

am<sup>U</sup> OSRAM Preliminary PCN

AO-PCN-2022-014-N

Introduction of 2<sup>nd</sup> source for classic InGaAlP chip for Mini  
TOPLED

Customer information package

OS Q CQM AM ITR  
15.04.2022

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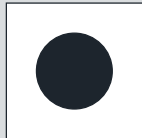
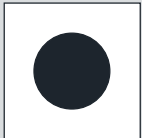
# AO-PCN-2022-014-N – Preliminary PCN – Introduction of 2<sup>nd</sup> source for classic InGaAlP chip for Mini TOPLED

## Reason for change

Item	Description
1.	Secure continuous supply
2.	Introduction of additional supplier chips
3.	Introduction of additional production location of released plater



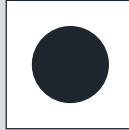
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## Description of change for standard chips

Item	Current status	2 <sup>nd</sup> source chip A	2 <sup>nd</sup> source chip B	2 <sup>nd</sup> source chip C
Wafer size [mm]	100	100	100	100
Wafer substrate	GaAs	GaAs	GaAs	GaAs
Height [ $\mu\text{m}$ ]	220	175	180	180
Chip dicing process	Sawing	Sawing	Sawing	Sawing
Picture (schematic)				
Chip size [ $\mu\text{m}$ ]	200 x 200	200 x 200	180 x 180	180 x 180
Front metal type	Al	Au	Au	Au
Front metal thickness [ $\mu\text{m}$ ]	1.50	2.50	2.90	2.25
Back metal type	Au	Au	Au	Au
Back metal thickness [ $\mu\text{m}$ ]	0.25	0.05	0.50	0.35
Bond pad size [ $\mu\text{m}$ ]	100	100	100	100
Wafer Fab location	Regensburg/Germany	Supplier	Supplier	Supplier

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## Description of change for low current chips

Item	Current status	2 <sup>nd</sup> source chip D	2 <sup>nd</sup> source chip E
Wafer size [mm]	100	100	100
Wafer substrate	GaAs	GaAs	GaAs
Height [ $\mu\text{m}$ ]	190	180	180
Chip dicing process	Sawing	Sawing	Sawing
Picture (schematic)			
Chip size [ $\mu\text{m}$ ]	170 x 170	160 x 160	170 x 170
Front metal type	Al	Au	Au
Front metal thickness [ $\mu\text{m}$ ]	1.50	2.90	2.25
Back metal type	Au	Au	Au
Back metal thickness [ $\mu\text{m}$ ]	0.25	0.50	0.35
Bond pad size [ $\mu\text{m}$ ]	100	90	100
Wafer Fab location	Regensburg/Germany	Supplier	Supplier

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Description of change for all devices

Current status	New status
Plater location: Wuxi/China	Plater location: Wuxi & Shanghai/China

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## List of affected products


Standard				
Brand	Device	Chip A	Chip B	Chip C
Mini TOPLED	LS M676		X	X
	LA M676	X		X
	LO M676		X	X
	LY M676	X	X	

Low current			
Brand	Device	Chip D	Chip E
Mini TOPLED	LS M67K	X	X
	LO M67K		X
	LY M67K	X	X
	LG M67K	X	X

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**PCN Samples** (planned availability at Final PCN publication)

Standard	Low current
LS M676	LS M67K
LA M676	LO M67K
LO M676	LY M67K
LY M676	LG M67K

Color code:  available  on request



# AO-PCN-2022-014-N – Preliminary PCN – Introduction of 2<sup>nd</sup> source for classic InGaAlP chip for Mini TOPLED

## Qualification Plan

Test item	Test condition	Test duration
Wet High Temperature Operating Life WHTOL1	$T_A = 85^\circ\text{C}$ ; r.H. = 85%; $I_F = \text{max. acc. to datasheet}$ ; $T_{\text{on/off}} = 30 \text{ min}$	1000 h
Wet High Temperature Operating Life WHTOL2	$T_A = 85^\circ\text{C}$ ; r.H. = 85%; $I_F = \text{min. acc. to datasheet}$	1000 h
Powered Temperature Cycle PTC	$T_A = -40/+85^\circ\text{C}$ ; $I_F = \text{max acc. to derating curve}$	1000 c
Temperature Cycling TC	$T_A = -40/+100^\circ\text{C}$ ; 15 min each extrem	1000 c
High Temperature Operating Life HTOL1	$T_s = \text{max acc. to datasheet}$ ; $I_F = \text{corresponding max. acc. to derating curve}$	1000 h
High Temperature Operating Life HTOL2	$I_F = \text{max acc. to datasheet}$ ; $T_s = \text{corresponding max. acc. to derating curve}$	1000 h
Pulsed Operating Life PLT	$T_A = 25^\circ\text{C}$ ; $I_F = \text{max acc. to datasheet}$ ; $t_p = 0,1 \text{ ms}$ ; $D = 3\%$	1000 h

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## Qualification Plan

Test item	Test condition	Test duration
DEW	$T_{A,min} = 10^{\circ}\text{C}$ ; $T_{A,max} = 80^{\circ}\text{C}$ ; r.H. = 53-100%	10 c
H <sub>2</sub> S	$T_A = 40^{\circ}\text{C}$ ; r.H. = 90%; 15 ppm H <sub>2</sub> S	336 h
Flowing Mixed Gas FMG	$T_A = 25^{\circ}\text{C}$ , r.H. = 75%; Test method 4	500 h
Board Flex BF	2 mm	1 x
Electrostatic Discharge HBM	Human Body Model	2000 V
Electrostatic Discharge CDM	Charged Device Model	750 V

### Note:

- Planned devices for qualification tests: LA M676, LO M676, LS M676, LY M676, LG M67K, LO M67K, LS M67K, LY M67K (please refer to next slide)

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## Test vehicle overview

Standard				
Brand	Device	Chip A	Chip B	Chip C
Mini TOPLED	LS M676		1 lot	1 lot
	LA M676			1 lot
	LO M676		1 lot	1 lot
	LY M676	3 lots	1 lot	

Low current			
Brand	Device	Chip D	Chip E
Mini TOPLED	LS M67K	1 lot	1 lot
	LO M67K		1 lot
	LY M67K	1 lot	
	LG M67K	1 lot	1 lot

### Note:

- Qualification results expected for: 07/2022

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## Time schedule

for publication final PCN:	01.07.2022	
for PCN material ( <u>after</u> implementation of change):		
Final qualification report	01.07.2022	
Samples available	01.07.2022	
Intended Start of delivery	01.12.2022 *)	*) or earlier if released by customer and upon mutual agreement
Customer Review Finalization:	01.07.2023 **)	***) Expected final feedback of customer. Released order volume is related to deliveries of material from both previous and additional source(s).

Note:  
Pre-PCN material: Products of current status, means before implementation of the changes as described in the PCN.  
PCN material: Products with implementation of the changes as described in the PCN.

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