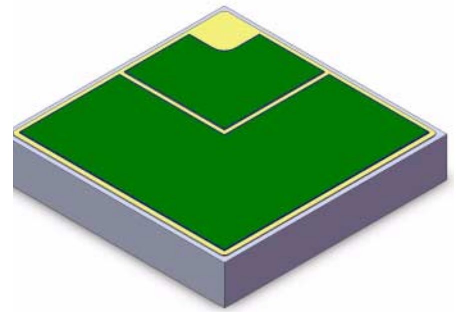
High Efficiency 40 mil ThinGaN LED (525 nm)
Lead (Pb) Free Product - RoHS Compliant

ODT40RG



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.): 525 nm
- Technology: ThinGaN
- Grouping parameters: luminous flux, 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
ODT40RG-5357-X	Q65110A9438	40 mil high efficiency ThinGaN chip, 515 - 550 nm, > 40 lm

Electrical values[1] (T_A = 25 °C), correlated to OSRAM's Golden DRAGON Plus Package

Parameter	Symbol	Value[2]			Unit
		min.	typ.	max.	
Dominant wavelength I_F = 350 mA, pulsed	λ_{dom}	515		550	nm
Reverse voltage I_R = 10µA	V_R	10			V
Forward voltage I_F = 350 mA, pulsed	V_F	2.7		3.8	V
Luminous flux I_F = 350 mA, pulsed	Φ_v	40000			mlm

[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

Luminous flux (mlm)	515 - 520 nm	520 - 525 nm	525 - 530 nm	530 - 535 nm	535 - 540 nm	540 - 545 nm	545 - 550 nm
40000 - 50000	A53	B53	C53	D53	E53	F53	G53
50000 - 64000	A54	B54	C54	D54	E54	F54	G54
64000 - 80000	A55	B55	C55	D55	E55	F55	G55
80000 - 100000	A56	B56	C56	D56	E56	F56	G56
100000 - 128000	A57	B57	C57	D57	E57	F57	G57

Maximum Ratings[1)]

Parameter	Symbol	Value	Unit
Maximum Operating temperature range	T_{op}	-40...+100	°C
Maximum forward current (T_A = 25°C)	I_F	700	mA
Minimum forward current (T_A = 25°C)	I_F	100	mA
Maximum surge Current (T_A = 25°C) t_p = 10 µs, 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 values[1)]

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

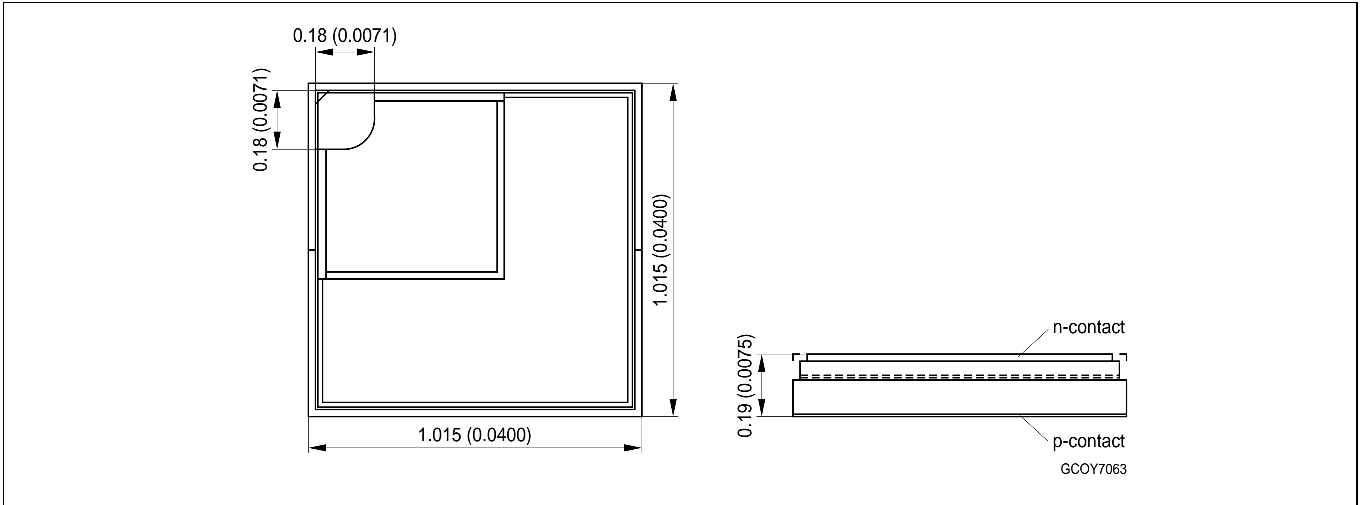
Additional information

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 performes 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 typical[1)] 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 components[2], may only be used in life-support devices or systems[3] 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 (refered 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。