



2023-11

AL-10M-275 Alternate PN AL-12M-233

Product Datasheet

Properties

LED Compatibility [distribution angle 8°~16°]

3.50×3.50mm, flat top

UV-A | Visible | Infrared

Material: ASR-A80MC Clear Silicone

A80/S±5 hardness

ROHS3 Compliant

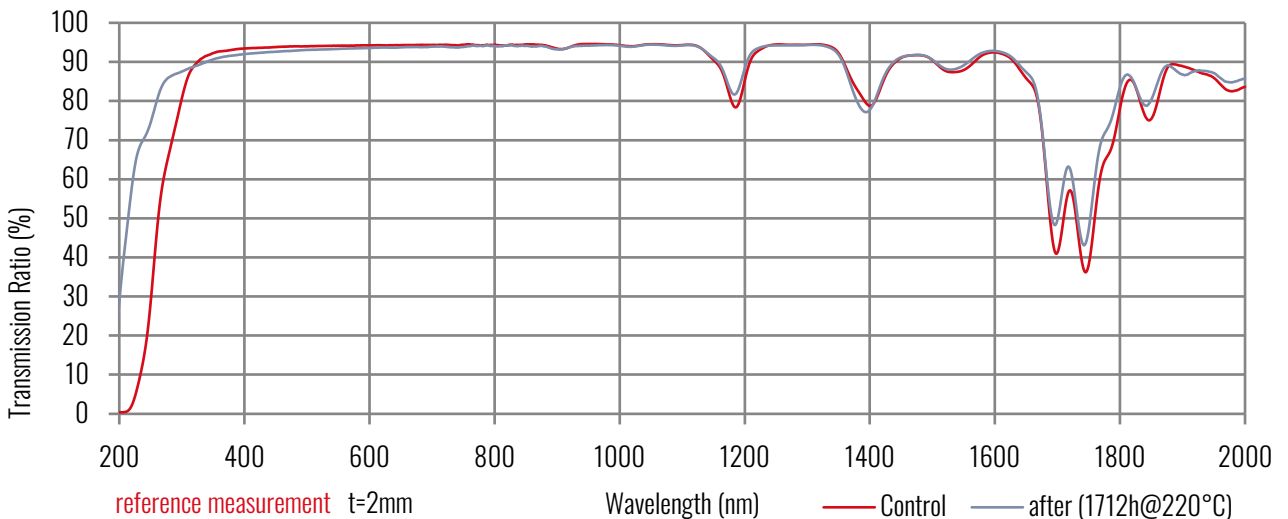
Refractive index 1.41±0.03
(25°C, D-line 589nm)

REACH Unaffected

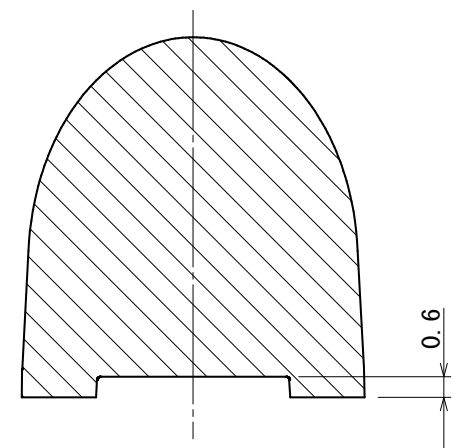
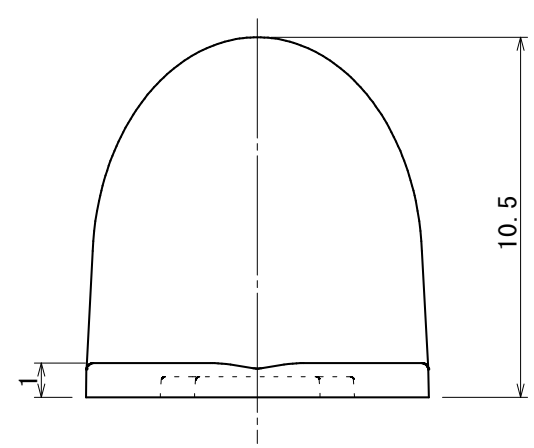
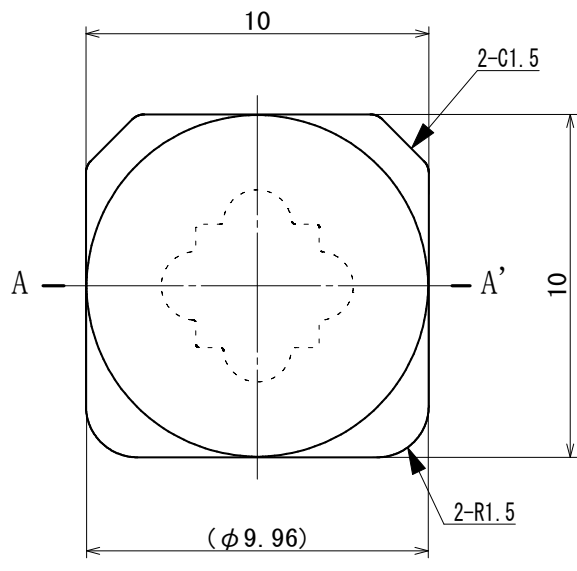


Test Type	Test Method	Test Conditions	Period	Appearance	Change in Transmittance ΔT (%)	Yellowing ΔYI
Thermal Shock	JEITA ED-4701 300 307	-40°C > 120°C 15min 15 min	500 cycles	No cracks or other defects	0.32	1.09
High Temperature Storage	JEITA ED-4701 200 201	Ta=150°C	1000hr	No cracks or other defects	0.69	1.55
High Temp and Humidity Storage	JEITA ED-4701 100 103	Ta=85°C RH=85%	1000hr	No cracks or other defects	0.99	0.76
Low Temperature Storage	JEITA ED-4701 200 202	Ta=-40°C	1000hr	No cracks or other defects	0.45	0.06
Solvent Resistance	JEITA ED-4701 500 501	Solvent: IPA 20-25°C 5 minutes	1 time	No cracks or other defects	-	-

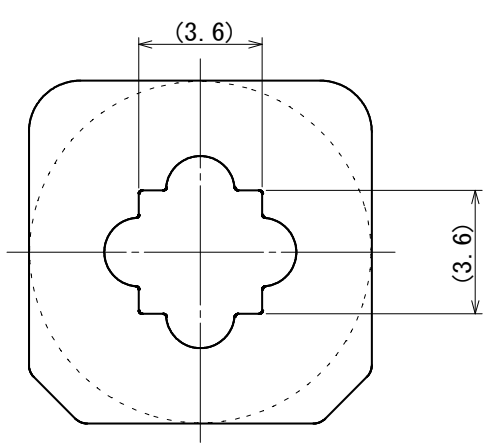
Drop Test	-	Drop on 20mm steel plate from 1m	5 times	No cracks or other defects	-	-
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○ SPECIFICATIONS <仕様図>	SURFACE TREATMENT <表面処理>	SYM	DATE	REVISION		REVR	APPR
	HEAT TREATMENT <熱処理>	△ x					
REFERENCE <参考図>	FINISH <仕上り>	△ x					
		△ x					



A-A' 断面



NOTE)

- Dimensional Tolerance ± 0.1
- Recommended LED Size 3.5×3.5

100
90
80
70
60
50
40
30
20
10
0

TOLERANCE UNLESS SPECIFIED			ORIGINAL DATE 2013/04/27	MATERIAL (COMPOUND) Dimethyl Silicone	TITLE AL-10M-275
RANGE	A	B	SCALE 5:1	UNIT mm	DRAWING NO. 13042703M
LESS THAN 6	± 0.2	± 0.1	SIZE A4	COLOR Transparency	DESIGN T. Motoyanagi
OVER 6 TO 20	± 0.3	± 0.2	3RD ANGLE SYSTEM	HARDNESS (A80)	DRAWN T. Motoyanagi
OVER 20 TO 50	± 0.5	± 0.3			CHECKED T. Kanahira
OVER 50 TO 100	± 1.0	± 0.5			APPROVED M. Tasaki
OVER 100 TO 300	± 2.0	± 1.0			
OVER 300 TO 500	± 5.0	± 2.5			
ANGLE		$\pm 2^\circ$	ASAHI RUBBER INC. 株式会社朝日ラバー		



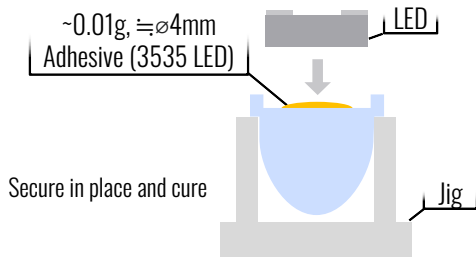
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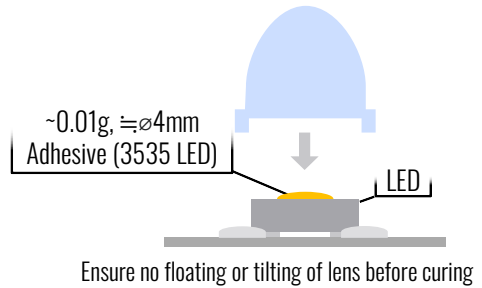
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Attachment Guide

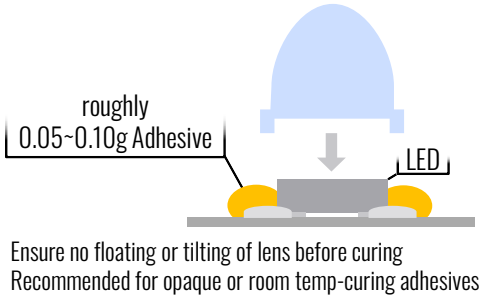
1. LED to Lens Adhesion (Recommended)



2. Lens to Mounted LED Adhesion



3. Lens to PCB Adhesion



Ensure your selected adhesive:

(Types 1 and 2)

- Has appropriate transparency
- Does not yellow

(Type 3)

- Has high viscosity

(All Cases)

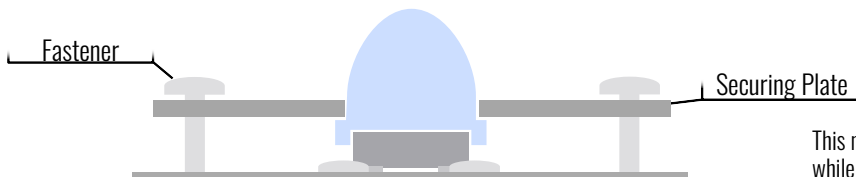
- Is silicone based
- Has low siloxane levels
- Has appropriate strength
- Is compatible with your processes

Adhesive Recommendations			
Maker	Dow Corning	Momentive	Shin-Etsu Silicone
Product Number	SE9186L	TSE3221S	X-32-1964
Cure Condition	20°C, 55%×6h (Room Temp Cure)	100°C×3h -or- 130°C×1h	100°C×3h
Viscosity	25 Pa·s	58 Pa·s	0.025 Pa·s
Type	Room Temp Cure (1 Component)	Heat Cure (1 Component)	Heat Cure (1 Component)
Adhesion Method	Lens to PCB (3)	LED to Lens / Lens to LED (1, 2)	

4. Mechanical

Secure a plate with a hole of ~5% larger diameter than the lens optic, fitted over the lens

Care must be taken to ensure no scraping or other physical damage to the lens optic when mounting



This method allows easier lens replacement while preserving the LED, where desired



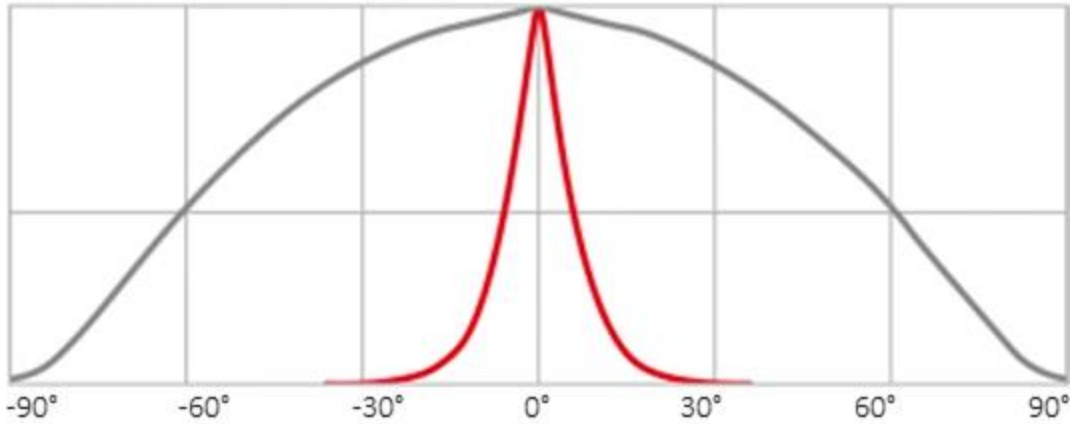
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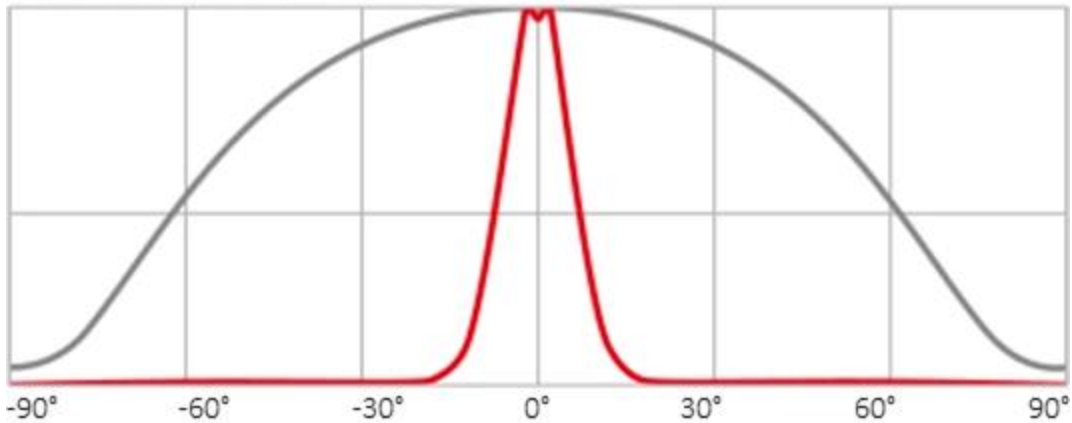
Photometrics

Directional Characteristics



Directivity with NSCU275 $\sim 10^\circ$

Directional Characteristics



Directivity with NVSU233A $\sim 12^\circ$

Silicone Rubber (ASR-A80MC) UV Durability Testing

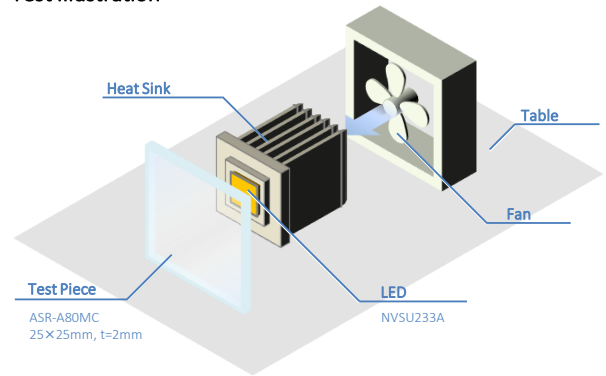
Test Method

UV-LED lit for extended duration; collected pre- and post-test transmittance data compared.

Test Description

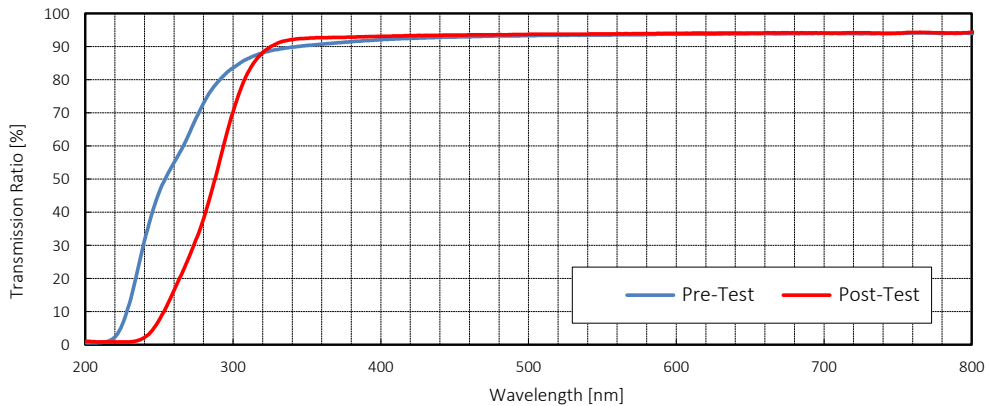
LED Package	Nichia NVSU233A (365nm)
Drive Current	1.4A (specification max)
Radiant Flux	1442mW (Nichia reference value)
Cooling	Heat sink with forced air
Ambient Temp.	25°C
Duration	6300 Hours
Distance	~2mm between LED and test piece

Test Illustration



Measured Results (Change in Transmittance)

Some loss in transmittance below 320nm was observed. Conversely, increase in transmittance observed in 320nm~460nm range.



Summary

- From ~320nm boundary, transmittance decreases in shorter wavelengths, yet increases in longer wavelengths.
- UV irradiation clearly causes a change in the optical qualities of the material; whether this can be considered degradation or long-duration curing of a sort depends on one's viewpoint.
- The material can be considered highly UV-durable at a reference wavelength of 365nm.