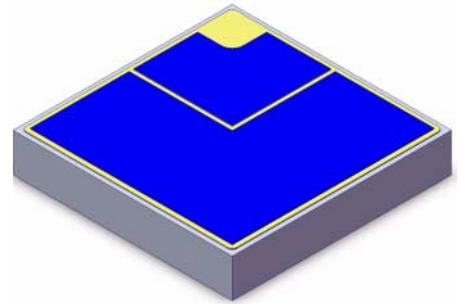


High Efficiency 40 mil ThinGaN LED (455nm) Lead (Pb) Free Product - RoHS Compliant

ODB40RG



Features

- High efficiency due to new ThinGaN concept
- Lambertian Emission pattern
- Ideal for LCD backlighting and coupling in light guides
- Polarity: n-side up
- Wavelength (typ.): 455 nm
- Technology: ThinGaN
- Grouping parameters: radiant power, wavelength

Applications

- Outdoor displays
- Optical indicators
- Backlighting (LCD, switches, keys, displays, illuminated advertising, general lighting)
- Marker lights (e.g. steps, exit ways, etc.)
- Signal and symbol luminaire

Here you can find important REACH information of OSRAM Opto Semiconductors' products:

http://www.osram-os.com/osram_os/EN/Products/REACH

Please also note the special information in the section „Handling and storage conditions“ on page 5.

Type	Ordering Code	Description
ODB40RG-3235-X	Q65110A9446	40 mil high efficiency ThinGaN chip, 435 - 475 nm, > 320 mW

Electrical values¹⁾ ($T_A = 25\text{ °C}$), correlated to OSRAM's Golden DRAGON Plus Package

Parameter	Symbol	Value ²⁾			Unit
		min.	typ.	max.	
Dominant wavelength $I_F = 350\text{ mA}$, pulsed	λ_{dom}	435		475	nm
Reverse voltage $I_R = 10\mu\text{A}$	V_R	10			V
Forward voltage $I_F = 350\text{ mA}$, pulsed	V_F	2.7		3.7	V
Radiant Power $I_F = 350\text{ mA}$, pulsed	Φ_e	320			mW

¹⁾ *Measurement limits describe actual settings and do not include measurement uncertainties. Each wafer and fragment of a wafer is subject to final testing. The wafer or its pieces are individually attached on foils (rings). All el. values are referenced to the vendor's measurement system (correlation to customer product(s) is required). Measurement uncertainty +/-15% for brightness, +/- 1nm for wavelength and +/- 0.1V for voltage.*

²⁾ *Due to the special conditions of the manufacturing processes of LED, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.*

Binning

Radiant Power (mW)	435 - 440 nm	440 - 445 nm	445 - 450 nm	450 - 455 nm	455 - 460 nm	460 - 465 nm	465 - 470 nm	470 - 475 nm
320 - 400	A32	B32	C32	D32	E32	F32	G32	H32
400 - 500	A33	B33	C33	D33	E33	F33	G33	H33
500 - 640	A34	B34	C34	D34	E34	F34	G34	H34
640 - 800	A35	B35	C35	D35	E35	F35	G35	H35

Maximum Ratings¹⁾

Parameter	Symbol	Value	Unit
Maximum Operating temperature range	T_{op}	-40...+100	°C
Maximum forward current ($T_A = 25^\circ\text{C}$)	I_F	700	mA
Minimum forward current ($T_A = 25^\circ\text{C}$)	I_F	100	mA
Maximum surge Current ($T_A = 25^\circ\text{C}$) $t_p = 10 \mu\text{s}$, $D = 0.05$	I_{peak}	0.7	A
Maximum junction temperature	T_j	125	°C

¹⁾ Maximum ratings are strongly package dependent and may differ between different packages. The values given represent the chip in an OSRAM Opto Semiconductor's Golden DRAGON Plus package.

Mechanical values¹⁾

Parameter	Symbol	Value ²⁾			Unit
		min.	typ.	max.	
Length of chip edge (x-direction)	L_x	0.95	1.00	1.05	mm
Length of chip edge (y-direction)	L_y	0.95	1.00	1.05	mm
Diameter of the wafer	D		100		mm
Die height	H	170	190	210	μm
Diameter of bondpad	d	160	180	200	μm

Additional information

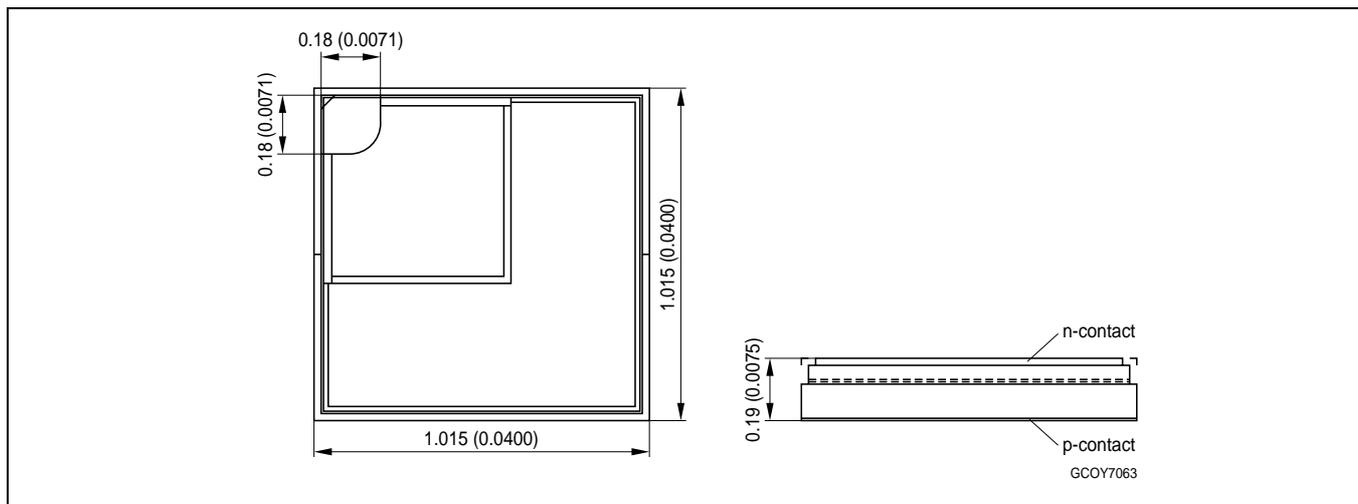
Metallization frontside	Gold partial
Metallization backside	Au
Die bonding	Epoxy bonding

¹⁾ All chips are checked according to the following procedure and the OSRAM OS specification of the visual inspection A63501-Q0002-N001-*-76G3:

Unless otherwise described below, the quality level of the final visual inspection shall comply to an AQL 0,4 (according MIL-STD-105E, level II), if the customer performs an incoming visual inspection of a shipment. The quality inspection (final visual inspection) is performed by production. An additional visual inspection step as special release procedure by QM after the final visual inspection is not installed.

²⁾ Due to the special conditions of the manufacturing processes of LED, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice

Chip Outlines



Dimensions are specified as typical¹⁾ values as follows: mm (inch).

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Attention please!

The information generally describes the type of component and shall not be considered as assured characteristics or detailed specification.

Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our sales organization.

Handling and Storage Conditions:

Storage time for wafers in sealed condition shall not exceed 6 months (storage ambient conditions: Ta=15...30°C; relative humidity: < 60%).The hermetically sealed shipment lot shall be opened under temperature and moisture controlled cleanroom environment only. Customer has to follow the according rules for disposition of material that can be hazardous for humans and environment.

Chips are placed on a blue foil, which may contain the following substance in a concentration of circ.18% wt:

Bis (2-ethyl(hexyl)phthalate) (DEHP) [CAS #: 117-81-7; EC # 204-211-0].

Dice have to be handled ESD sensitive.

Packing

Chips are placed on a blue foil with minimum size of 18 x 18 cm² or alternatively on a blue foil inside a 6" ring.

For shipment the wafers of a shipment lot are arranged to stacks. The stack is put in a plastic ESD bag with a maximum of 14 wafers in one bag. A maximum of 4 bags is put in a packaging box. A maximum of 5 packaging boxes is put in a shipping carton which is sealed for storage and shipment.

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office.

By agreement we will take packing material back, if it is sorted. You will have to bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Label and shipping documents

Each wafer is identified with a sticker, which is attached to each wafer. The label shows chip type, wafer number, quantity, binning and the minimum, average and maximum values of voltage, luminous intensity and wavelength. Each wafer shipment includes an additional document, which summarizes the content.

Design objectives

a) workability

The chip design was developed and released based on the vendor's standard assembly procedures and packaging.

Bond strength properties are in accordance to MIL-STD-750D, method 2037. Whether the chip fits to the customer's product(c) with its according die and wire bond procedures and packaging must be evaluated by the customer himself. If workability problems arise after this release a mutually conducted problem solving procedure has to be set up, if the chips are suspected of contributing to the problems

b) chip characteristics

The chips are produced by the vendor with best effort, but on chip level a subset of the chip characteristics can be determined only. Performance of the chip in the customer's product(s) can only be determined by the customer himself.

Returns/Complaints

To return material because of technical or logistical reasons a RMA-number is necessary. Samples for analysis purposes can be send to OSRAM OS without credit.

Shipping Conditions:

If not otherwise arranged, the "General Conditions for the supply of products and services of the electrical and electronics industry" apply for any shipment. If these documents are not familiar to you, please request them at our nearest sales office.

Components used in life-support devices or systems must be expressly authorized by us for such purpose!

Critical components²⁾, may only be used in life-support devices or systems³⁾ with the express written approval of OSRAM OS.

Revision History: 2009-08-01

Previous Version: n.a.

Page	Subjects (major change since last revision)	Date of change

¹⁾ Typical (referred to as typ.) data are defined as long-term production mean values and are only given for information. This is not a specified value.

²⁾ A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system.

³⁾ Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.

EU RoHS and China RoHS compliant product



此产品符合欧盟 RoHS 指令的要求；

按照中国的相关法规和标准，不含有毒有害物质或元素。