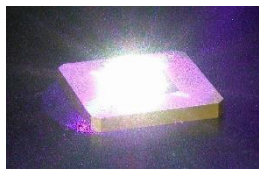
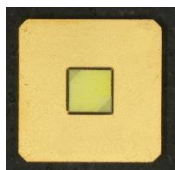


# EPOCH-Neo

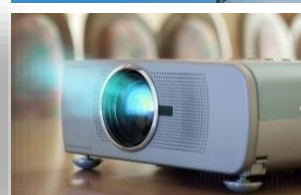
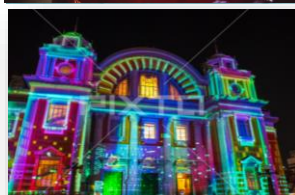
Unrivaled New Phosphor for the Brightest White-Light

## Applications

- ✓ **Automobile Headlight**
- ✓ **Projector**
- ✓ **Solid-state Illumination**



EPOCH-Neo (MGC) Device



## What's EPOCH-Neo? **EPOCH-Neo** is the **BEST Phosphor**

**EPOCH-Neo** is a melt growth composite (MGC) consisting of single crystalline Ce:YAG phosphor and  $\text{Al}_2\text{O}_3$  (sapphire) which has high thermal conductivity. Two materials are continuously tangled with each other without any organic binder, air space, nor boundary layer. Yellow light emitted from Ce:YAG excited by blue LEDs and LDs is scattered by the boundaries between Ce:YAG and  $\text{Al}_2\text{O}_3$  and effectively extracted from the surface of EPOCH-Neo, while heat generated by Stokes shift or non-radiative transition is dissipated along  $\text{Al}_2\text{O}_3$ .

**EPOCH-Neo DEVICE** consists of EPOCH-Neo and a heat sink, specially designed by the expertise of OXIDE for superior heat dissipation. EPOCH-Neo has been improved by further optimized crystal growth conditions. Thus **EPOCH-Neo DEVICE** can provide much higher luminance and can accept high power irradiation of a blue LD (B-LD).

## Advantages

- ✓ **High Thermal Conductivity**
- ✓ **Ultra-High Brightness**
- ✓ **High Durability**

### Characteristics of Phosphors

	Ceramic	Single Crystal	EPOCH	EPOCH-Neo
<b>Luminous Efficacy<sup>(*)</sup> (lm/W)</b>	—	—	170	<b>235</b>
<b>Thermal Conductivity (W/mK)</b>	< 10	13	<b>~20</b>	<b>~20</b>
Durability against B-LD Irradiation	Weak (< 4W)	strong	strong	<b>Strong (&gt;60W)</b>

(\*) Measurement was conducted for a phosphor device with an integrating sphere.  
Luminous efficacy is luminous flux of phosphor divided by the laser power.

**OXIDE**

**OXIDE Corporation**

1747-1 Maginohara, Mukawa, Hokuto, Yamanashi 408-0302 JAPAN  
Tel: +81-551-26-0022, Fax: +81-551-26-0033

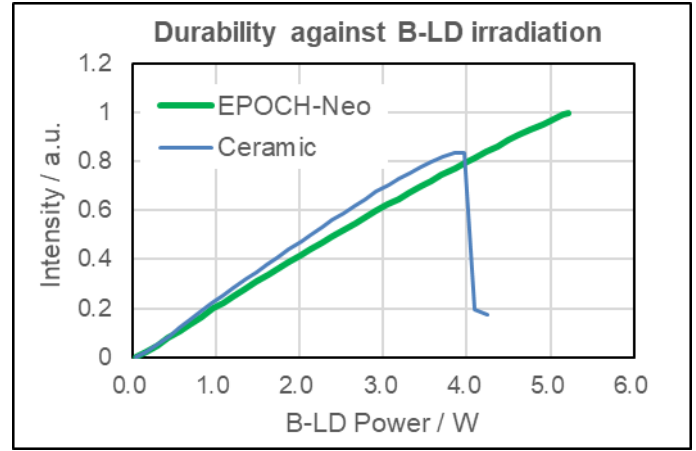
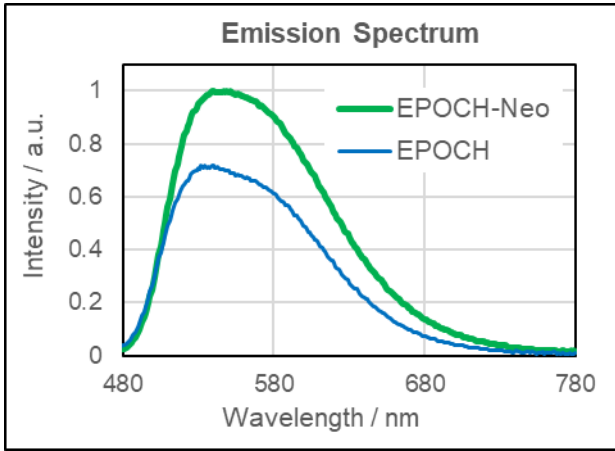


✉ [Sales@opt-oxide.com](mailto:Sales@opt-oxide.com)

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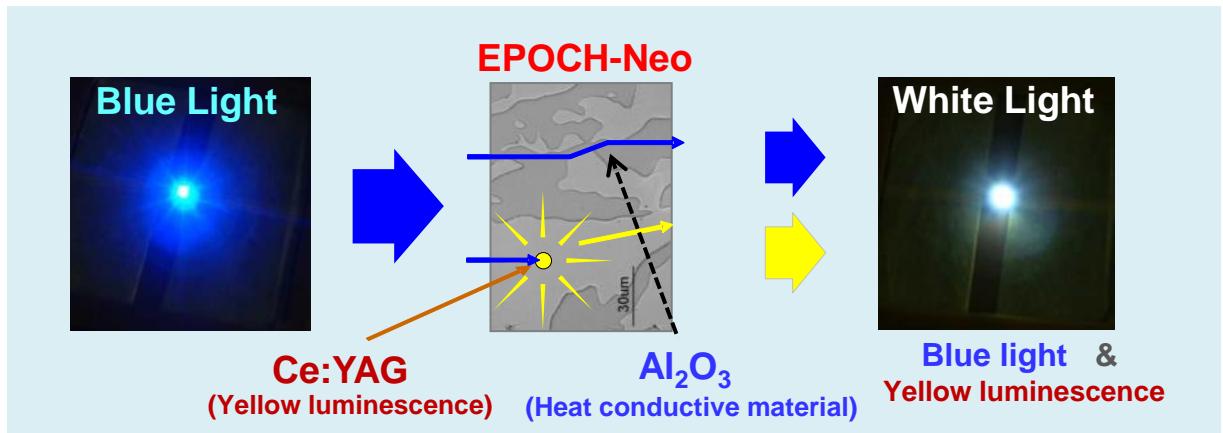
🐦 **Oxide Yamanashi**

# Photoluminescence and Reliability of EPOCH-Neo



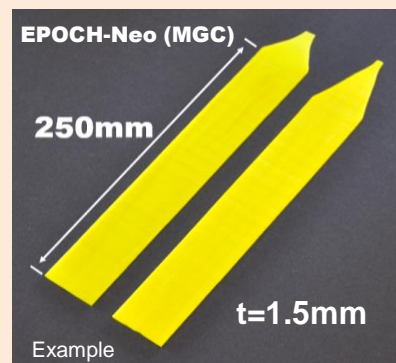
- ✓ Optical properties of EPOCH-Neo have been further improved compared with those of the former EPOCH .
- ✓ EPOCH-Neo maintains linearity in the high power range compared to Ceramic due to its good heat dissipation ability.

## Principle of EPOCH-Neo Phosphor



## Image of Phosphor Ingot (Ribbon Type)

The EPOCH-Neo is synthesized by the technique which Adamant Namiki Precision Jewel Co., Ltd (3-8-22, Shinden, Adachi-ku, Tokyo, 123-8511, Japan, E-mail: naphia@ad-na.com) has used in in the world's first mass-production for sapphire substrate. This technique has successfully enabled to achieve to optimize the Ce concentration and crystal structure of MGC.



**OXIDE**

**OXIDE Corporation**

1747-1 Maginohara, Mukawa, Hokuto, Yamanashi 408-0302 JAPAN  
Tel: +81-551-26-0022, Fax: +81-551-26-0033



✉ Sales@opt-oxide.com

🌐 <https://www.opt-oxide.com>

🐦 Oxide Yamanashi