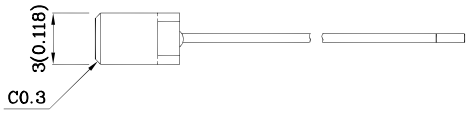
SunLED
www.SunLEDusa.com

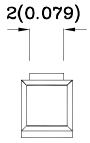
**Part Number: XSFRA43MBBA**

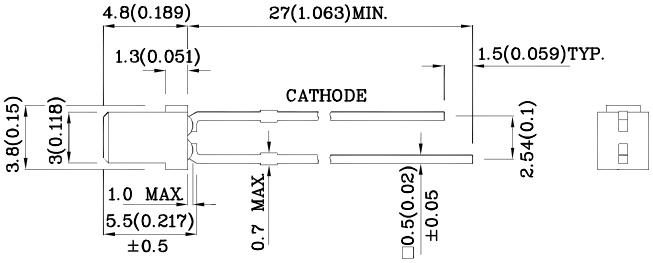
3.0x3.0mm ICE CUBE LED

## Features

- Low power consumption.
- Wide viewing angle.
- Reliable and rugged.
- Excellent uniformity of light output.
- Ideal for flush mounted panel indicators.
- RoHS compliant.




**ATTENTION**
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Notes:

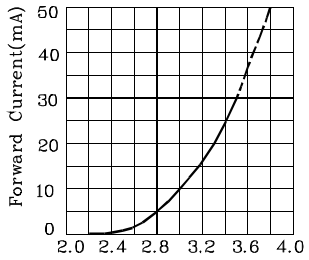
1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25(0.01") unless otherwise noted.
3. Specifications are subject to change without notice.

| **Absolute Maximum Ratings ($T_A$=25°C)** | | **FRA (InGaN)** | **Unit** |
|---|---|---|---|
| Reverse Voltage | $V_R$ | 5 | V |
| Forward Current | $I_F$ | 30 | mA |
| Forward Current (Peak) 1/10 Duty Cycle 0.1ms Pulse Width | iFS | 100 | mA |
| Power Dissipation | $P_D$ | 120 | mW |
| Operating Temperature | $T_A$ | -40 ~ +85 | °C |
| Storage Temperature | Tstg | -40 ~ +85 | |
| Lead Solder Temperature [2mm Below Package Base] | 260°C For 3 Seconds | | |
| Lead Solder Temperature [5mm Below Package Base] | 260°C For 5 Seconds | | |

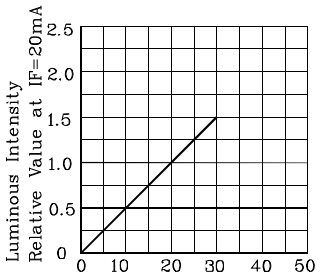
| **Operating Characteristics ($T_A$=25°C)** | | **FRA (InGaN)** | **Unit** |
|---|---|---|---|
| Forward Voltage (Typ.) ($I_F$=20mA) | $V_F$ | 3.3 | V |
| Forward Voltage (Max.) ($I_F$=20mA) | $V_F$ | 4.0 | V |
| Reverse Current (Max.) ($V_R$=5V) | $I_R$ | 50 | uA |
| Chromaticity Coordinates (Typ.) | x | 0.18 | |
| | y | 0.29 | |
| Capacitance (Typ.) ($V_F$=0V, f=1MHz) | C | 100 | pF |

| Part Number | Emitting Color | Emitting Material | Lens-color | Luminous Intensity (IF=20mA) mcd | | Viewing Angle 2 θ 1/2 |
|---|---|---|---|---|---|---|
| | | | | min. | typ. | |
| XSFRA43MBBA | Blue | InGaN | White Triple Diffused | 110 | 367 | 110° |

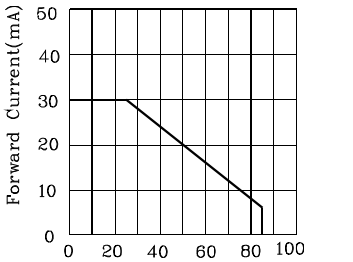
## ❖ FRA



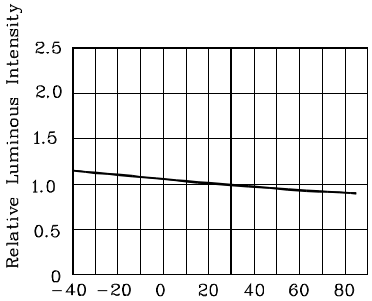

FORWARD CURRENT Vs.
FORWARD VOLTAGE



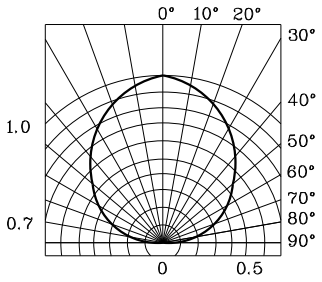

LUMINOUS INTENSITY Vs.
FORWARD CURRENT



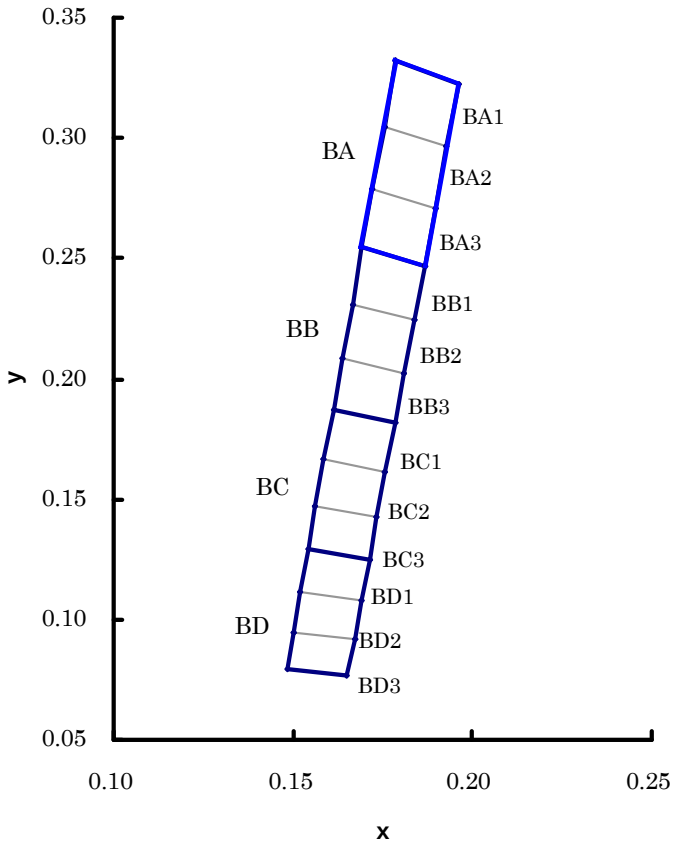

FORWARD CURRENT
DERATING CURVE




LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE



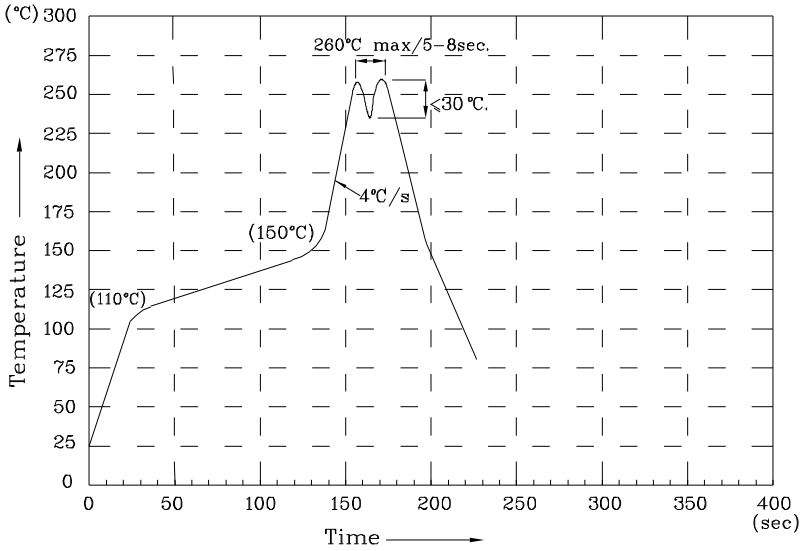

SPATIAL DISTRIBUTION




| Bin code | x | y | Bin code | x | y | Bin code | x | y | Bin code | x | y |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **BA1** | 0.1786 | 0.3318 | **BB1** | 0.1693 | 0.2543 | **BC1** | 0.1612 | 0.1870 | **BD1** | 0.1542 | 0.1288 |
| | 0.1754 | 0.3048 | | 0.1665 | 0.2308 | | 0.1587 | 0.1666 | | 0.1521 | 0.1114 |
| | 0.1928 | 0.2964 | | 0.1837 | 0.2241 | | 0.1758 | 0.1615 | | 0.1691 | 0.1077 |
| | 0.1961 | 0.3228 | | 0.1866 | 0.2471 | | 0.1783 | 0.1814 | | 0.1712 | 0.1247 |
| **BA2** | 0.1754 | 0.3048 | **BB2** | 0.1665 | 0.2308 | **BC2** | 0.1587 | 0.1666 | **BD2** | 0.1521 | 0.1114 |
| | 0.1723 | 0.2790 | | 0.1638 | 0.2084 | | 0.1564 | 0.1473 | | 0.1501 | 0.0948 |
| | 0.1896 | 0.2712 | | 0.1810 | 0.2022 | | 0.1735 | 0.1427 | | 0.1670 | 0.0917 |
| | 0.1928 | 0.2964 | | 0.1837 | 0.2241 | | 0.1758 | 0.1615 | | 0.1691 | 0.1077 |
| **BA3** | 0.1723 | 0.2790 | **BB3** | 0.1638 | 0.2084 | **BC3** | 0.1564 | 0.1473 | **BD3** | 0.1501 | 0.0948 |
| | 0.1693 | 0.2543 | | 0.1612 | 0.1870 | | 0.1542 | 0.1288 | | 0.1482 | 0.0791 |
| | 0.1866 | 0.2471 | | 0.1783 | 0.1814 | | 0.1712 | 0.1247 | | 0.1651 | 0.0765 |
| | 0.1896 | 0.2712 | | 0.1810 | 0.2022 | | 0.1735 | 0.1427 | | 0.1670 | 0.0917 |

Notes:
Shipment may contain more than one chromaticity regions.
Orders for single chromaticity region are generally not accepted.
Measurement tolerance of the chromaticity coordinates is ±0.02.

Wave Soldering Profile For Lead-free Through-hole LED.




NOTES:

1. Recommend the wave temperature 245℃~260℃. The maximum soldering temperature should be less than 260℃.
2. Do not apply stress on epoxy resins when temperature is over 85 degree℃.
3. The soldering profile apply to the lead free soldering (Sn/Cu/Ag alloy).
4. No more than once.

Remarks:

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

1. Measurement tolerance of the chromaticity coordinates is ±0.02.
2. Luminous intensity/ luminous flux: +/-15%.
3. Forward Voltage: +/-0.1V.

Note: Accuracy may depend on the sorting parameters.

## PACKING & LABEL SPECIFICATIONS XSFRA43MBBA