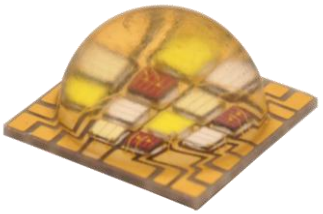
Preliminary Product Datasheet

T9090M-MCL1
High Power Mixing Color LED

Introduction

The T9090M-MCL1 LED from TSLC brings industry leading technology to the solid state lighting market with its high quality and performance. With a silicone lens, T9090M-MCL1 LEDs from TSLC feature very high brightness and efficacy, as well as excellent lifetime.



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RoHS Compliant

Characteristics

Parameter	Rating
DC Forward Current (mA)	Red/Amber/NIR : 700mA
	UV/Blue/Green/Cyan/ White : 1000mA
LED Junction Temperature	Red/Amber/NIR : 115°C
	UV/Blue/Green/Cyan/White : 150°C
LED Operating Temperature	-40°C~85°C
Storage Temperature	-40°C~110°C
Soldering Temperature at Tp(JEDEC-020)	20~40 second
ESD Sensitivity	2,000V HBM (JESD-22A-114-B)
Reverse Voltage	Not designed to be driven in reverse bias
Preconditioning	Acc. to JEDEC Level 1

Product Nomenclature

T 9090 M – MC L 1

1 2~5 6 7.8 9 10

Code Number	Description
Code 1	Substrate composition, T: Ceramic AlN
Code 2.3.4.5	Package size, 9090: 9.0*9.0mm
Code 6	Class Code, M:MCE
Code 7.8	Color/CCT type, MC:MCE
Code 9:	Lens type, L: 140 degree
Code 10	Lens version

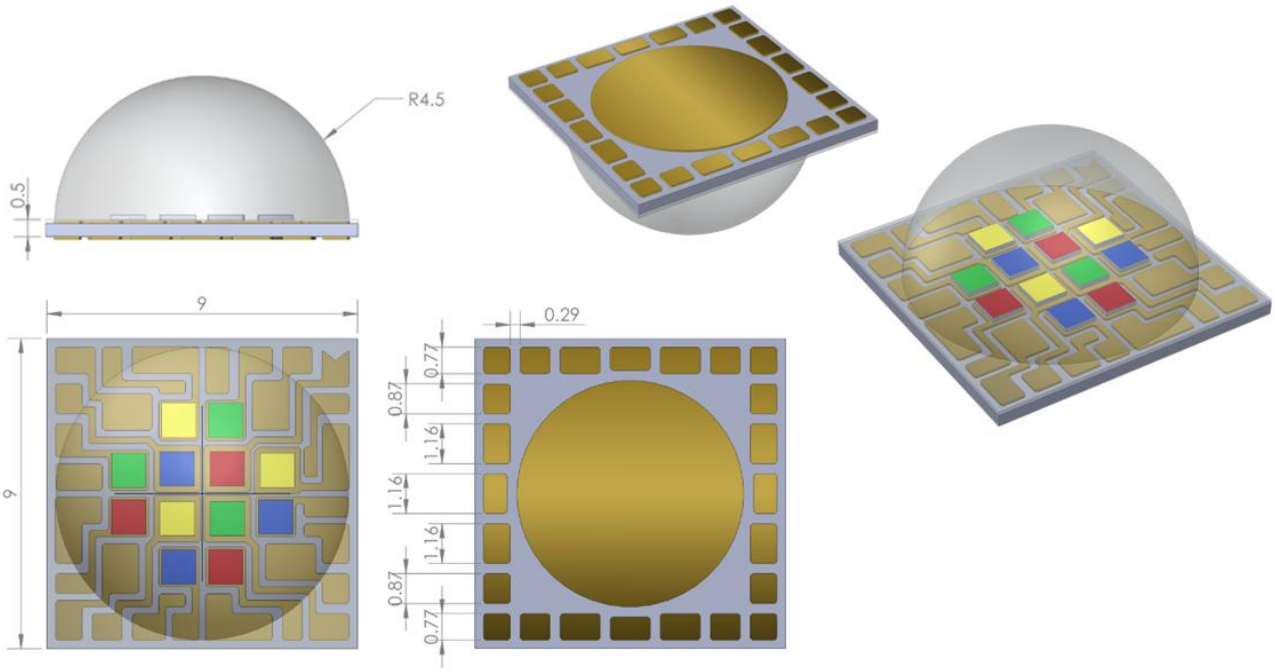
Flux Characteristics, Tj=25°C

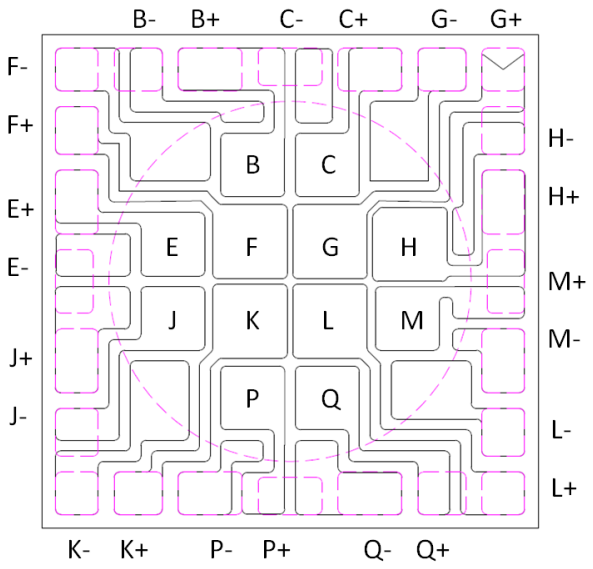
Color		CCT/Dominant/*Peak Wavelength Range		Minimum Luminous Flux	Forward voltage (V)	
		Min	Max	@350mA	Min	Max
UV-1		360nm*	370nm*	280 mW	2.8	3.6
UV-2		370nm*	380nm*	400 mW		
UV-3		380nm*	390nm*	400 mW		
UV-4		390nm*	400nm*	400 mW		
NUV-1		400nm*	410nm*	400 mW		
NUV-2		410nm*	420nm*	440 mW		
Blue-1		440nm	450nm	440 mW		
Blue-2		450nm	460nm	13 lm		
Blue-3		460nm	470nm	13 lm		
Cyan		490nm	510nm	62 lm		
Green		520nm	535nm	67.2 lm		
Amber		585nm	595nm	30.6 lm	2.0	3.0
Orange		600nm	620nm	47.5 lm		
Red		620nm	630nm	47.5 lm		
Super Red		650nm*	670nm*	240 mW		
NIR-1		720nm*	740nm*	200 mW		
NIR-2		840nm*	870nm*	200 mW		
NIR-3		925nm*	955nm*	200 mW		
Cool White		7000K	10000K	100 lm	2.8	3.6
Cool White		5500K	7000K	107 lm		
Neutral White		3750K	5500K	100 lm		
Warm White		2400K	3750K	87.4 lm		
PC Amber		580nm	585nm	93.9 lm		
PC Green		550nm	570nm	73.9 lm		

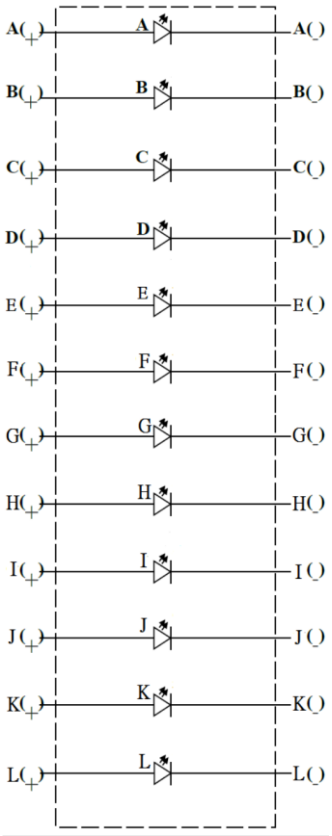
Notes:

1. T9090M-MCL1 product is tested and binned at 350mA.
2. Dominant wavelength is measured with an accuracy of ±1nm.
3. Forward voltage is measured with an accuracy of ±0.2V.
4. Flux is measured with an accuracy of ±10%.

Mechanical Dimensions & Pad Configuration





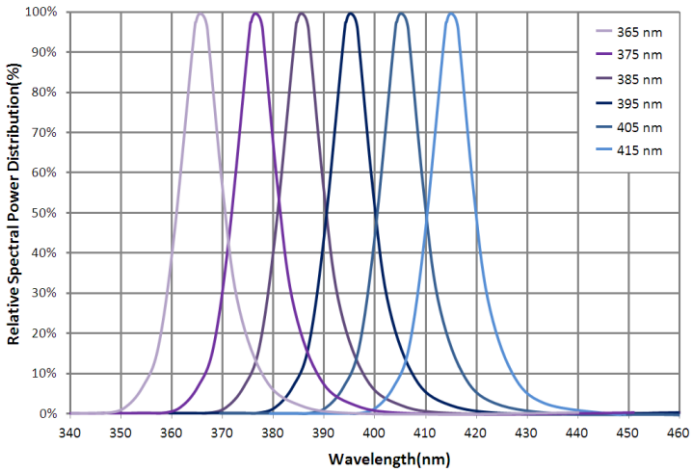


Notes:

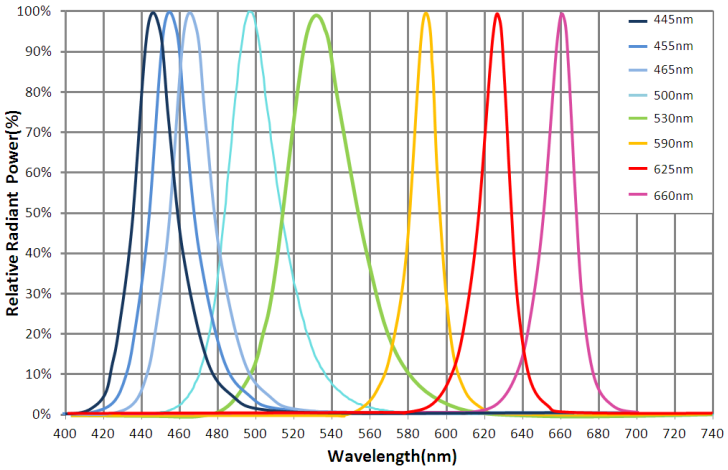
1. All dimensions are in millimeters.
2. Drawings not to scale.

Relative Spectral Power Distribution, Tj=25˚C

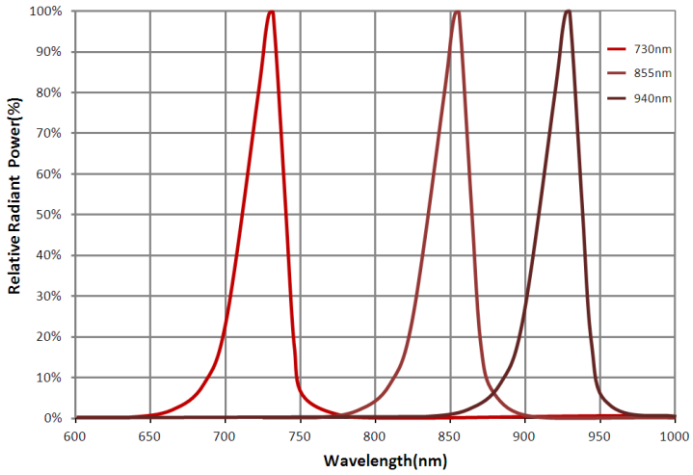
UV series



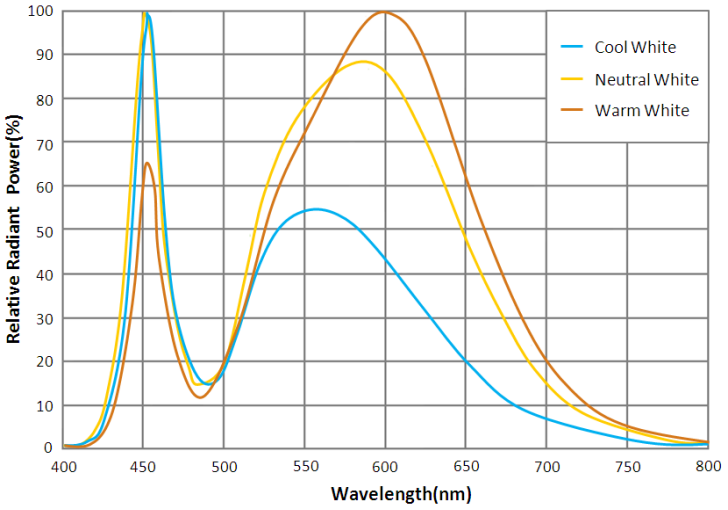
Blue/ Cyan/ Green/ Amber/ Red series



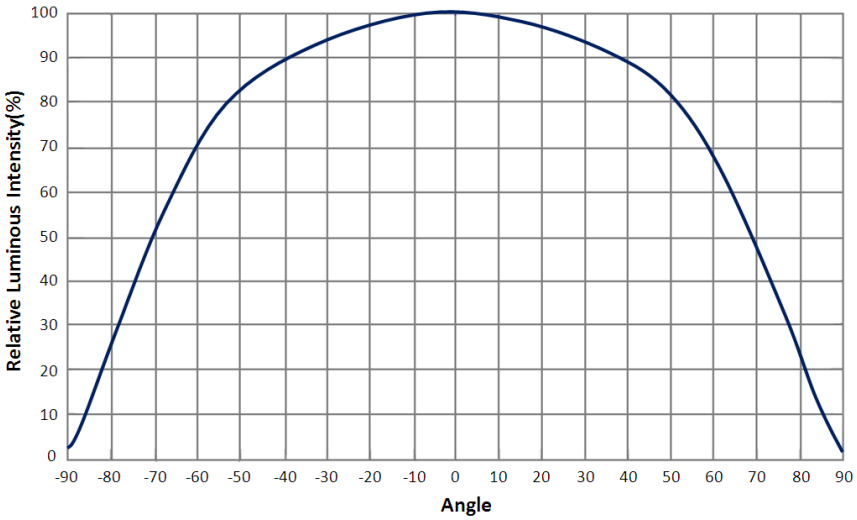
IR Series



Warm white/ Neutral White/ Cool White series

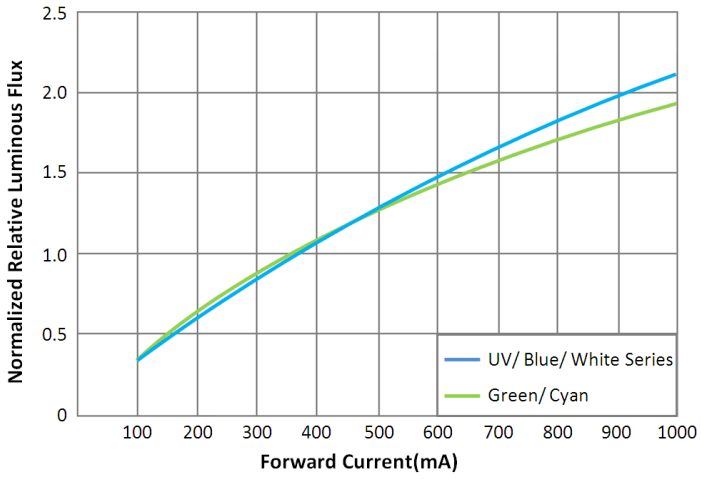


Typical Spatial Radiation Pattern

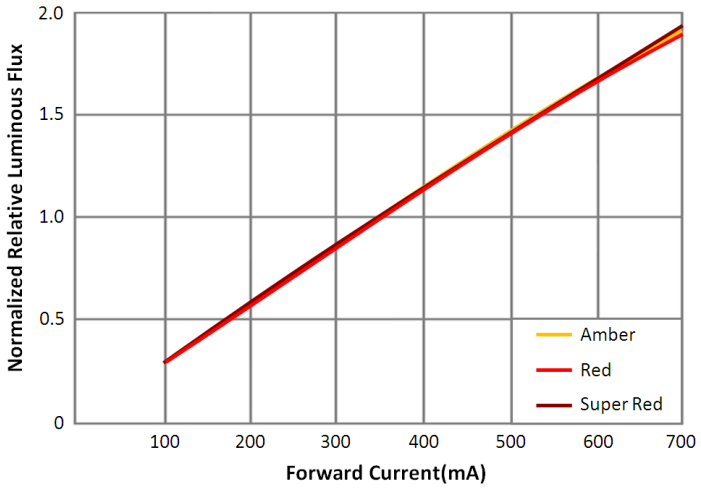


Typical Forward L-I Characteristics

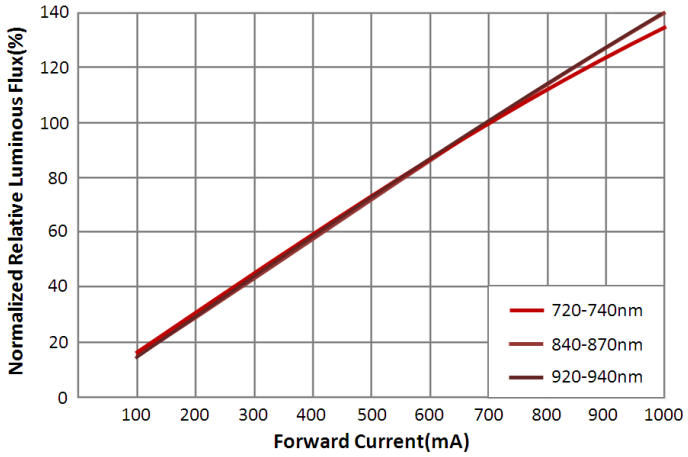
UV/Blue/ Green/ Cyan/ White Series



Amber / Red / Super Red

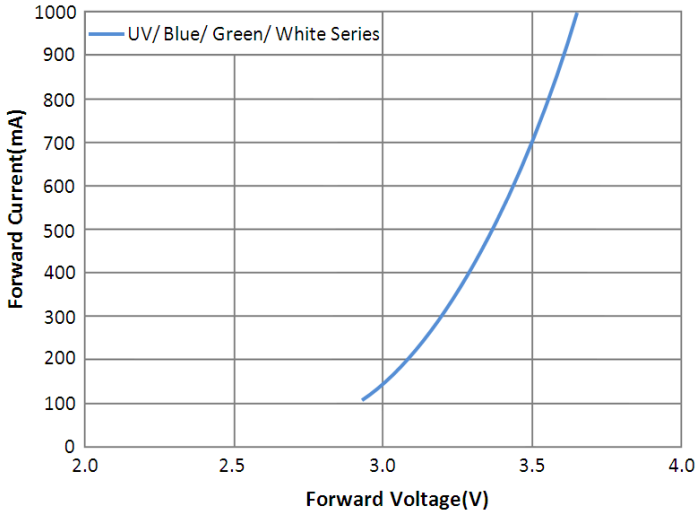


IR series

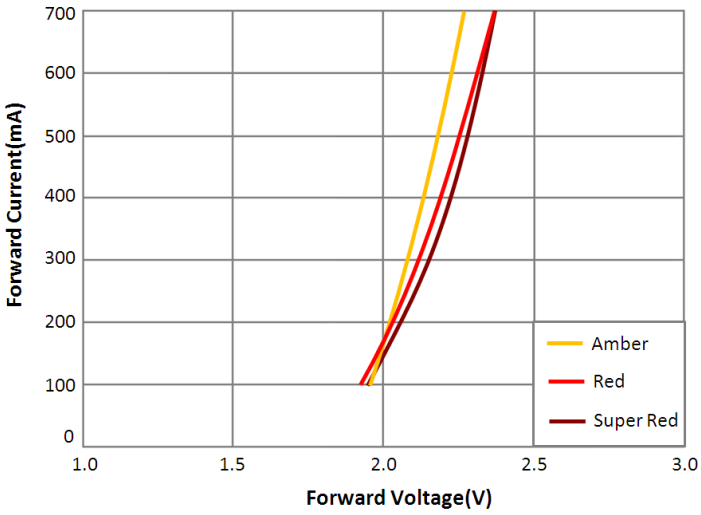


Typical Forward I-V Characteristics

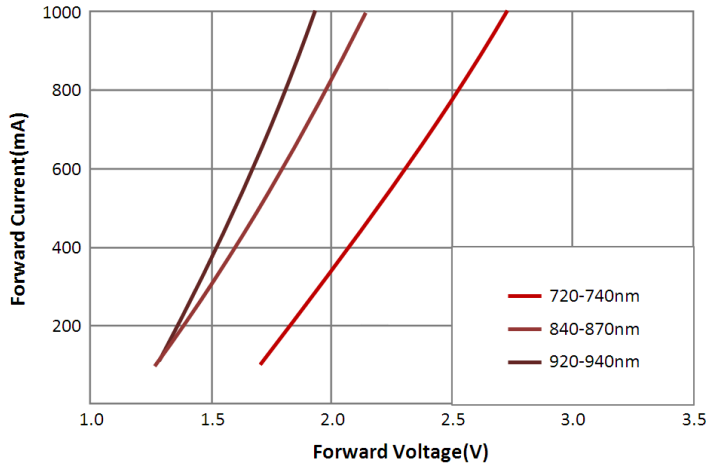
Blue/ Green/ Cyan/ White Series



Amber / Red / Super Red

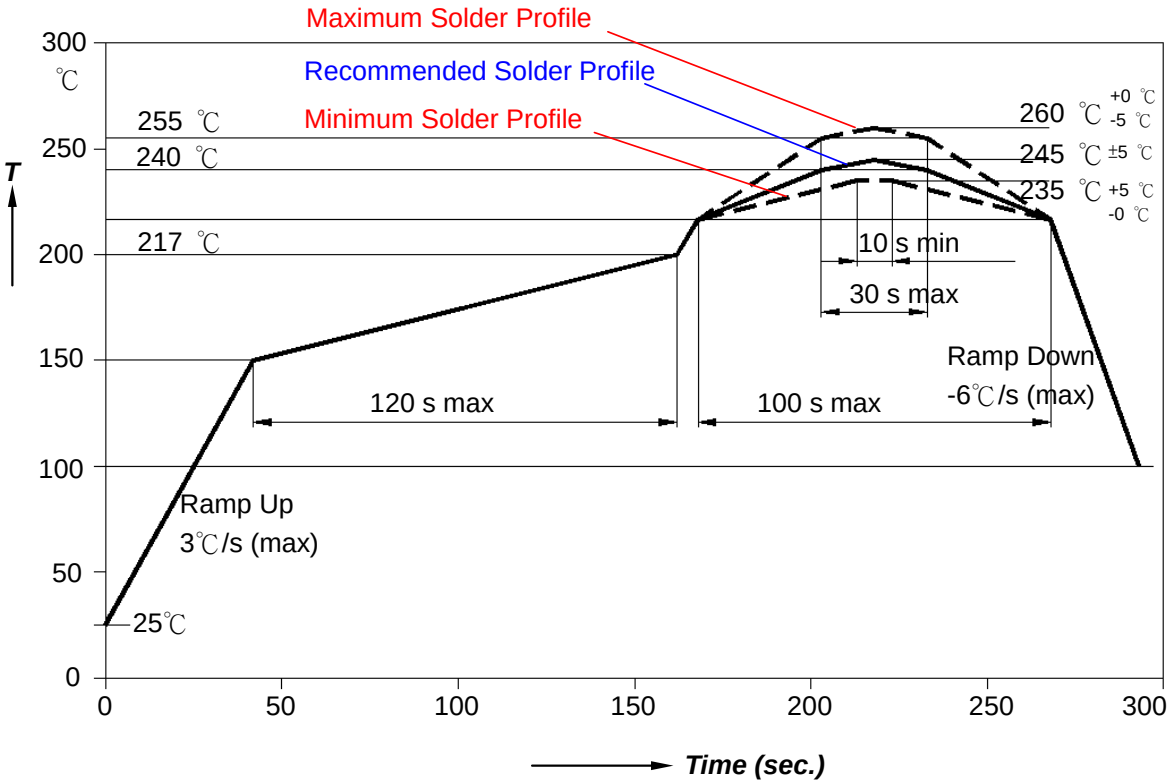


IR Series



Recommended Soldering Profile

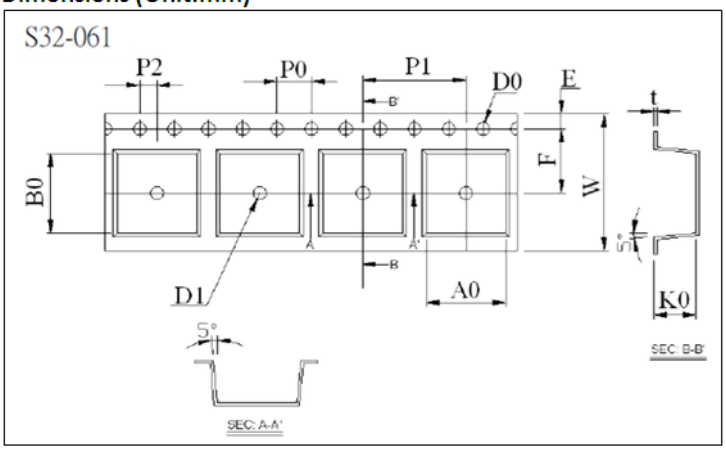
The LEDs can be soldered using the parameters listed below. As a general guideline, the users are suggested to follow the recommended soldering profile provided by the manufacturer of the solder paste. Although the recommended soldering conditions are specified in the list, reflow soldering at the lowest possible temperature is advised for the LEDs.



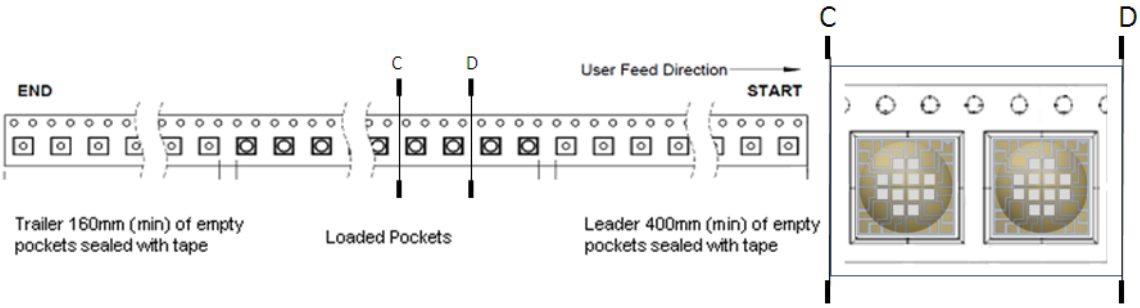
Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C / second max.	3°C / second max.
Preheat • Temperature Min (Ts_{min}) • Temperature Max (Ts_{max}) • Time (Ts_{min} to Ts_{max}) (ts)	100 °C 150 °C 60-120 seconds	150 °C 200 °C 60-180 seconds
Time maintained above: • Temperature (T_L) • Time (T_L)	183 °C 60-150 seconds	217 °C 60-150 seconds
Peak Temperature (T_p)	215 °C	260 °C
Time within 5°C of actual Peak Temperature $(tp)^2$	10-30 seconds	20-40 seconds
Ramp-down Rate	6 °C / second max.	6 °C / second max.
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.

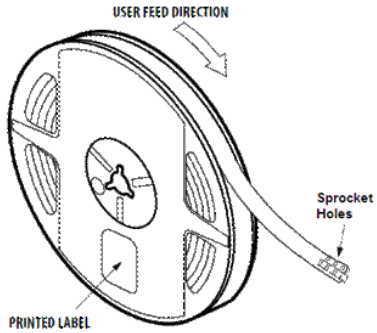
Packing Information

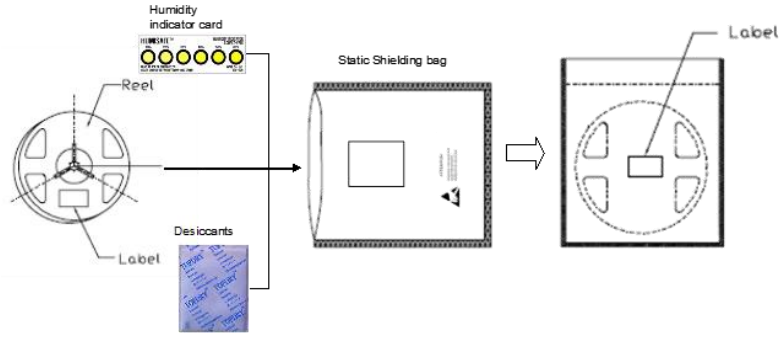
Dimensions (Unit:mm)



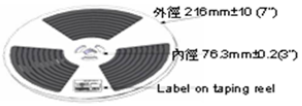
Item	Specification	Tol.(+/-)
W	16.00	±0.30
E	1.75	±0.10
F	7.50	±0.10
D0	1.50	+0.10, -0
D1	1.50	+0.25, -0
P0	4.00	±0.10
P1	12.00	±0.10
P2	2.00	±0.10
P0x10	40.00	±0.20
T	0.35	±0.05
A0	9.40	±0.10
B0	9.40	±0.10
K0	4.95	±0.10







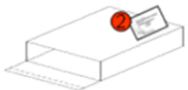
MFG Packing



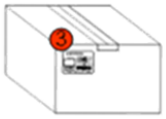
FG in after OQC Packing

1 reel in a bag = 200pcs

Ship out packing Step



1 bag in an inner box= 200pcs



Small size: 5 inner box in an outer box= 1000pcs

Large size: 10 inner box in an outer box= 2000pcs

About Us

TSLC Corporation is devoted to developing high-density, and multi-size emitters with powerful output to satisfy the needs of every customer.

TSLC Corporation is the leader in LED solutions. Unlimited design flexibility for interior and exterior spaces with high-end lighting effect; energy-efficient for UV curing to improve the quality of medical care; horticulture solutions create a better environment for everyone; high-intensity rotatable lightings for the entertainment industry, TSLC is always there for your lighting needs.

For further company or product information, please visit us at **www.tslc.com.tw** or please contact **sales@ tslc.com.tw.**

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