

**1. Application**

This specification applies to the A9F4C0B OLED module.

This module can be operated with NFC reader / writer.

## Product Overview

Item	Specifications
Product Name	OLED Module with NFC Antenna
Color	Red
Active Area	15.25 mm × 15.6 mm
Panel Size	25.9 mm × 21.4 mm
External Size	32.0 mm × 69.4 mm
Operating frequency	13.56 MHz
On-board NFC tag IC	NTAG213F (NXP)

**2. Operating conditions**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating temperature *1	Top	-10	25	60	°C

\*1. Ambient temperature (TA)

**3. Absolute Maximum Ratings**

Parameter	Symbol	Value	Unit
Absolute operating temperature *1	Top	-20 ~ +70	°C
Absolute storage temperature *1	Tstg	-20 ~ +85	°C

\*1. Ambient temperature (TA)

**4. Electrical/Optical parameters**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Brightness *1*2*3	Lv	*2	—	500	—	cd/m <sup>2</sup>
Chromaticity coordinate x *1*2*3	Cx	TA=25°C	0.687	0.697	0.707	-
Chromaticity coordinate y *1*2*3	Cy	"	0.293	0.303	0.313	-

\*1. Initial data

\*2. NFC reader / writer uses PaSoRi® RC-S380(Sony).

The distance between the NFC reader / writer and the OLED module is 0mm.

\*3. These values are measured at the center of the Active area.

\*4. Uneven brightness or pattern is not a malfunction.

\*5. In the initial state at the time of delivery, the dark spots stating below shall be allowable.

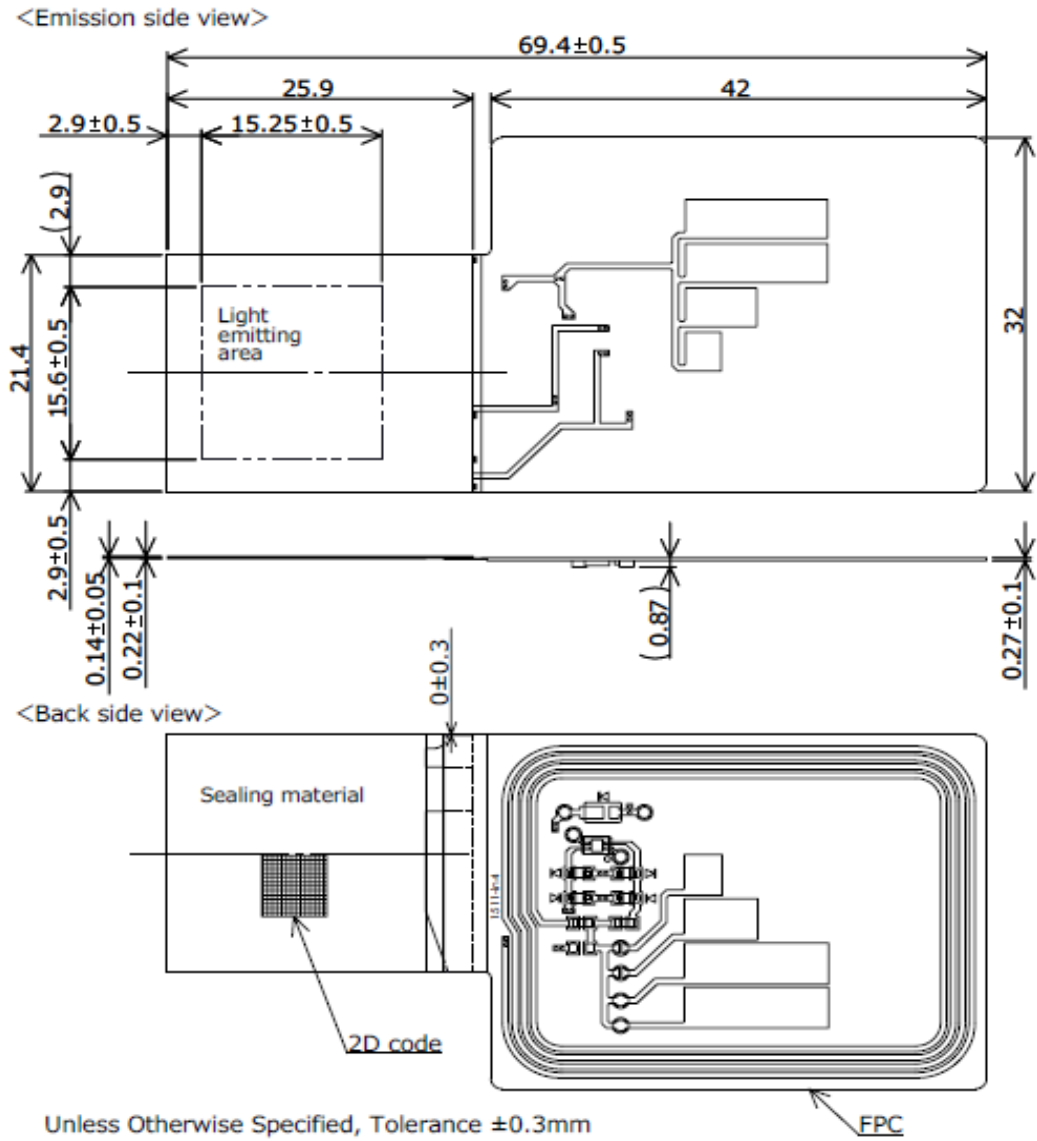
- Under 0.3mm diameter ; can be ignored

- 0.3mm~1.5mm diameter; under 20 pieces/panel

Regardless of the above, ignore dark spots within 1 mm from the active area outline.



### 5. Mechanical parameters

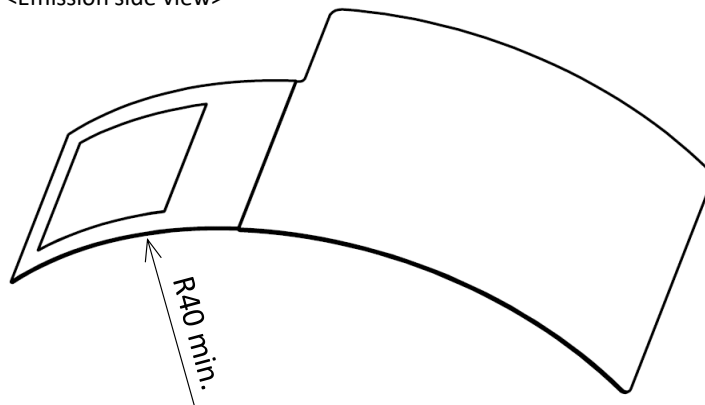


#### <Bending conditions>

Use the module under following bending conditions.

\* Bending in a direction different from the figure is not recommended.

#### <Emission side view>

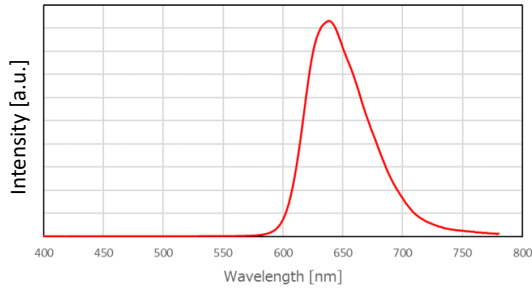




### 6. Reference data

Characteristics chart

-Typical characteristic values, not guaranteed values



### 7. Attention on storing

The following conditions are recommended for storage environment

Temperature	~ 25°C
Humidity	~ 50%RH

If stored in high temperature and high humidity conditions, the progress of the dark spots may be accelerated.



Read the following precautions carefully and use this module accordingly.

<b>DANGER</b>	Indicates matters deemed to <b>pose imminent danger to human life or serious injury.</b>
<b>WARNING</b>	Indicates matters deemed to <b>pose a risk of injury or property damage.</b>
<b>CAUTION</b>	Indicates matters deemed to <b>have the potential to injure someone and/or cause physical damage.</b>
	<p><b>Serious Injury:</b> Injuries that have after-effects, such as loss of eyesight, cuts, burns, electrical shock, broken bone(s), poisoning, etc., that require hospitalization and/or long-term medical care.</p> <p><b>Minor Injury:</b> Injuries, such as cuts, bruises, burns, or electrical shock that do not require hospitalization or extended out-patient medical treatment.</p> <p><b>Physical Damage:</b> Extensive damage to a building, household belongings, domestic animals or pets.</p>
<b>Other</b>	Other points of concern

Exemptions from Responsibility		KONICA MINOLTA bears absolutely no responsibility for damage arising due to natural calamities, such as earthquakes, lightning, flood or storm damage, etc., fires KONICA MINOLTA is not responsible for, acts of any third-parties, or any other accidents, nor for damage arising from the customer's intentional or accidental misuse, or occurring under any other abnormal conditions.
		KONICA MINOLTA bears absolutely no responsibility for any damage incidental to the use or inability to use this module.
		KONICA MINOLTA bears absolutely no responsibility for damage due to the failure to follow the content in this manual.
		KONICA MINOLTA bears absolutely no responsibility for damage arising due to malfunctions or the like from using adapting equipment not authorized by KONICA MINOLTA.
		The operation and performance of the module when used independently is not guaranteed.
		If a customer incorporates this module into other equipment and sells it, the customer alone shall be responsible for complying with the laws and regulations governing the equipment in the country in which it is sold.
		We ask that customers refrain from disassembling, altering or servicing the module. (May cause break-down, fire, shock or injury.) If an alteration or the like should be made, resulting in a break-down, it invalidates the warranty and KONICA MINOLTA shall bear absolutely no responsibility.
Installation Environment	DANGER	Do not use or place the module in a hot location (near flame, a stove, under the hot sun, etc.). (May cause a fire or explosion.)
	WARNING	Do not put anything nearby that can easily be spilled or catch on fire. (May cause malfunction, a fire, shock or other damage.)
	WARNING	Do not use for any purpose except as a light source. (May cause malfunction, a fire, shock or other damage.)
	WARNING	Only use at the specified electrical voltage. (May cause a fire, overheating, shock, etc.)
	WARNING	We recommend indoor use. When using the module outdoors, take preventative steps against heat, humidity and protect it from water, rain, strong ultraviolet rays, etc. (May cause malfunction, shock or other damage.)
	WARNING	The module is not water or rain-proof. Refrain from using it in a location with high humidity or where rain, dew or condensation may get on it. (May cause damage and/or failure of its insulation.)
	CAUTION	Do not position near the air outlet of an air conditioner. (May cause malfunction due to condensation.)
	CAUTION	Do not use in a humid, hot or cold location or where it is subject to the strong UV rays of direct sunlight. (May cause overheating, a fire, warping or malfunction.)
	CAUTION	Do not position in a location subject to strong shocks or vibrations. (May cause a malfunction or other damage.)
	CAUTION	Do not position in a dusty location. (May cause a malfunction or other damage.)
	CAUTION	Do not position where pets or small children can touch it. (May cause an injury, burn, or other damage.)
CAUTION	Do not position where a pet may urinate on it. (May cause a malfunction, corrosion or other damage.)	
CAUTION	Do not position near corrosive chemicals or where corrosive gases are generated. (May cause a malfunction, corrosion or other damage.)	



Assembly Environment	Other	Incorporate the module into an environment with as little dust as possible. (May cause a malfunction.)
	Other	Refrain from incorporating it into a corrosive environment, such as one with strong acids or alkalis. (May cause a malfunction or corrosion.)
	Other	Do not handle by bare hand. The operators should use with plastic gloves.
	Other	Highly recommend to cover the emitting side of OLED panel. (May cause damage.)
	Other	When incorporating it into equipment, take steps to protect the module from static electricity. (May cause a malfunction.)
Protecting the module	DANGER	Do not heat up or throw into a fire. Also, do not put into a microwave or high-pressure vessel. (May cause a fire, explosion or malfunction.)
	DANGER	Do not short terminals. Take care that no conductive matter (pieces of metal, pencil lead, etc.) touches terminals.(May cause a fire, explosion or malfunction.)
	WARNING	Do not subject to strong shocks, such as by dropping or throwing it. (May cause an explosion, fire or malfunction.)
	CAUTION	Connect the plus and minus of the power supply correctly. (May cause a malfunction or other damage.)
	CAUTION	Do not push on the light-emitting surface or its back or subject it to a strong shock. (May cause a cut or damage.)
	CAUTION	Do not rub, push or hit the light-emitting surface with any hard object, such as a tool. (May cause a cut or damage.)
	CAUTION	Do not stack modules. (May cause damage.)
	Other	If the light-emitting surface of the OLED panel was written or affixed , the panel may discolored or damaged.
	Other	Never allow drops of water or the like to stay on the light-emitting surface; wipe them off gently with a cotton ball or soft, dry cloth. (May cause a stain or discoloration.)
	Other	We recommend gently wiping the light-emitting surface with a dry cloth. If it gets very dirty, wipe it off gently with a soft cloth and a little IPA, do not use any alkalic or acid(May cause stains or discoloration.)
	Other	Do not rinse the module with water. (May cause a malfunction.)
Keeping Yourself and Your Pets Safe	WARNING	We recommend wearing gloves (a type that does not readily generate static) when handling the module.
	WARNING	Take care that your pet doesn't bite or scratch the module. (May cause shock, injury or malfunction.)
	WARNING	In extremely rare cases, looking at bright light stimuli and/or flashing lights repeatedly can result in symptoms such as muscle convulsions, loss of consciousness, etc. Refrain from using if you suspect this may happen.
	CAUTION	Highly recommend to avoid looking directly into the light source for a long time because this can lead to a temporary impairment of eyesight, even if IEC62868:2014 (Safety requirements standard of OLED modules for general lighting) defines OLED module does not need to do Photo biological safety test. Take particular care with infants.
	CAUTION	Do not touch the light-emitting surface as it may be hot while lit or for some time after it turns off.
	CAUTION	Take care not to hit, scratch or press on anything hard with it. (May cause damage or injury.)
	CAUTION	If any abnormal situation like local high brightness, heating, or deformation, please switch off the current and do not use it any more.
CAUTION	Do not disassemble or alter the module.	



If a Problem or Damage Occur	CAUTION	If the module is cracked, take care not to touch anything inside the module. (May cause injury.)
	CAUTION	If a fragment of the cracked module or anything from inside it should get in your mouth or eyes, rinse off anything clinging to your skin thoroughly with clean water and then consult a physician. (May cause injury.)
When Designing Equipment	CAUTION	Lay it out so no electronic parts are in direct contact with any other parts. We recommend insulating materials for the case. (May cause a malfunction or shock.)
	CAUTION	The layout should prevent the light-emitting surface and the back surface of the panel from being pressed upon with force. (May cause a malfunction or other damage.)
	CAUTION	Do not operate the OLED module with anything other than an NFC reader / writer.
	Other	If this module is placed near a device that generates strong electromagnetic wave, this module may not
	Other	If this module is placed near a metal material , this module may not be operated.
	Other	Plan the layout so static electricity cannot be transmitted directly to the module or its connectors. (May cause a malfunction.)
	Other	Plan the layout so the module dissipates heat well. (May cause a malfunction.)
	Other	Plan the layout so the module is not stressed with bending, folding or twisting when incorporating it. (May cause a malfunction or other damage.)
module Performance	Other	Highly recommend to avoid twisting or stressing the module strongly.
	Other	At low luminance, the individual differences in modules produces variation in the expression of gradation and this is not a defect.
	Other	There may be some quite small black and/or bright spots on the light-emitting surface. And depending on the viewing angle, there may be some variation in the color of light and/or irregular, streaky brightness. These arise from the structure of the OLED lighting.
Disposal	Other	Packing does not prevent skimming. Do not use this module for applications that require high security.
	Other	When disposing of the module, do so in accordance with all national and local regulations.

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