



SPECIFICATION FOR APPROVAL

Customer _____

Product Name LED BLUE FLIP CHIP

Part No. VO-CHIP-B4545F

Customer Part No. _____

Date 2015/11/13

APPROVED SIGNATURES			

VAOPTO
5178 West Patrick Lane
Las Vegas, NV 89118
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www.vaopto.com

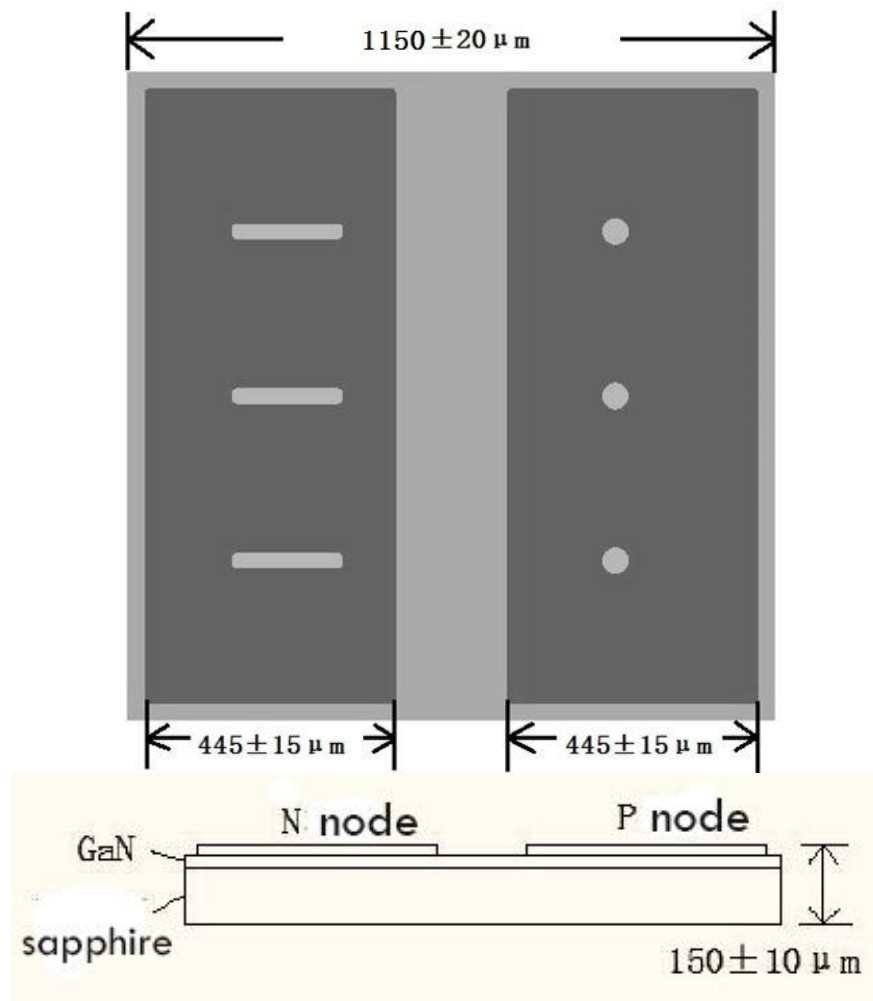
VaOpto is an Energy Star & DLC Partner

Features:

- (1) No wire bonds package
- (2) AuSn Eutectic welding
- (3) High reliability
- (4) Excellent current diffusion character
- (5) Low voltage, high luminous efficiency

Physical Characteristics :

- (1) Size
 - Chip Size: $1150\mu\text{m} \times 1150\mu\text{m}$, $\pm 20\mu\text{m}$
 - Chip Thickness: $150\mu\text{m} \pm 10\mu\text{m}$
 - Negative Electrode Size: $1090\mu\text{m} \times 445\mu\text{m}$, $\pm 15\mu\text{m}$
 - Positive Electrode Size: $1090\mu\text{m} \times 445\mu\text{m}$, $\pm 15\mu\text{m}$
 - Electrode Thickness: $3.5\mu\text{m} \pm 0.3\mu\text{m}$
- (2) Electrode Metal: (AuSn)
- (3) Chip Structure: InGaN MQW
- (4) / Packaging: Blue tape medium tack+ Release paper



SPECIFICATION

Products: LED BLUE FLIP CHIP
Part No.: VO-CHIP-B4545F

Electro-optical characteristics($T_c=22^\circ\text{C}$):

Parameter	Testing condition	Symbol	Min.	Max.	Unit
Reverse Current	$V_r=-5V$	I_r	0	1	μA
Forward Voltage	$I_f=350\text{mA}$	S	2.8	2.9	V
		L	2.9	3.0	
		M	3.0	3.1	
		N	3.1	3.2	
		P	3.2	3.3	
		Q	3.3	3.4	
Wavelength (WLD)	$I_f=350\text{mA}$	W1	445.0	447.5	nm
		W2	447.5	450.0	
		W3	450.0	452.5	
		W4	452.5	455.0	
		W5	455.0	457.5	
		W6	457.5	460.0	
		W7	460.0	462.5	
		W8	462.5	465.0	
Light Output Power	$I_f=350\text{mA}$	PE	400	425	mW
		PF	425	450	
		PG	450	475	
		PH	475	500	
		PJ	500	525	
		PK	525	550	

Absolute Maximum Rating

Parameter	Symbol	Condition	Absolute Maximum	Unit
Forward Current	I_f	$T_c=22^\circ\text{C}$	≤ 1000	mA
Junction Temperature	T_j	----	≤ 130	$^\circ\text{C}$
Storage Temperature	T_{stg}	chip	$-40 \sim +80$	$^\circ\text{C}$
		Chip-on-tape/Storage	$0 \sim 25$	$^\circ\text{C}$
		Chip-on-tape/Transportation	$-20 \sim +65$	$^\circ\text{C}$
Storage Temperature	----	----	$300(<10\text{s})$	$^\circ\text{C}$

Characteristic Curves:

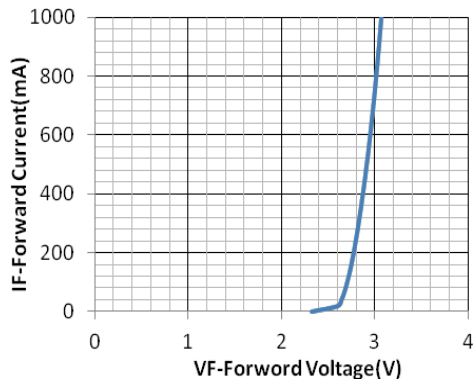


Fig.1-Forward Current vs. Forward Voltage

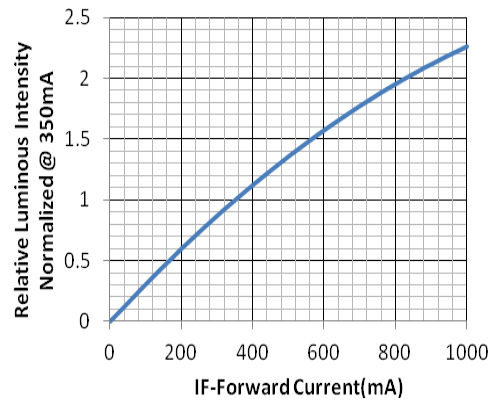


Fig.2-Relative Luminous Intensity vs. Forward Current

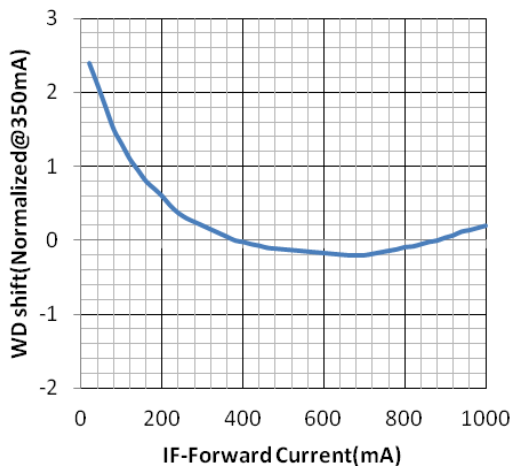


Fig.3-Forward Current vs. WD shift

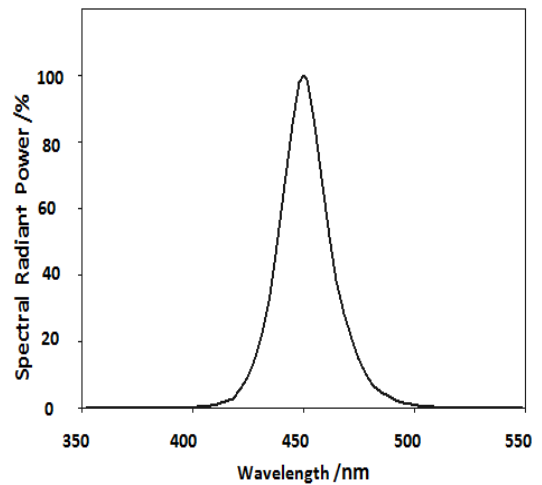


Fig.4- Wavelength vs. Spectral radiant power

Notes:

- (1) Clear epoxy or silicone is recommended for die attachment to optimize light output;
- (2) MIL-STD-1686A; /GaN LEDs are ESD sensitive , please observe appropriate precautions during handing and processing. For further information please refer to MIL-STD-1686A;
- (3) All parameters are measured using VAOPTO's tester on bare chips, mW and WLD values will vary $\pm 10\%$, $\pm 1\text{nm}$ respectively;