ}C$, $R_{\theta JA} = 30^{\circ}C/W / 40^{\circ}C/W$ and $50^{\circ}C/W$

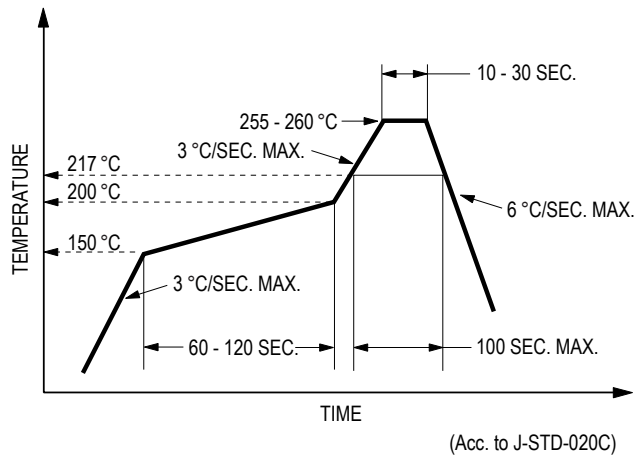


Figure 6. Recommended Reflow Soldering

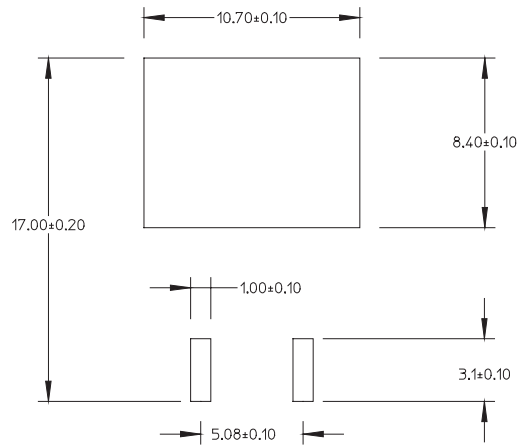


Figure 7. Recommended soldering land pattern

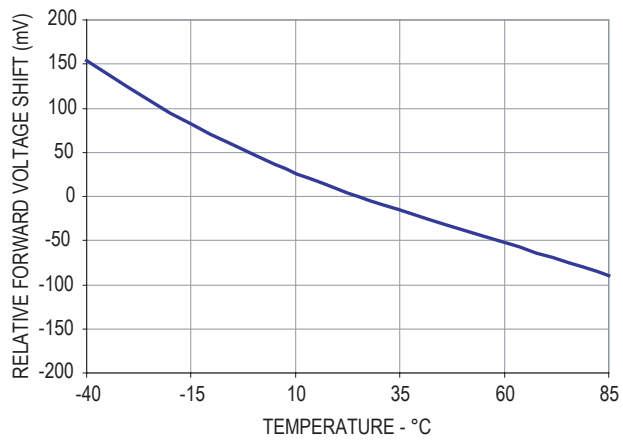


Figure 8. Temperature vs. relative forward voltage shift

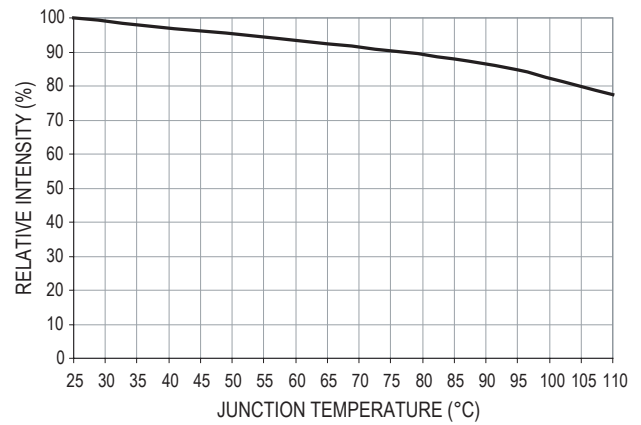


Figure 9. Relative LOP vs. junction temperature

Flux Bin Limit (For reference only) [X₁ X₂]

Bin	Flux (lm) at 350mA	
	Min	Max
J	43.0	56.0
K	56.0	73.0

Tolerance for each bin limits is $\pm 10\%$

Color Bin Selections [X₃]

Individual reel will contain parts from one full bin only.

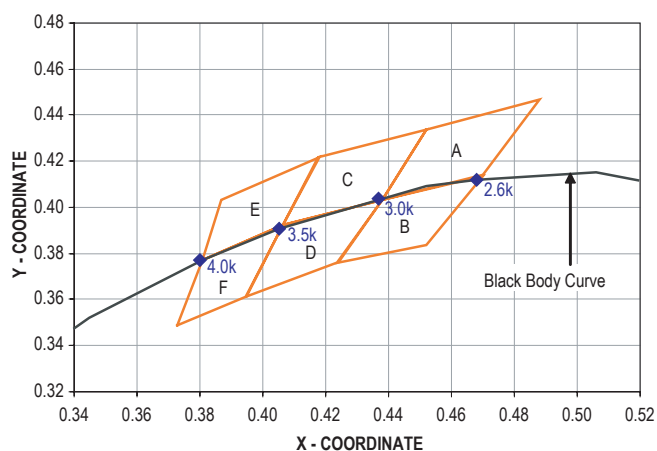
O	Full Distribution
A	A only
B	B only
C	C only
D	D only
E	E only
F	F only
Z	A and B only
Y	B and C only
W	C and D only
V	D and E only
U	E and F only
Q	A, B and C only
P	B, C and D only
N	C, D and E only
M	D, E and F only
J	Special Color Bin
1	A, B, C and D only
2	E, F, G and H only
3	B, C, D and E only
4	C, D, E and F only
5	A, B, C, D and E only
6	B, C, D, E, and F only

White Color Limits

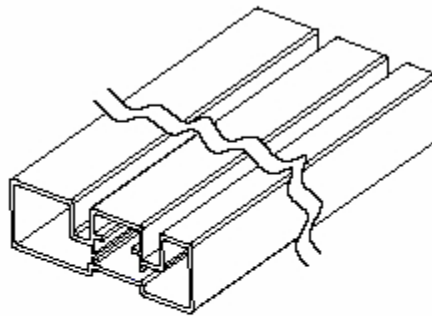
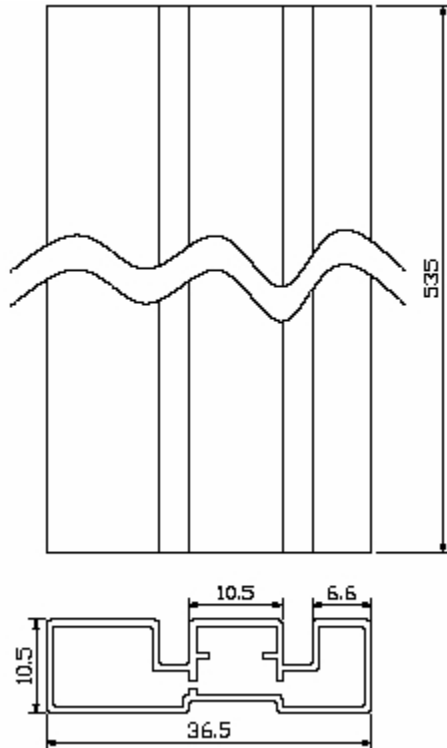
(Chromaticity Coordinates)

White	Color Limits (Chromaticity Coordinates)				
Bin A	X	0.452	0.488	0.470	0.438
	Y	0.434	0.447	0.414	0.403
Bin B	X	0.438	0.470	0.452	0.424
	Y	0.403	0.414	0.384	0.376
Bin C	X	0.407	0.418	0.452	0.438
	Y	0.393	0.422	0.434	0.403
Bin D	X	0.395	0.407	0.438	0.424
	Y	0.362	0.393	0.403	0.376
Bin E	X	0.381	0.387	0.418	0.407
	Y	0.377	0.404	0.422	0.393
Bin F	X	0.373	0.381	0.407	0.395
	Y	0.349	0.377	0.393	0.362

Tolerances ± 0.01



Package Tube Dimensions



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 (white epoxy).

Moisture Sensitivity

This product is classified as moisture sensitive level 2A

When the bag is opened, parts required to mount within 672 hours of factory conditions $\leq 30^{\circ}\text{C}/60\%$, and stored at $<10\%$ RH.

Devices required bake, before mounting if:

- The humidity indicator card is $>10\%$ when read at $23\pm 5^{\circ}\text{C}$
 - The pack has been opened for more than 672 hours.
- Baking recommended condition: $60\pm 5^{\circ}\text{C}$ for 20 hours.

DISCLAIMER: AVAGO'S PRODUCTS AND SOFTWARE ARE NOT SPECIFICALLY DESIGNED, MANUFACTURED OR AUTHORIZED FOR SALE AS PARTS, COMPONENTS OR ASSEMBLIES FOR THE PLANNING, CONSTRUCTION, MAINTENANCE OR DIRECT OPERATION OF A NUCLEAR FACILITY OR FOR USE IN MEDICAL DEVICES OR APPLICATIONS. CUSTOMER IS SOLELY RESPONSIBLE, AND WAIVES ALL RIGHTS TO MAKE CLAIMS AGAINST AVAGO OR ITS SUPPLIERS, FOR ALL LOSS, DAMAGE, EXPENSE OR LIABILITY IN CONNECTION WITH SUCH USE.

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

Avago, Avago Technologies, and the A logo are trademarks of Avago Technologies, Limited in the United States and other countries. Data subject to change. Copyright © 2007 Avago Technologies Limited. All rights reserved. AV02-0522EN - June 26, 2007