

OSRAM Infonote

AO-IN-2022-026-I

Update of P_{opt} Specification for
PLPT5 447KA

17.10.2022

Dear Customer,

please find attached the **OSRAM Infonote**:

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

Please take note, that this customer notification is for info only and does not require customer approval.

Objective:	Update of P_{opt} Specification for PLPT5 447KA	
Affected products:	PLPT5 447KA	
Reason for change:	Extended lifetime tests allow the release of the product for a higher optical output power of 2W	
Description of change:	For details refer to file 2_cip_AO-IN-2022-026-I	
Time schedule:	Reliability report	Available
	Update of data sheet	Available
	Samples availability	Nov. 15 th 2022
	Intended start of delivery	Nov. 15 th 2022
Assessment:	<ul style="list-style-type: none">○ No changes in chip and assembly.○ No changes in reliability.	
Documentation:	Customer information package	2_cip_AO-IN-2022-026-I
	Reliability report	3_cip_AO-IN-2022-026-I

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AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

Customer information package

Dr. Christian Jung Customer Quality Illumination-Consumer-Industry (OS Q CQM ICI)

17.10.2022

Agenda

	Page
1. Reason for change	3
2. Description of change	4
3. Changes in the datasheets	5
4. Reliability Test Plan	11
5. List of affected products	12
6. Time schedule	13

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

Reason for change

Description

- Extended lifetime tests allow the release of the product for a higher optical output power of 2W

Assessment

- No changes in chip and assembly
- No changes in reliability

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

Changes in the datasheets

Product type	Data sheet version <u>before IN</u>	Data sheet version <u>after IN</u>
PLPT5 447KA	Version 0.1 2021-08-20	Version 1.0 2022-09-29

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

Changes in the datasheets

Current status	New status
<p data-bbox="129 515 619 554">OSRAM OS datasheet layout</p> <div data-bbox="155 634 952 1065"><p>Features:</p><ul style="list-style-type: none">- Typical emission wavelength: 445 nm- TO56 package- High modulation bandwidth- Multi-mode semiconductor laser- Efficient radiation source for cw and pulsed operation- Laser diode isolated against package- ESD protection diode- Optical power class 1.6 W</div>	<p data-bbox="1284 515 1791 554">ams OSRAM datasheet layout</p> <div data-bbox="1299 634 2079 1065"><p>Features</p><ul style="list-style-type: none">- Typical emission wavelength: 445 nm- TO56 package- High modulation bandwidth- Multi-mode semiconductor laser- Efficient radiation source for cw and pulsed operation- Laser diode isolated against package- ESD protection diode- Optical power class 2 W</div>
<p data-bbox="129 1229 573 1268">Optical power class: 1,6 W</p>	<p data-bbox="1284 1229 1702 1268">Optical power class: 2 W</p>

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

Changes in the datasheets

Current status			New status		
Ordering Information			Ordering Information		
Type	Peak output power typ. P_{opt}	Ordering Code	Type	Peak output power typ. P_{opt}	Ordering Code
PLPT5 447KA	1.6 W	Q65113A0154	PLPT5 447KA	2 W	Q65113A0154
Peak output power typ.: 1,6 W			Peak output power typ.: 2,0 W		

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

Changes in the datasheets

Current status				New status			
Maximum Ratings				Maximum Ratings			
$T_c = 25\text{ °C}$				$T_c = 25\text{ °C}$			
Parameter	Symbol		Values	Parameter	Symbol		Values
Operating temperature	T_{op}	min.	-20 °C	Operating temperature	T_{op}	min.	-20 °C
		max.	85 °C			max.	85 °C
Storage temperature	T_{stg}	min.	-20 °C	Storage temperature	T_{stg}	min.	-20 °C
		max.	100 °C			max.	100 °C
Junction temperature	T_j	max.	135 °C	Junction temperature	T_j	max.	135 °C
Output power	P_{opt}	max.	1.8 W	Output power	P_{opt}	max.	2.2 W
Operating current ¹⁾	I_{op}	max.	1.3 A	Operating current ¹⁾	I_{op}	max.	1.5 A
Soldering temperature	T_s	max.	260 °C	Soldering temperature	T_s	max.	260 °C
$t_{max} = 10\text{ sec}$				$t_{max} = 10\text{ sec}$			
Maximum Ratings: values				Maximum Ratings: values			

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

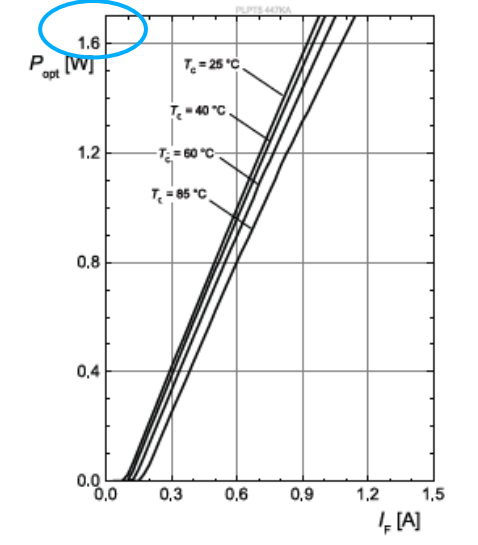
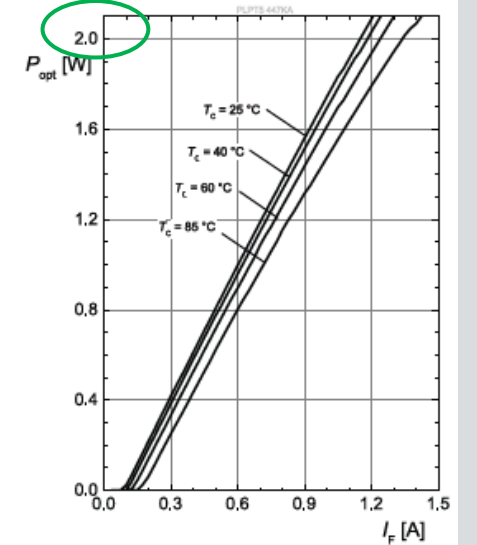
Changes in the datasheets

Current status				New status			
Characteristics				Characteristics			
$P_{opt} = 1.6 \text{ W}; T_c = 25 \text{ }^\circ\text{C}$				$P_{opt} = 2.0 \text{ W}; T_c = 25 \text{ }^\circ\text{C}$			
Parameter	Symbol		Values	Parameter	Symbol		Values
Operating current ¹⁾	I_{op}	typ.	0.9 A	Operating current ¹⁾	I_{op}	typ.	1.2 A
		max.	1.2 A			max.	1.4 A
Centroid wavelength ²⁾	$\lambda_{centroid}$	min.	436 nm	Centroid wavelength ²⁾	$\lambda_{centroid}$	min.	436 nm
		typ.	445 nm			typ.	445 nm
		max.	456 nm			max.	456 nm
Optical output power	P_{opt}	typ.	1.6 W	Optical output power	P_{opt}	typ.	2.0 W
Beam divergence ($1/e^2$) parallel to pn-junction	Θ_{\parallel}	min.	6 °	Beam divergence ($1/e^2$) parallel to pn-junction	Θ_{\parallel}	min.	6 °
		typ.	10 °			typ.	10 °
		max.	13 °			max.	13 °
Beam divergence ($1/e^2$) perpendicular to pn-junction	Θ_{\perp}	min.	40 °	Beam divergence ($1/e^2$) perpendicular to pn-junction	Θ_{\perp}	min.	40 °
		typ.	48 °			typ.	48 °
		max.	56 °			max.	56 °
Threshold current	I_{th}	typ.	0.1 A	Threshold current	I_{th}	typ.	0.1 A
		max.	0.3 A			max.	0.3 A
Forward voltage ^{3/4)}	V_F	typ.	4.4 V	Forward voltage ^{3/4)}	V_F	typ.	4.6 V
		max.	5.7 V			max.	5.9 V
Total power dissipation	P_{tot}	typ.	2.4 W	Total power dissipation	P_{tot}	typ.	3.5 W
TE polarization	P_{TE}	typ.	100:1	TE polarization	P_{TE}	typ.	100:1
Thermal resistance junction case real	R_{thJC}	typ.	13 K / W	Thermal resistance junction case real	R_{thJC}	typ.	13 K / W
Info: according to OS-PCN-2021-020-A				Info: according to AO-IN-2022-026-I			
Characteristics: values and Info				Characteristics: values and Info			

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

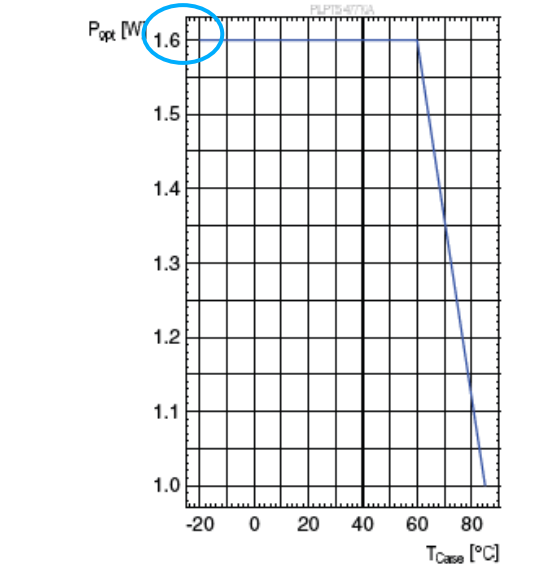
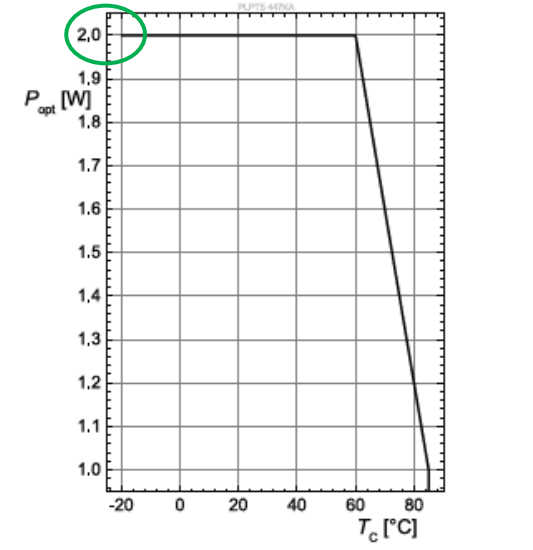
Changes in the datasheets

Current status	New status
<p data-bbox="211 518 575 551">Optical Output Power 5), 6)</p> <p data-bbox="211 562 321 595">$P_{opt} = f(I_F)$</p> 	<p data-bbox="1365 518 1730 551">Optical Output Power 5), 6)</p> <p data-bbox="1365 562 1475 595">$P_{opt} = f(I_F)$</p> 
<p data-bbox="132 1233 851 1272">Diagram curve: range up to 1,7 W on y-axis</p>	<p data-bbox="1289 1233 2007 1272">Diagram curve: range up to 2,1 W on y-axis</p>

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

Changes in the datasheets

Current status	New status
<p data-bbox="180 496 703 529">Max. Permissible Opt. Output Power</p> <p data-bbox="180 539 300 572">$P_{opt} = f(T_c)$</p>  <p>The graph shows the maximum permissible optical output power (P_{opt}) in Watts versus case temperature (T_{Case}) in degrees Celsius. The y-axis ranges from 1.0 to 1.6 W with major ticks every 0.1 W. The x-axis ranges from -20 to 80 degrees Celsius with major ticks every 20 degrees. A blue line represents the power limit, which is constant at 1.6 W from -20 to 60 degrees Celsius and then decreases linearly to approximately 1.0 W at 80 degrees Celsius. A blue circle highlights the 1.6 W mark on the y-axis.</p>	<p data-bbox="1342 491 1865 524">Max. Permissible Opt. Output Power</p> <p data-bbox="1342 534 1462 566">$P_{opt} = f(T_c)$</p>  <p>The graph shows the maximum permissible optical output power (P_{opt}) in Watts versus case temperature (T_c) in degrees Celsius. The y-axis ranges from 1.0 to 2.0 W with major ticks every 0.1 W. The x-axis ranges from -20 to 80 degrees Celsius with major ticks every 20 degrees. A black line represents the power limit, which is constant at 2.0 W from -20 to 60 degrees Celsius and then decreases linearly to approximately 1.0 W at 80 degrees Celsius. A green circle highlights the 2.0 W mark on the y-axis.</p>
<p data-bbox="132 1233 868 1272">Diagram curve: range up to 1,65 W on y-axis</p>	<p data-bbox="1289 1233 2025 1272">Diagram curve: range up to 2,05 W on y-axis</p>

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

Reliability Test Plan

Test item	Test condition	Sample Size	Test duration
High Temperature Operating Life HTOL	$T_{Set} = 25^{\circ}\text{C}^*$; $I_F = 1250\text{mA}$ (@ $P_{opt} = 2\text{W}$)	1 x 10 pcs	1000 h
High Temperature Operating Life HTOL	$T_{Set} = 45^{\circ}\text{C}^*$; $I_F = 1350\text{mA}$ (@ $P_{opt} = 2\text{W}$)	1 x 10 pcs	1000 h

Note: *) T_{Set} is the temperature setting at the equipment temperature control. The case temperature T_{Case} is always higher than the set temperature T_{Set} .

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

List of affected products

Ordering code	Material desc.
Q65113A0154	PLPT5 447KA

AO-IN-2022-026-I

Update of P_{opt} Specification for PLPT5 447KA

Time schedule

Time schedule	
Reliability report	Available
Update of data sheet	Available
Samples availability	Nov. 15th 2022
Intended start of delivery	Nov. 15th 2022

Sensing is life

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