Part Number: XZMDK53W-8HTA
1.6X0.8mm SMD CHIP LED LAMP

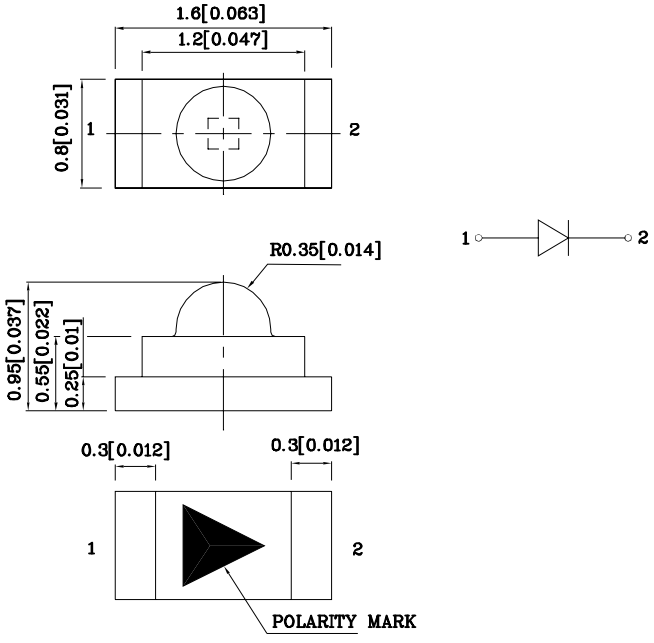
Features

- Ideal for indication light on hand held products
- Long life and robust package
- Variety of lens types and color choices available
- Standard Package: 2,000pcs/ Reel
- MSL (Moisture Sensitivity Level): 3
- RoHS compliant

Applications

- Backlighting for tell-tale indicators
- Dashboard lighting
- Interior lighting (footwell, dome light, accent lighting, etc.)
- Exterior lighting (turn signals, side markers, CHMSL, etc.)
- Signs and signals
- Various applications requiring high temperature rating

Package Schematics



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.15(0.006") unless otherwise noted.
3. Specifications are subject to change without notice.

Part Number	Dice	Lens-color	Luminous Intensity CIE127-2007* (I_F=20mA) mcd			Viewing Angle 2θ 1/2
			Code.	Min.	Max.	
XZMDK53W-8HTA	Red (AlGaInP)	Water Clear	R	400	500	60°
			S	500	700	
			T	700	1000	
			N*	120*	200*	
			P*	200*	300*	
			Q*	300*	400*	

Notes:
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
*Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.

Absolute Maximum Ratings at T_A = 25°C

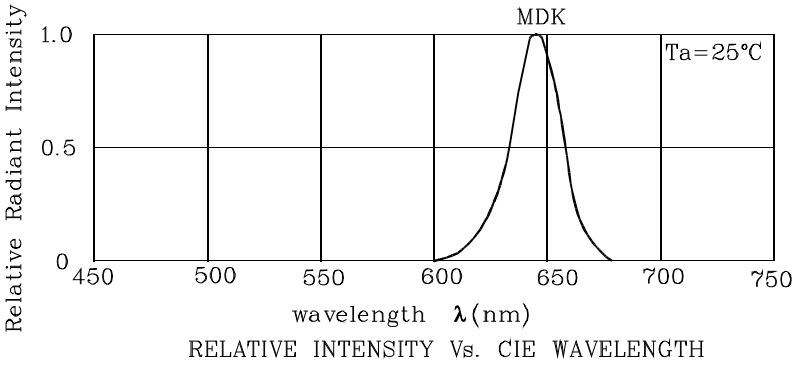
Parameter	Symbol	Value	Unit
Power dissipation	P_D	75	W
Reverse Voltage	V_R	5	V
Junction temperature[1]	T_J	120	°C
Operating Temperature	Top	-40 To +100	°C
Storage Temperature	Tstg	-40 To +120	°C
DC Forward Current [1]	I_F	30	mA
Peak Forward Current [2]	I_{FM}	185	mA
Thermal resistance [1] (Junction/ambient)	$R_{th\ j\text{-}a}$	350	°C/W
Electrostatic Discharge Threshold (HBM)		3000	V

Notes:
1. Rth(j-a) Results from mounting on PC board FR4 (pad size≥16 mm² per pad)
2. 1/10 Duty Cycle, 0.1ms Pulse Width.

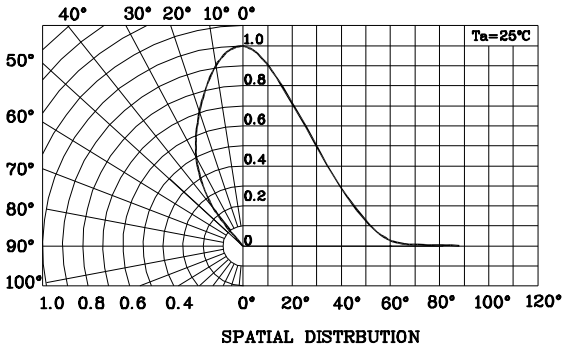
Electrical / Optical Characteristics at T_A = 25°C

Parameter	Symbol	Value		Unit
Wavelength at peak emission IF=20mA [Typ.]	λpeak	650	*645	nm
Dominant Wavelength IF=20mA [Min.]	λdom	620*		nm
Dominant Wavelength IF=20mA [Max.]	λdom	640 *		nm
Spectral bandwidth at 50%Φ REL MAX IF=2mA [Typ.]	Δλ	28		nm
Forward Voltage IF=20mA [Min.]	V_F [2]	-		V
Forward Voltage IF=20mA [Typ.]		1.95		
Forward Voltage IF=20mA [Max.]		2.5		
Reverse Current (V_R = 5V) [Max.]	I_R	10		uA
Temperature coefficient of λpeak I_F=20mA, -10°C≤ T≤100°C [Typ.]	TCλpeak	0.14		nm/°C
Temperature coefficient of λdom I_F=20mA, -10°C≤ T≤100°C [Typ.]	TCλdom	0.05		nm/°C
Temperature coefficient of V_F IF=20mA, -10°C≤ T≤100°C [Typ.]	TC$_V$	-1.8		mV/°C

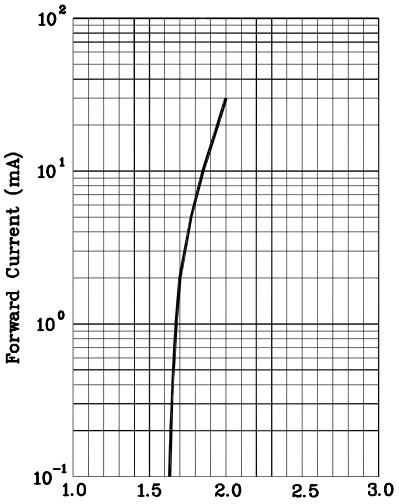
*Wavelength value is in accordance with CIE127-2007 standards.



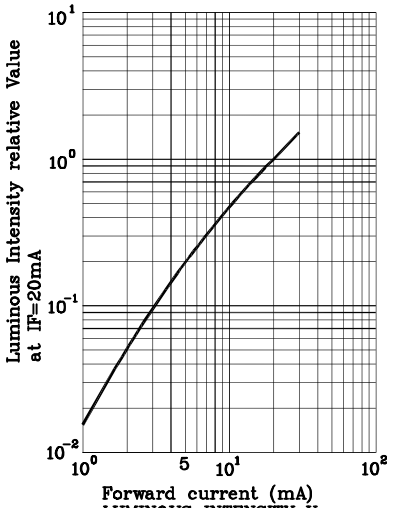
RELATIVE INTENSITY Vs. CIE WAVELENGTH



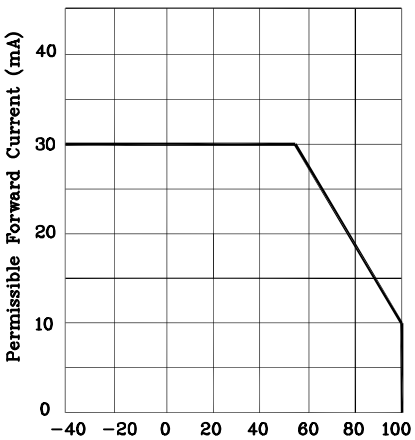
SPATIAL DISTRBUTION



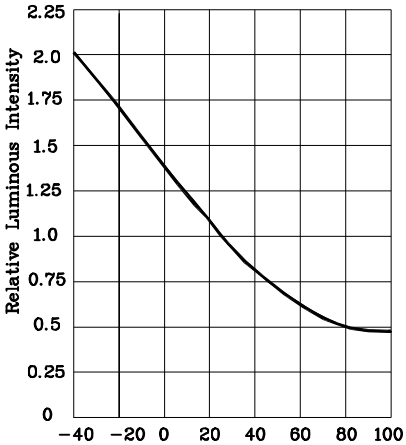
Forward voltage (V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE



Forward current (mA)
LUMINOUS INTENSITY Vs.
FORWARD CURRENT



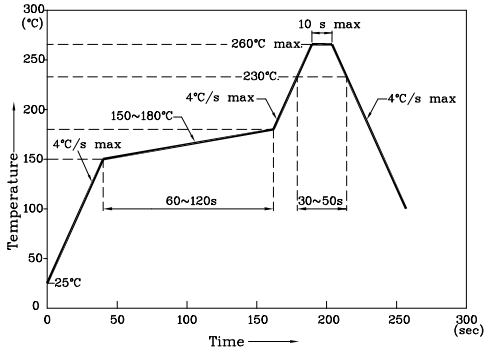
Ambient Temperature Ta(℃)
FORWARD CURRENT
DERATING CURVE



Ambient Temperature Ta(℃)
LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE

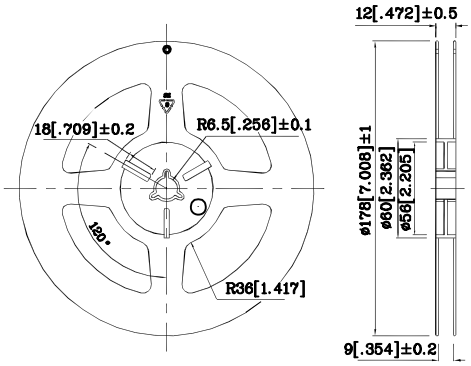
LED is recommended for reflow soldering and soldering profile is shown below.

Reflow Soldering Profile For Lead-free SMT Process.

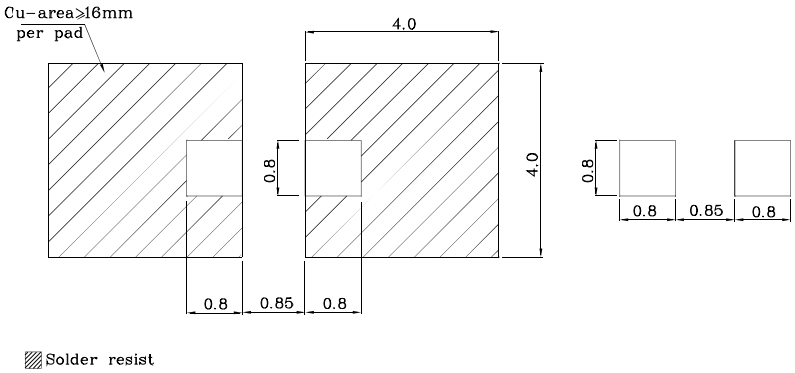


NOTES:
1. Maximum soldering temperature should not exceed 260°c.
2. Recommended reflow temperature: 145°c~260°c.
3. Do not put stress to the epoxy resin during high temperatures conditions.

❖ Reel Dimension

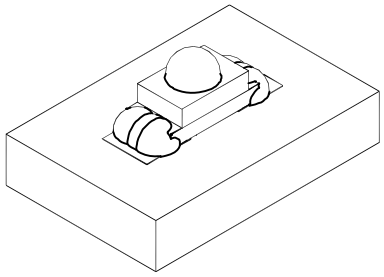


❖ Recommended Soldering Pattern (Units : mm; Tolerance: ±0.1)

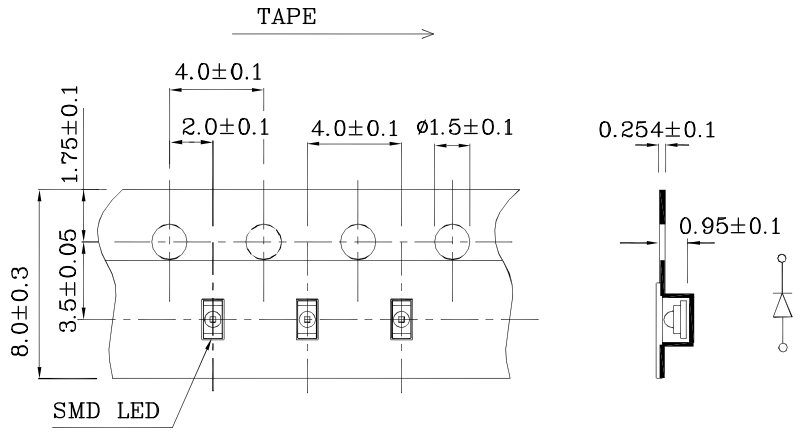


Solder resist

❖ The device has a single mounting surface. The device must be mounted according to the specifications.



❖ Tape Specification (Units : mm)



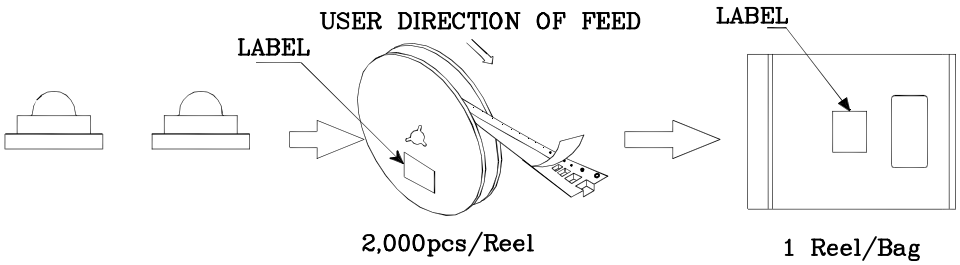
Remarks:

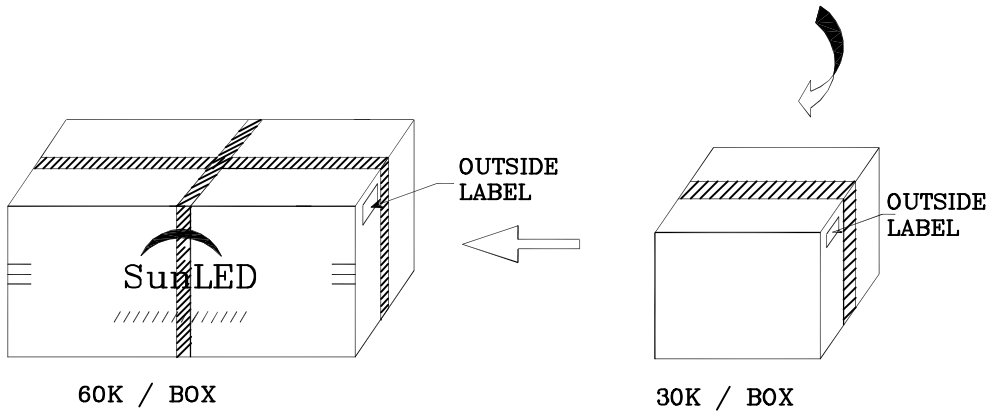
If special sorting is required (e.g. binning based on forward voltage, Luminous intensity / luminous flux, or wavelength), the typical accuracy of the sorting process is as follows:

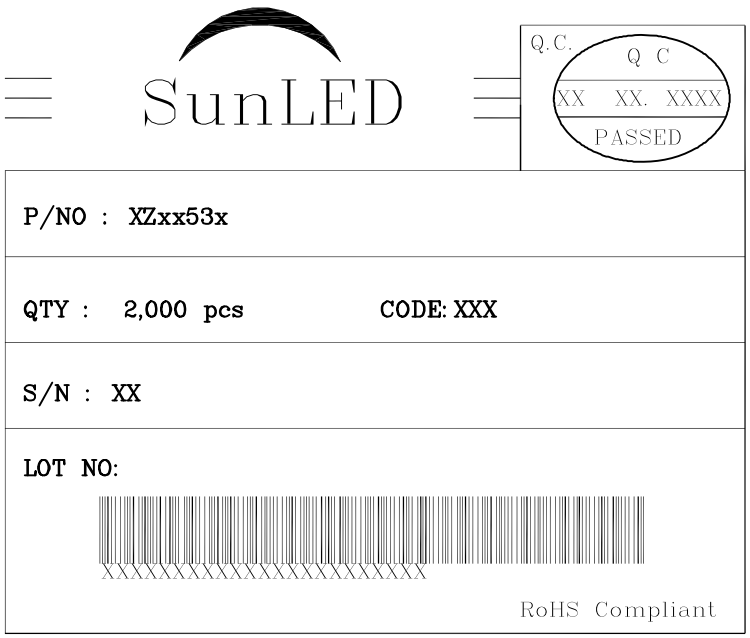
1. Wavelength: +/-1nm
2. Luminous intensity / luminous flux: +/-15%
3. Forward Voltage: +/-0.1V

Note: Accuracy may depend on the sorting parameters.

PACKING & LABEL SPECIFICATIONS







Reliability Test Items And Conditions

The reliability of products shall be satisfied with items listed below

Lot Tolerance Percent Defective (LTPD) : 10%

No.	Test Item	Standards	Test Condition	Test Times / Cycles	Number of Damaged
1	Continuous operating test	-	Ta =25°C ,IF = maximum rated current*	1,000 h	0 / 22
2	High Temp. operating test	EIAJ ED-4701/100(101)	Ta = 100°C IF = maximum rated current*	1,000 h	0 / 22
3	Low Temp. operating test	-	Ta = -40°C, IF = maximum rated current*	1,000 h	0 / 22
4	High temp. storage test	EIAJ ED-4701/100(201)	Ta = maximum rated storage temperature	1,000 h	0 / 22
5	Low temp. storage test	EIAJ ED-4701/100(202)	Ta = -40°C	1,000 h	0 / 22
6	High temp. & humidity storage test	EIAJ ED-4701/100(103)	Ta = 60°C, RH = 90%	1,000 h	0 / 22
7	High temp. & humidity operating test	EIAJ ED-4701/100(102)	Ta = 60°C, RH = 90% IF = maximum rated current*	1,000 h	0 / 22
8	Soldering reliability test	EIAJ ED-4701/100(301)	Moisture soak : 30°C,70% RH, 72h Preheat : 150~180°C(120s max.) Soldering temp : 260°C(10s)	2 times	0 / 18
9	Thermal shock operating test	-	Ta = -40°C(15min) ~ 100°C(15min) IF = derated current at 100°C	1,000 cycles	0 / 22
10	Thermal shock test	-	Ta = -40°C(15min) ~ maximum rated storage temperature(15min)	1,000 cycles	0 / 22
11	Electric Static Discharge (ESD)	EIAJ ED-4701/100(304)	C = 100pF , R2 = 1.5KΩ V = 3000V	Once each Polarity	0 / 22
12	Vibration test	-	a = 196m/s² , f = 100~2KHz , t = 48min for all xyz axes	4 times	0 / 22

* : Refer to forward current vs. derating curve diagram

Failure Criteria

Items	Symbols	Conditions	Failure Criteria
luminous Intensity	Iv	I_F = 20mA	Testing Min. Value <Spec.Min.Value x 0.5
Forward Voltage	V_F	I_F = 20mA	Testing Max. Value ≥Spec.Max.Value x 1.2
Reverse Current	I_R	V_R = Maximum Rated Reverse Voltage	Testing Max. Value ≥Spec.Max.Value x 2.5
High temp. storage test	-	-	Occurrence of notable decoloration, deformation and cracking