



PRODUCT DATASHEET



- CHIP / PCB SMD
- ▶ 0402 (1005) 0.25t
- Cool White
 5600~26000K

N0W68S90-5MA



<u>0402 (1005) 0.25t</u> c



FEATURES:

- Package: Top View CHIP SMD Package
- Forward Current: 5mA
- Forward Voltage (typ.): 2.9V
- Luminous Intensity (typ.): 320mcd@5mA
- Colour: Cool White
- Chromaticity Coordinate (typ.): X=0.3000; Y=0.2960
- Colour Temperature (CCT): 5600~26000K
- Viewing Angle: X=100°; Y=145°
- **Operating Temperature:** -40~+85°C
- Storage Temperature: -40~+100°C
- Grouping Parameters:
 - Forward Voltage
 - Luminous Intensity
 - CIE Chromaticity
- Soldering Methods: Reflow Soldering
- MSL Level: according to JEDEC MSL 3
- Packing: 8mm tape with max.3000/reel, ø180mm (7")

0402 (1005) 0.25t

APPLICATIONS:

- Backlighting
- Consumer Goods
- Indicators
- Torch Lights
- Toy Lights

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Decorating Lights



CHARACTERISTICS:

Absolute Maximum Characteristics (T_a=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	lF	5	mA
Pulse Forward Current @Duty 1/10, 1kHz	Ipf	80	mA
Power Dissipation	Pd	15	mW
Reverse Voltage	V _R	5	V
Reverse Current @10V	IR	10	μΑ
Operating Temperature	Topr	-40~+85	°C
Storage Temperature	Т _{stg}	-40~+100	°C
Soldering Temperature	Tsol	260	°C

Electrical & Optical Characteristics (Ta=25°C)

Parameter		Currente e l	Values			l la it	Test
		Symbol	Min.	Тур.	Max.	Unit	Condition
Forward Voltage		V_{F}		2.9	3.2	V	I⊧=5mA
Luminous Intensi	ty	lv		320		mcd	I⊧=5mA
Chromaticity		Х		0.3000			I⊧=5mA
Coordinates		Y		0.2960			
Colour Temperature		ССТ		7800		К	I⊧=5mA
Viewing Angle	х	20		100		dee	
	Y	201/2		145		ueg	IF=⊃MA

1. Luminous Intensity (Φ_V) ±10%, Forward Voltage (V_F) ±0.1V, Colour Coordinate: ±0.005, Viewing Angle(2 θ 1/2) ±5%

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OUTLINE DIMENSION:





- 1. All dimensions are in millimetre (mm).
- 2. Tolerance ±0.13mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



- 1. Dimensions are in millimetre (mm).
- 2. Tolerance ± 0.1 mm with angle tolerance $\pm 0.5^{\circ}$.

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BINNING GROUPS:

Code	Min.	Max.	Unit
G3	2.6	2.7	
G4	2.7	2.8	
H1	2.8	2.9	V
H2	2.9	3.0	v
H3	3.0	3.1	
H4	3.1	3.2	

Forward Voltage Classifications (I_F = 5mA):

Luminous Intensity Classifications (I_F = 5mA):

Code	Min.	Max.	Unit
S2	226	285	
T1	285	320	
T2	320	360	mad
U1	360	400	mca
U2	400	450	
V1	450	500	



CIE CHROMATICITY DIAGRAM:



Chromaticity Coordinates Classifications (I_F = 5mA):

	1	L	2		3		4	
	Х	Y	Х	Y	Х	Y	Х	Y
СВ	0.2700	0.2325	0.2700	0.2550	0.2900	0.2825	0.2900	0.2600
CD	0.2700	0.2550	0.2700	0.2775	0.2900	0.3050	0.2900	0.2825
DA	0.2900	0.2600	0.2900	0.2825	0.3100	0.3100	0.3100	0.2875
DC	0.2900	0.2825	0.2900	0.3050	0.3100	0.3325	0.3100	0.3100
DB	0.3100	0.2875	0.3100	0.3100	0.3300	0.3375	0.3300	0.3150
DD	0.3100	0.3100	0.3100	0.3325	0.3300	0.3600	0.3300	0.3375

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ELECTRO-OPTICAL CHARACTERISTICS:









RECOMMENDED SOLDERING PROFILE:

IR Reflow Lead-free Solder:



Note:

- 1. Recommended soldering temperature: 240°C. The maximum soldering temperature should be limited to 260°C.
- 2. Maxima reflow soldering: 2 times.
- 3. Before, during, and after soldering, should not apply stress on the components and PCB board.
- 4. Never attempt next process until the component is cooled down to room temperature after reflow.

Reworking:

- 1. Rework should be completed within 5 seconds under 260° C.
- 2. The iron tip must not come in contact with the copper foil.
- 3. Twin-head type is preferred.

Cleaning:

- 1. An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.
- 2. Temperature x Time should be 50°C x 30sec. or <30°C x 3min.
- 3. Ultrasonic cleaning: <15W/bath; bath volume ≤1liter.
- 4. Curing: 100°C max, <3min.



PACKING SPECIFICATION:

Reel Dimension:



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PRECAUTIONS OF USE:



Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 months at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with descanting agent <10% R.H. and apply baking.

Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 72hrs. The suggested baking conditions are as followings:

• 60±3°C x 12~24hrs and <5%RH, taped / reel package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

Testing Circuit:



Must apply resistor(s) for protection (over current proof).

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.



REVISION RECORD:

Version	Date	Summary of Revision
A1.0	08/08/2022	Datasheet set-up.
A1.1	16/06/2025	New datasheet format.