

# ASMT-MxE0

## 3W Diffused Power LED Light Source

### Preliminary Datasheet



#### Description

3W Diffused Power LED Light Source 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 low profile package design is suitable for a wide variety of applications especially where height is a constraint.

The package is compatible with reflow soldering process. This will give more freedom and flexibility to the light source designer.

#### Features

- Available in Cool White color.
- Energy efficient
- Exposed pad for excellent heat transfer.
- Suitable for reflow soldering process.
- High current operation up to 700mA.
- Long operation life.
- Wide viewing angle.
- Silicone encapsulation
- ESD of 16kV
- MSL 4

#### Specifications

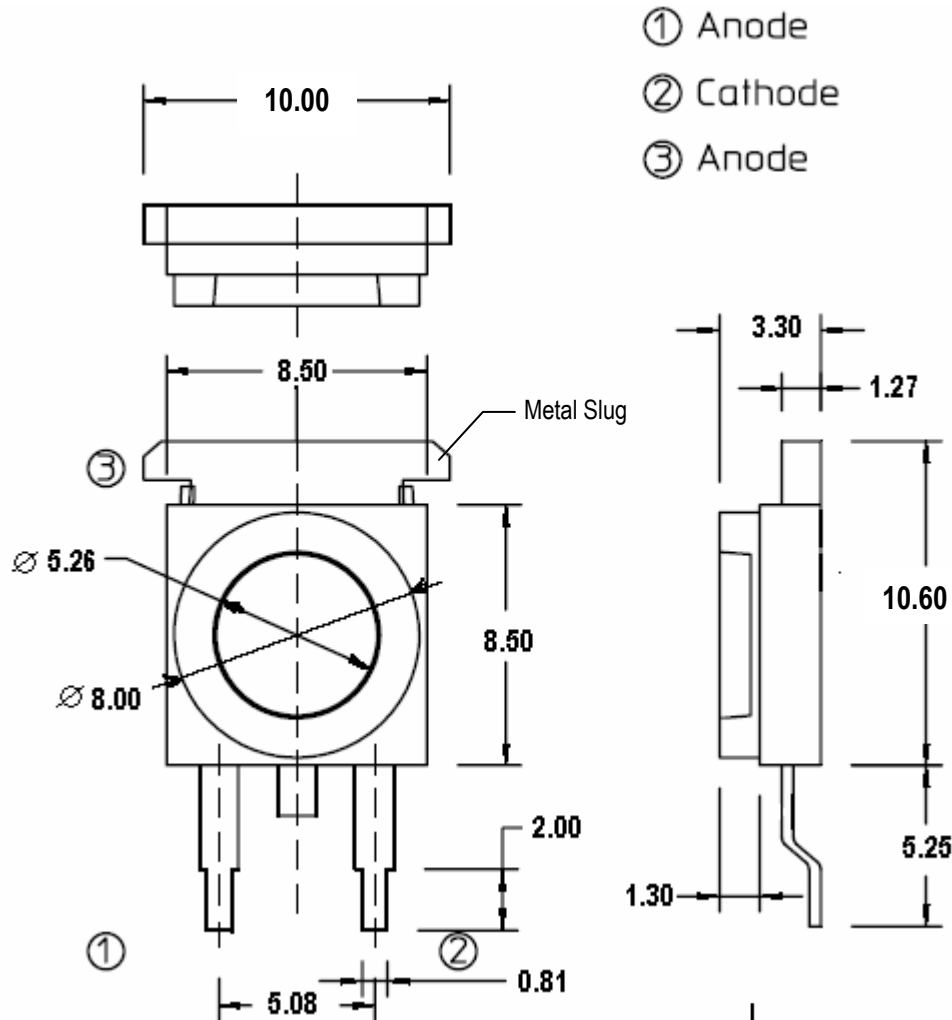
- InGaN Technology
- 4.0V, 700 mA (Max)
- 110 viewing angle

#### Applications

- Portable (flash light, bicycle head light)
- Reading light
- Architectural lighting
- Garden lighting
- Decorative lighting
- Backlighting
- General lighting

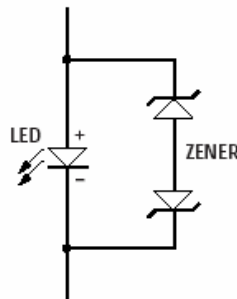
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## Package Dimensions



### NOTES:

1. ALL DIMENSIONS IN MILLIMETERS.
2. TOLERANCE IS  $\pm 0.1$ MM UNLESS OTHERWISE SPECIFIED.



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

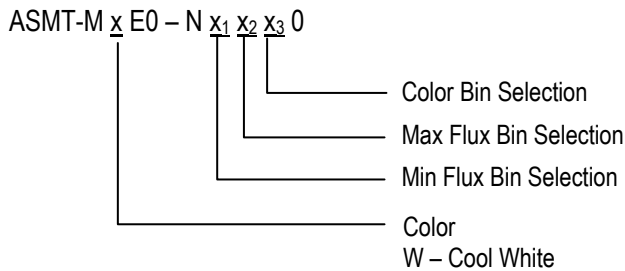
Color	Part Number	Luminous Flux, $\Phi_v^{(1,2)}$ (lm)		Test Current (mA)	Dice Technology
		Min	Typ		
Cool White	ASMT-MWE0	95	130	700	InGaN

### Notes:

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

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## Part Numbering System



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

Parameter	ASMT-MxE0	Units
DC Forward Current	700	mA
Peak Pulsing Current <sup>[1]</sup>	1000	mA
LED Junction Temperature	120	$^\circ\text{C}$
Operating Temperature Range	-30 to +85	$^\circ\text{C}$
Storage Temperature Range	-40 to +120	$^\circ\text{C}$
Soldering Temperature	Refer to figure 5	

### Note:

1. 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 $2\theta_{1/2}$ <sup>[1]</sup> (Degrees)	Luminous Efficiency (lm/W)
		Min	Max	Typ	Typ
ASMT-MWE0	Cool White	4000	10000	110	53

### Notes:

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

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

Dice Type	Forward Voltage $V_F$ (Volts)		Reverse Voltage $V_R$ <sup>[1]</sup>	Thermal Resistance $R_{\theta j-ms}$ ( $^\circ\text{C}/\text{W}$ ) <sup>[2]</sup>
	Min	Max.		Typ.
InGaN	3.03	4.00	Not recommended	8

### Note:

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

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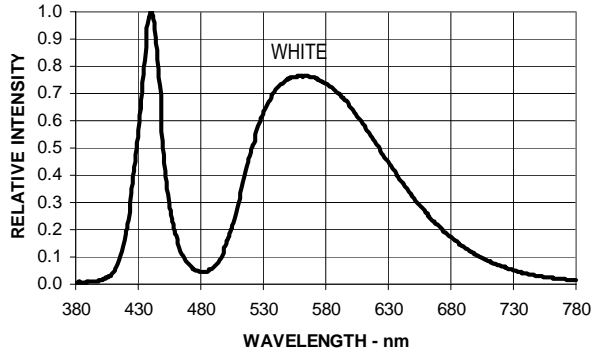


Figure 1: Relative Intensity vs. Wavelength

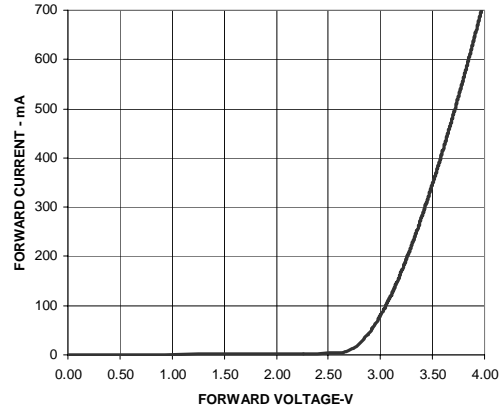


Figure 2: Forward Current vs Forward Voltage

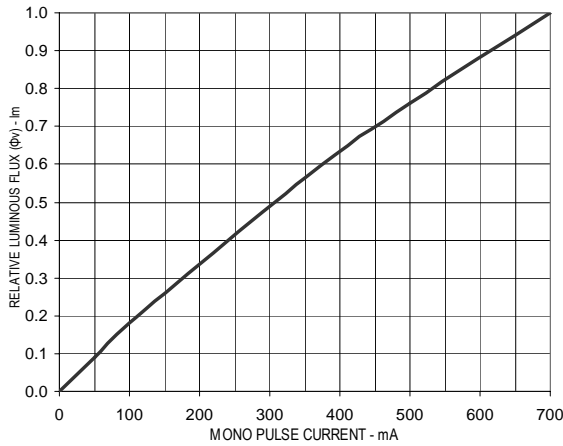


Figure 3: Relative Luminous Flux vs. Mono Pulse Current

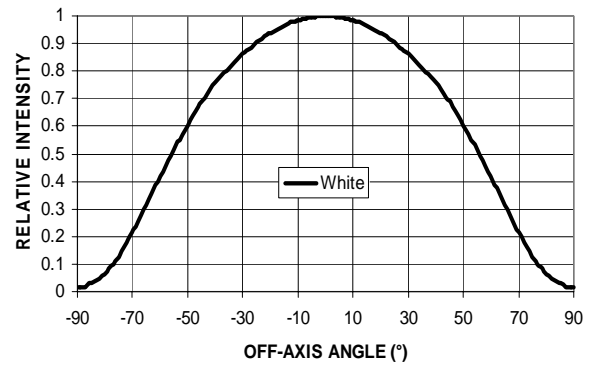


Figure 4: Radiation Pattern

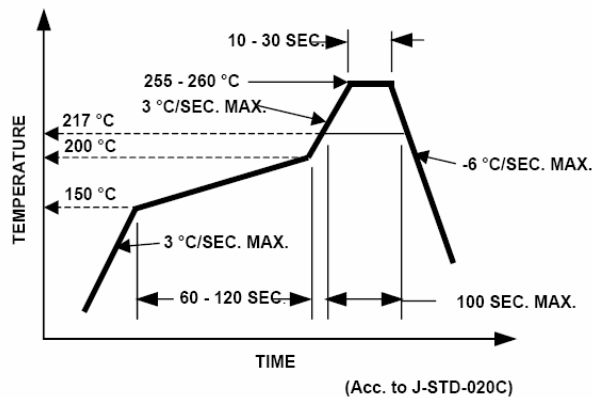


Figure 5: Recommended Reflow Soldering

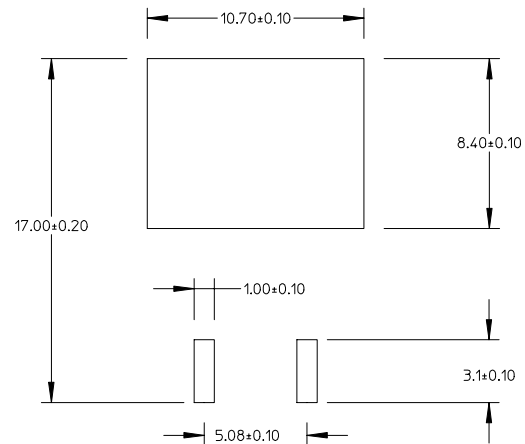


Figure 6: Recommended soldering land pattern

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**Flux Bin Limit (For reference only) [X<sub>1</sub> X<sub>2</sub>]**

Bin	Flux (lm) at 700mA	
	Min	Max
A	5.5	7.0
B	7.0	9.0
C	9.0	11.5
D	11.5	15.0
E	15.0	19.5
F	19.5	25.5
G	25.5	33.0
H	33.0	43.0
J	43.0	56.0
K	56.0	73.0
L	73.0	95.0
M	95.0	124.0
N	124.0	161.0

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

**Color Bin Selections [X<sub>3</sub>]**

Individual reel will contain parts from one full bin only.

<b>0</b>	<b>Full Distribution</b>
A	A only
B	B only
C	C only
D	D only
E	E only
F	F only
G	G only
H	H 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
T	F and G only
S	G and H 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
L	E, F and G only
K	F, G and H 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

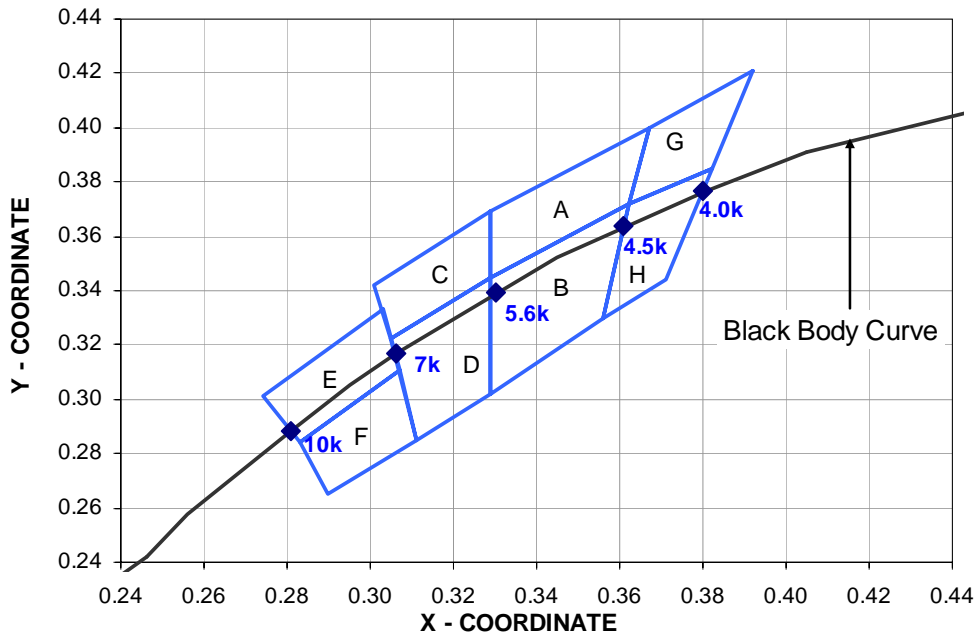
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Cool White	Color Limits (Chromaticity Coordinates)				
Bin A	X	0.367	0.362	0.329	0.329
	Y	0.400	0.372	0.345	0.369
Bin B	X	0.362	0.356	0.329	0.329
	Y	0.372	0.330	0.302	0.345
Bin C	X	0.329	0.329	0.305	0.301
	Y	0.369	0.345	0.322	0.342
Bin D	X	0.329	0.329	0.311	0.305
	Y	0.345	0.302	0.285	0.322
Bin E	X	0.303	0.307	0.283	0.274
	Y	0.333	0.311	0.284	0.301
Bin F	X	0.307	0.311	0.290	0.283
	Y	0.311	0.285	0.265	0.284
Bin G	X	0.388	0.379	0.362	0.367
	Y	0.417	0.383	0.372	0.400
Bin H	X	0.379	0.369	0.356	0.362
	Y	0.383	0.343	0.330	0.372

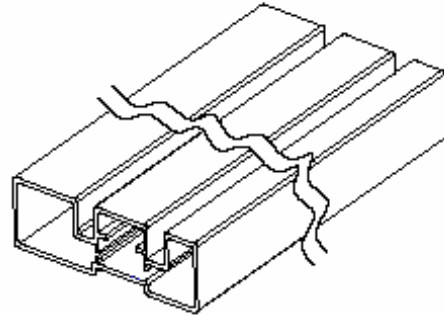
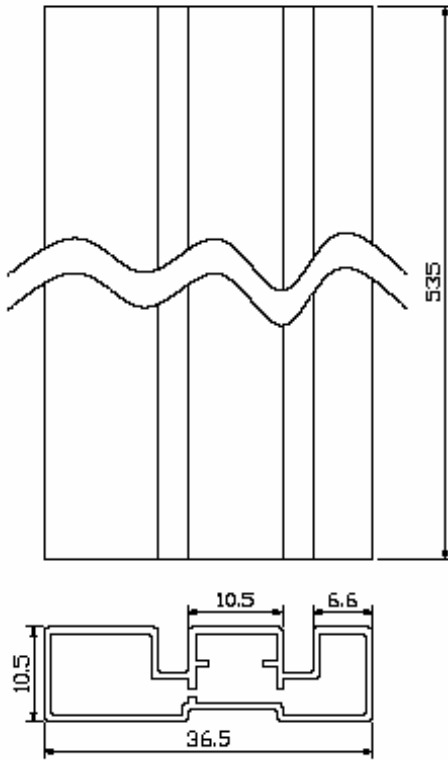
Tolerances  $\pm 0.01$



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## Package Tube Dimensions



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### **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).

### **This products is classified as moisture sensitive level 4**

When the bag is opened, parts required to mount within 72 hours of factory conditions  $\leq 30^{\circ}\text{C}/60\%$ .

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